

**HIDDEN DAM  
HENSLEY LAKE PROJECT  
FRESNO RIVER, CALIFORNIA**

**WATER CONTROL MANUAL**

**APPENDIX X TO  
MASTER WATER CONTROL MANUAL  
SAN JOAQUIN RIVER BASIN, CALIFORNIA**



**US ARMY CORPS  
OF ENGINEERS**  
Sacramento District

**MARCH 1975  
REVISED OCTOBER 2004**

**[R]**

WATER CONTROL MANUAL

HIDDEN DAM AND HENSLEY LAKE

Fresno River  
California

APPENDIX X  
TO  
MASTER WATER CONTROL MANUAL

San Joaquin River Basin  
California

U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT  
SACRAMENTO, CALIFORNIA

March 1975  
Revised October 2004







### NOTICE TO USERS OF THIS MANUAL

Regulations specify that this Water Control Manual be published loose-leaf form in a hard copy binder, and only those sections, or parts thereof, requiring changes will be revised and printed. Therefore, this copy should be preserved in good condition so that inserts can be added to make the manual current. Changes to individual pages must indicate the date of revision, which is also the Division's approval date. Pages or sections that are changed after the revision is approved and distributed will indicate the new change month/year.

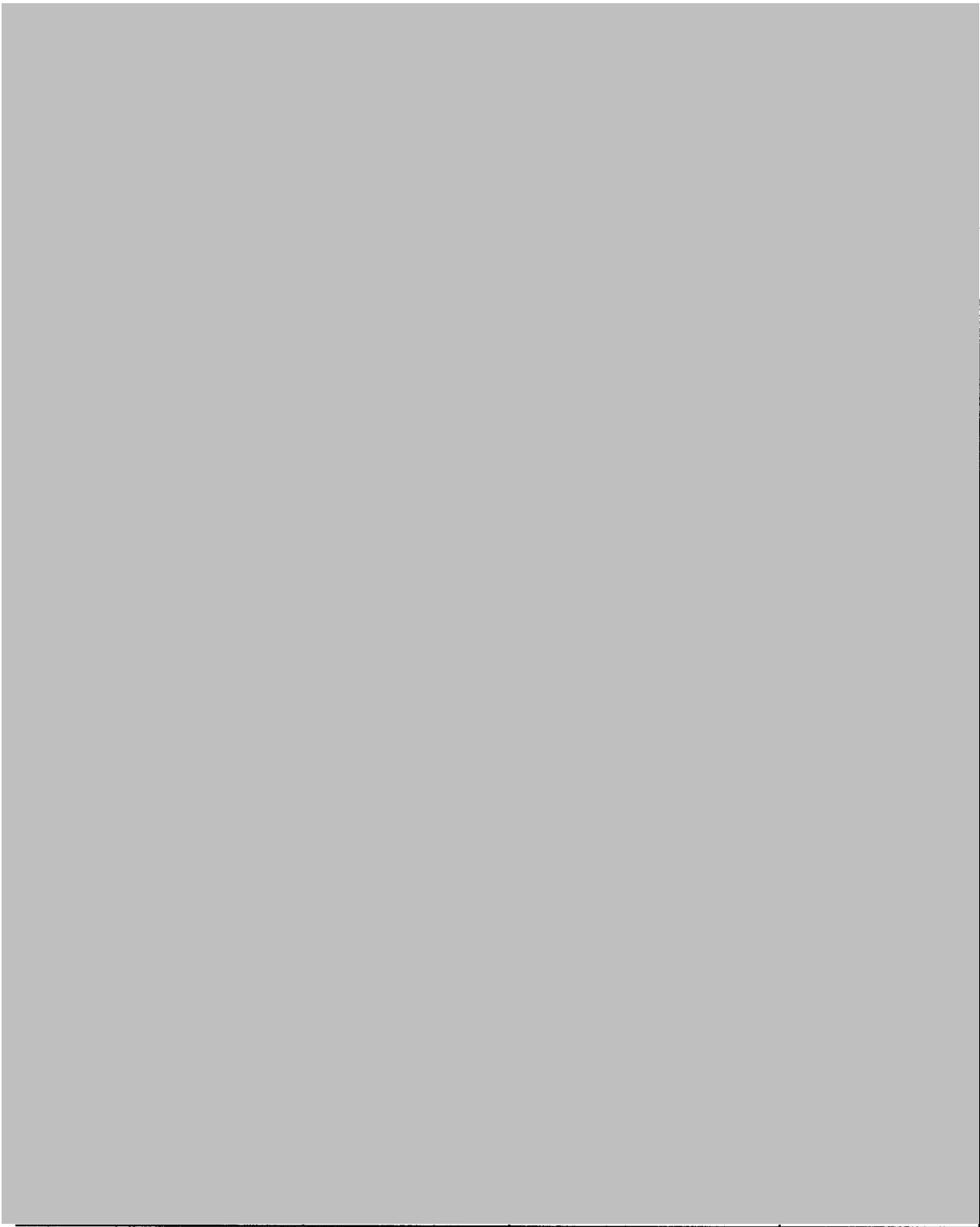
All elevations in this manual are based on the National Geodetic Vertical Datum of 1929 (NGVD29). As directed by EM 1110-1-1004, Engineering and Design – Geodetic and Control Surveying, the datum has been changed to the North American Vertical Datum of 1988 (NAVD88). However, the elevations in this manual do not reflect the NAVD88.

Soft metrics are used throughout the manual for information purposes only. They are not to be used as exact measurements.

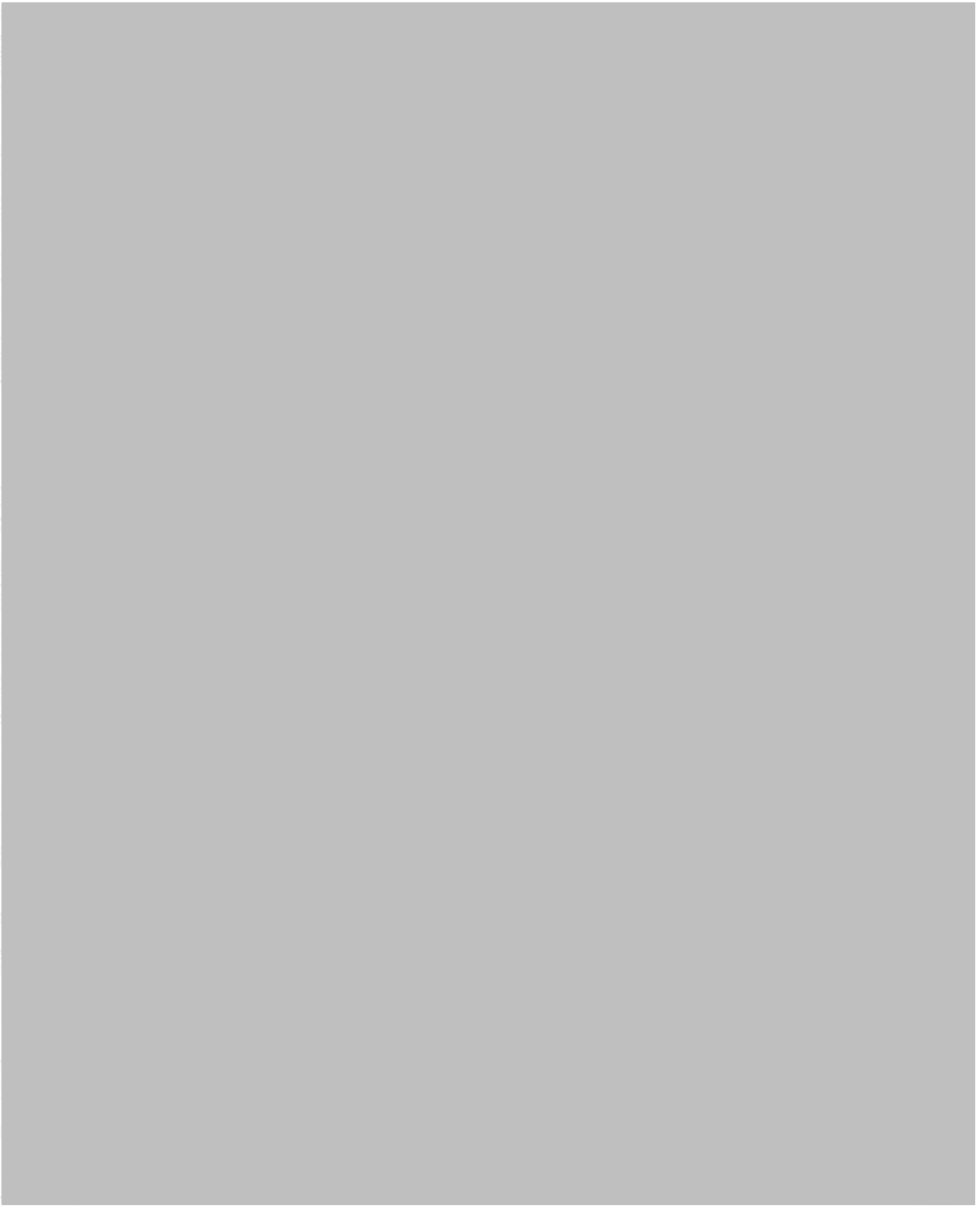
### WATER CONTROL PERSONNEL

In the event that unusual conditions arise during non-duty hours, communication can be achieved by contacting the personnel listed at the front of this manual.

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HIDDEN DAM AND HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

U.S. Army Corps of Engineers  
Sacramento District  
Revised October 2004

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|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Exhibit A      | Standing Instructions to Project Operators for Hidden Dam and Hensley Lake                                                                                                   |
| Exhibit B      | Guidance on the Preparation of Deviations from Approved Water Control Plans                                                                                                  |
| Exhibit C      | Drought Contingency Plan for Hidden Dam and Hensley Lake                                                                                                                     |
| Exhibit D      | Emergency Notification Procedure, Emergency Seismic Action Plan, Contingency Plan and Emergency Response Procedures (CPERP) for Accidental Discharges of Hazardous Materials |

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## Abbreviations and Acronyms

|                        |                                                      |                        |                                                            |
|------------------------|------------------------------------------------------|------------------------|------------------------------------------------------------|
| <b>ac</b>              | acres                                                |                        |                                                            |
| <b>ac-ft</b>           | acre-feet (the volume of an acre one foot deep)      | <b>ER</b>              | Engineering Regulation, U.S. Army Corps of Engineers       |
| <b>API</b>             | Antecedent Precipitation Index                       | <b>ETL</b>             | Engineering Technical Letter, U.S. Army Corps of Engineers |
| <b>C</b>               | Celsius                                              | <b>F</b>               | Fahrenheit                                                 |
| <b>CDEC</b>            | California Data Exchange Center                      | <b>FEMA</b>            | Federal Emergency Management Agency                        |
| <b>CESPD</b>           | U.S. Army Corps of Engineers, South Pacific Division | <b>FERC</b>            | Federal Energy Regulation Commission                       |
| <b>CESPK</b>           | U.S. Army Corps of Engineers, Sacramento District    | <b>ft</b>              | feet                                                       |
| <b>CFR</b>             | Code of Federal Regulations                          | <b>GOES</b>            | Geostationary Operational Environmental Satellite          |
| <b>cfs</b>             | cubic feet per second                                | <b>ha</b>              | hectare                                                    |
| <b>cm</b>              | centimeter                                           | <b>hm</b>              | hectometer                                                 |
| <b>Corps</b>           | Corps of Engineers                                   | <b>hm<sup>2</sup></b>  | square hectometer                                          |
| <b>cu-yd</b>           | cubic yards                                          | <b>hm<sup>3</sup></b>  | cubic hectometer                                           |
| <b>dam<sup>3</sup></b> | cubic dekameter                                      | <b>in</b>              | inches                                                     |
| <b>DCP</b>             | Data Collection Platforms                            | <b>km</b>              | kilometer                                                  |
| <b>DETS</b>            | Directorate of Engineering and Technical Services    | <b>km<sup>2</sup></b>  | square kilometer                                           |
| <b>dm</b>              | decimeter                                            | <b>kv</b>              | kilovolts                                                  |
| <b>DWR</b>             | California Department of Water Resources             | <b>kVA</b>             | kilovolt-Ampere                                            |
| <b>EA</b>              | environmental assessment                             | <b>kW</b>              | kilowatt                                                   |
| <b>EIP</b>             | Environmental Inventory Paper                        | <b>kWh</b>             | kilowatt hours                                             |
| <b>EIS</b>             | Environmental Impact Statement                       | <b>m</b>               | meter                                                      |
| <b>elev</b>            | elevation                                            | <b>m<sup>2</sup></b>   | square meter                                               |
| <b>EM</b>              | Engineering Manual, U.S. Army Corps of Engineers     | <b>m<sup>3</sup></b>   | cubic meter                                                |
| <b>EOC</b>             | Emergency Operations Center                          | <b>m<sup>3</sup>/s</b> | cubic meters per second                                    |
| <b>ERB</b>             | Environmental Review Board                           | <b>mgd</b>             | million gallons per day                                    |
| <b>ESA</b>             | Endangered Species Act                               | <b>mi</b>              | mile                                                       |
| <b>ESRD</b>            | Emergency Spillway Release                           | <b>mi<sup>2</sup></b>  | square mile                                                |
|                        |                                                      | <b>MOA</b>             | Memorandum of Agreement                                    |
|                        |                                                      | <b>MOU</b>             | Memorandum of Understanding                                |
|                        |                                                      | <b>MSL</b>             | Mean Sea Level                                             |
|                        |                                                      | <b>MW</b>              | Megawatts                                                  |

|               |                                                            |                                                    |                                                         |
|---------------|------------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------|
| <b>NAP</b>    | Normal Annual Precipitation                                | <b>SDF</b>                                         | Spillway Design Flood                                   |
|               |                                                            | <b>SOP</b>                                         | Standard Operation<br>Procedure (or standard<br>format) |
| <b>NAVD</b>   | North American Vertical<br>Datum                           | <b>SPF</b>                                         | Standard Project Flood                                  |
| <b>NEPA</b>   | National Environmental<br>Policy Act                       | <b>SRI</b>                                         | Sacramento River Index                                  |
| <b>NEXRAD</b> | The Next Generation<br>Weather Radar System                | <b>TDS</b>                                         | Total Dissolved Solids                                  |
|               |                                                            | <b>USACE</b>                                       | United States Army Corps of<br>Engineers                |
| <b>NGVD</b>   | National Geodetic<br>Vertical Datum                        | <b>USBR</b>                                        | United States Bureau of<br>Reclamation                  |
| <b>NOAA</b>   | National Oceanographic<br>Atmospheric Administration       | <b>USGS</b>                                        | United States Geological<br>Survey                      |
| <b>NRCS</b>   | Natural Resources<br>Conservation Service                  | <b>WATMAN</b>                                      | Water Management                                        |
| <b>NWS</b>    | National Weather Service (an<br>organization of NOAA)      | <b>WCD</b>                                         | Water Control Diagram                                   |
| <b>PAO</b>    | Public Affairs Officer                                     | <b>WCM</b>                                         | Water Control Manual                                    |
| <b>PC</b>     | Personal Computer                                          | <b>WCDS</b>                                        | Water Control Data System                               |
| <b>pf</b>     | power factor                                               | <b>yr</b>                                          | year                                                    |
| <b>PL</b>     | Public Law                                                 | <b><u>Abbreviations Special to this Manual</u></b> |                                                         |
| <b>PMF</b>    | Probable Maximum Flood                                     | <b>CDF</b>                                         | California Department of<br>Forestry                    |
| <b>PMP</b>    | Probable Maximum<br>Precipitation                          | <b>HADA</b>                                        | Hydrologic Automatic Data<br>Acquisition                |
| <b>PMS</b>    | Probable Maximum Storm                                     | <b>HIDPC</b>                                       | Hidden Dam Project Office PC                            |
| <b>PPM</b>    | parts per million                                          | <b>ITC</b>                                         | Interdisciplinary Technical<br>Committee                |
| <b>PRV</b>    | Pressure Regulator Valve                                   | <b>LSJLD</b>                                       | Lower San Joaquin Levee<br>District                     |
| <b>QPF</b>    | Quantitative Precipitation<br>Forecast                     | <b>MCL</b>                                         | Maximum Contamination Level                             |
| <b>RDF</b>    | Reservoir Design Flood                                     | <b>MID</b>                                         | Madera Irrigation District                              |
| <b>RFC</b>    | Joint Federal-California State<br>River Forecast Center    | <b>RTU</b>                                         | Remote Telemetry Unit                                   |
| <b>RKM</b>    | River Kilometer                                            | <b>SHEF</b>                                        | Standard Hydrometeorologic<br>Exchange Format           |
| <b>RPM</b>    | Revolutions Per Minute                                     | <b>SWRCB</b>                                       | State Water Resources Control<br>Board                  |
| <b>RM</b>     | River Mile (Pacific<br>Southwest Interagency<br>Committee) | <b>UPS</b>                                         | Uninterruptible Power Supply                            |
| <b>SDAT</b>   | California State Drought<br>Action Team                    |                                                    |                                                         |

| CONVERSION CONSTANTS        |              |                                 |
|-----------------------------|--------------|---------------------------------|
| LENGTH AND HEIGHT           |              |                                 |
| TO CONVERT<br>ENGLISH UNITS | MULTIPLY BY  | TO OBTAIN<br>METRIC             |
| in                          | 2.54         | cm                              |
| ft                          | 0.3048       | m                               |
| mi                          | 1.609        | km                              |
| AREA                        |              |                                 |
| ft <sup>2</sup>             | 0.0929       | m <sup>2</sup>                  |
| ac                          | 4047         | m <sup>2</sup>                  |
| ac                          | 0.4047       | ha                              |
| mi <sup>2</sup>             | 2.590        | km <sup>2</sup>                 |
| VOLUME                      |              |                                 |
| ft <sup>3</sup>             | 0.02832      | m <sup>3</sup>                  |
| mgd                         | 0.04381      | m <sup>3</sup> /day             |
| ac-ft                       | 0.001233     | hm <sup>3</sup>                 |
| ac-ft                       | 1233         | m <sup>3</sup>                  |
| MISCELLANEOUS               |              |                                 |
| Slope in ft/mi              | 0.1894       | m/km                            |
| ac-ft/mi <sup>2</sup>       | 476.1        | m <sup>3</sup> /km <sup>2</sup> |
| Temperature                 | (F - 32) 5/9 | Celsius                         |

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## **USACE Sacramento District Datum Documentation Report**

**Project:** Hidden Dam, Hensley Lake

**NGVD 29To NAVD 88 Datum Conversion Factor:** add 2.72 ft.

**Datum Conversion Procedure:** The USACE Mapping Unit and A-E Contractor performed field measurements with known historical elevations. All documentation and raw data is filed with the USACE Sacramento District Mapping Unit. All survey and gage control is in US feet and is tied to NGS monument PID: BBDN40. For questions or comments contact the Sacramento District Datum Coordinator. The results of this survey produced an averaged difference between NGVD 29 and NAVD 88 of 2.72 feet for the USACE Hidden Dam, Hensley Lake civil works project.

| Station ID                                | COE-NGVD29 record | NAVD 88 | Difference      |
|-------------------------------------------|-------------------|---------|-----------------|
| SJ7-5 SACTO (PID: BBDN40)                 | 575.71            | 578.43  | 2.72            |
| Life                                      | 564.47            | 567.19  | 2.72            |
| Hidden Base                               | 438.013           | 440.74  | 2.73            |
|                                           |                   |         | Average = 2.723 |
|                                           |                   |         | 2.72            |
| Averaged Delta = 2.72ft conversion factor |                   |         |                 |

Accuracy Statement: The NAVD88 datum conversion accuracy is:  $\pm 0.25$  feet to real work NAVD 88 elevations per EC- 1110-2-6065 Comprehensive Evaluation of Project Datums. The stated conversion factor is for planning, operations, water management and legacy conversion only. All future design work and survey work shall adhere to the NAVD 88 datum and follow EM 1110-1-1005 Control and Topographic Surveying. Contact the USACE Sacramento District's survey unit or the district's datum coordinator for current survey control.

# HIDDEN DAM - HENSLEY LAKE (FRESNO RIVER)

## PERTINENT DATA

(IP Units)

### GENERAL

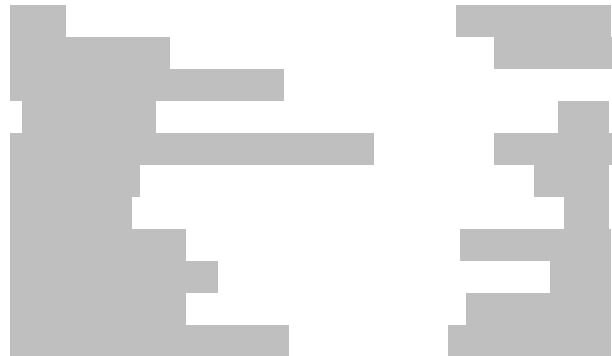
|                                                     |                     |
|-----------------------------------------------------|---------------------|
| State                                               | California          |
| County                                              | Madera              |
| Latitude                                            | 37° 06' 34" N       |
| Longitude                                           | 119° 53' 00" W      |
| Drainage areas                                      |                     |
| Fresno River near Knowles                           | 133 mi <sup>2</sup> |
| Fresno River at Hidden Dam                          | 236 mi <sup>2</sup> |
| Fresno River below Hidden Dam,<br>near Daulton gage | 237 mi <sup>2</sup> |
| Fresno River at East Side Bypass<br>(approx.)       | 480 mi <sup>2</sup> |
| Flows at Hidden Dam                                 |                     |
| Maximum, annual runoff (1983)                       | 355,403 ac-ft       |
| Minimum, annual runoff (1977)                       | 5,800 ac-ft         |
| Average, annual runoff (1912-2004)                  | 81,604 ac-ft        |
| Maximum, peak flow (10 Mar 1995)                    | 21,517 cfs          |
| Maximum, 1-day flow (23 Dec 1955)                   | 10,400 cfs          |
| Minimum, 1-day flow (occasionally)                  | 0 cfs               |
| Average, 1-day flow (1912-2004)                     | 110 cfs             |
| Spillway design flood peak inflow (1973)            | 114,000 cfs         |
| Spillway design flood peak outflow (1973)           | 106,400 cfs         |
| Probable maximum flood inflow (1982)                | 111,000 cfs         |
| Probable maximum flood outflow (1982)               | 101,500 cfs         |
| Reservoir design flood peak inflow                  | 40,600 cfs          |
| Reservoir design flood peak outflow                 | 4,000 cfs           |
| Standard project flood peak inflow                  | 48,900 cfs          |
| Standard project flood peak outflow                 | 20,400 cfs          |

### Spillway

|                                     |             |
|-------------------------------------|-------------|
| Head at gross pool                  | 0 ft        |
| Head at standard project flood      | 6.1 ft      |
| Head at spillway design flood       | 16.2 ft     |
| Discharge capacity (at H = 16.2 ft) | 106,400 cfs |
| Design flood pool                   | 556.2 ft    |

### HIDDEN DAM AND HENSLEY LAKE

#### Main Dam



#### Lake

### Elevation

|                             |              |
|-----------------------------|--------------|
| Inactive pool               | 448.0 ft MSL |
| Flood control pool (bottom) | 486.0 ft MSL |
| Gross Pool                  | 540.0 ft MSL |
| Spillway design flood pool  | 556.2 ft MSL |
| Probable maximum flood pool | 555.4 ft MSL |

### Area

|                             |          |
|-----------------------------|----------|
| Inactive pool               | 280 ac   |
| Flood control pool (bottom) | 810 ac   |
| Gross Pool                  | 1,570 ac |
| Spillway design flood pool  | 1,790 ac |
| Probable maximum flood pool | 1,783 ac |

### Storage capacity

|                             |               |
|-----------------------------|---------------|
| Inactive pool               | 5,000 ac-ft*  |
| Flood control pool (bottom) | 25,000 ac-ft* |
| Gross Pool                  | 90,000 ac-ft* |

### DIKES AND SPILLWAY



|                             |                |
|-----------------------------|----------------|
| Spillway design flood pool  | 117,500 ac-ft* |
| Probable maximum flood pool | 116,600 ac-ft* |

OUTLET WORKS



|                                         |           |
|-----------------------------------------|-----------|
| Capacity of outlets                     |           |
| At elevation 448 ft MSL (2 gates)       | 3,750 cfs |
| At elevation 448 ft MSL (low-flow gate) | 37 cfs    |
| (out of service)                        |           |
| At elevation 486 ft MSL (2 gates)       | 5,100 cfs |
| At elevation 486 ft MSL (low-flow gate) | 51 cfs    |
| (out of service)                        |           |
| At elevation 540 ft MSL (2 gates)       | 6,500 cfs |

DOWNSTREAM CHANNEL IMPROVEMENTS

Channel



Flow capacity  
Project design flood

5,000 cfs

Levees



RUNOFF

1 inch precipitation runoff = 12,579 ac-ft

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\* Storage capacity information (shown in ac-ft or hm<sup>3</sup>) will be adjusted as information about sediment deposition in the lake becomes available. Between sediment surveys, it will be assumed that the sediment deposition in the project space will be 5,300 acre-feet (6.5 hm<sup>3</sup>) over a 100-year period, or 53 acre-feet (0.1 hm<sup>3</sup>) per year.

# HIDDEN DAM - HENSLEY LAKE (FRESNO RIVER)

## PERTINENT DATA

(SI Units)

### GENERAL

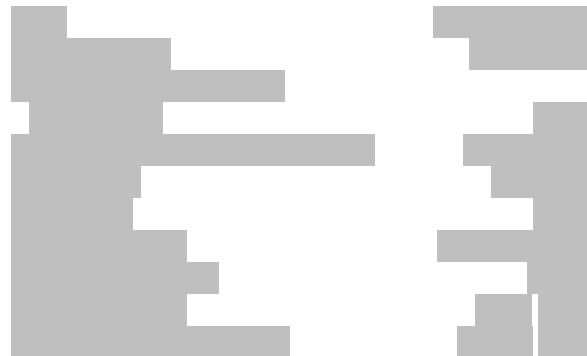
|                                                     |                           |
|-----------------------------------------------------|---------------------------|
| State                                               | California                |
| County                                              | Madera                    |
| Latitude                                            | 37° 06' 34" N             |
| Longitude                                           | 119° 53' 00" W            |
| Drainage Areas                                      |                           |
| Fresno River near Knowles                           | 345 km <sup>2</sup>       |
| Fresno River at Hidden Dam                          | 611 km <sup>2</sup>       |
| Fresno River below Hidden Dam,<br>near Daulton gage | 614 km <sup>2</sup>       |
| Fresno River at East Side Bypass<br>(approx)        | 1,243 km <sup>2</sup>     |
| Flows at Hidden Dam                                 |                           |
| Maximum, annual runoff (1983)                       | 438.2 hm <sup>3</sup>     |
| Minimum, annual runoff (1977)                       | 7.2 hm <sup>3</sup>       |
| Average, annual runoff (1912-2004)                  | 100.6 hm <sup>3</sup>     |
| Maximum, peak flow (10 Mar 1995)                    | 609.4 m <sup>3</sup> /s   |
| Maximum, 1-day flow (23 Dec 1995)                   | 294.5 m <sup>3</sup> /s   |
| Minimum, 1-day flow (occasionally)                  | 0 m <sup>3</sup> /s       |
| Average, 1-day flow (1912-2004)                     | 3.1 m <sup>3</sup> /s     |
| Reservoir design flood peak inflow                  | 1,149.8 m <sup>3</sup> /s |
| Reservoir design flood peak outflow                 | 113.3 m <sup>3</sup> /s   |
| Standard project flood peak inflow                  | 1,384.8 m <sup>3</sup> /s |
| Standard project flood peak outflow                 | 577.7 m <sup>3</sup> /s   |
| Spillway design flood peak inflow                   | 3,228.5 m <sup>3</sup> /s |
| Spillway design flood peak outflow                  | 3,013.2 m <sup>3</sup> /s |

### Spillway

|                                   |                           |
|-----------------------------------|---------------------------|
| Head at gross pool                | 0 m                       |
| Head at standard project flood    | 1.9 m                     |
| Head at spillway design flood     | 4.9 m                     |
| Discharge capacity (at H = 4.9 m) | 3,013.2 m <sup>3</sup> /s |

### HIDDEN DAM AND HENSLEY LAKE

#### Main Dam



#### Lake

|                             |                         |
|-----------------------------|-------------------------|
| Elevation                   |                         |
| Inactive pool               | 136.6 m MSL             |
| Flood control pool (bottom) | 148.1 m MSL             |
| Gross pool                  | 164.6 m MSL             |
| Spillway design flood pool  | 169.5 m MSL             |
| Probable maximum flood pool | 169.3 m MSL             |
| Area                        |                         |
| Inactive pool               | 113.3 ha                |
| Flood control pool (bottom) | 327.8 ha                |
| Gross Pool                  | 635.4 ha                |
| Spillway design flood pool  | 724.4 ha                |
| Probable maximum flood pool | 721.6 ha                |
| Storage capacity            |                         |
| Inactive pool               | 6.2 hm <sup>3</sup> *   |
| Flood control pool (bottom) | 30.8 hm <sup>3</sup> *  |
| Gross Pool                  | 111.0 hm <sup>3</sup> * |
| Spillway design flood pool  | 144.9 hm <sup>3</sup> * |
| Probable maximum flood pool | 143.8 hm <sup>3</sup> * |

### DIKES AND SPILLWAY



### OUTLET WORKS



### DOWNSTREAM CHANNEL IMPROVEMENTS

Channel



Flow capacity  
Project design flood

141.6 m<sup>3</sup>/s

Levees



### RUNOFF

2.5 cm precipitation runoff =

15.5 hm<sup>3</sup>

\* Storage capacity information (shown in ac-ft or hm<sup>3</sup>) will be adjusted as information about sediment deposition in the lake becomes available. Between sediment surveys, it will be assumed that the sediment deposition in the project space will be 5,300 acre-feet (6.5 hm<sup>3</sup>) over a 100-year period, or 53 acre-feet (0.1 hm<sup>3</sup>) per year.

## I - INTRODUCTION

1-01. Authorization. This Water Control Manual is for the Hidden Dam-Hensley Lake Project, located on the Fresno River in California. This is Appendix X to the San Joaquin River Basin Master Water Control Manual. It is prepared in accordance with instructions contained in:

|                  |                                                                                                      |                   |
|------------------|------------------------------------------------------------------------------------------------------|-------------------|
| EM 1110-1-1004   | Engineering and Design – Geodetic and Control Surveying                                              | 01 June 2002      |
| ER 1110-2-8156   | Preparation of Water Control Manuals                                                                 | 31 August 1995    |
| ER 1110-2-240    | Water Control Management                                                                             | 8 October 1982    |
| EM 1110-2-3600   | Management of Water Control Systems                                                                  | 30 November 1987  |
| ETL 1110-2-335   | Development of Drought Contingency Plans (1944 Flood Control Act)                                    | 1 April 1993      |
| CESPD R 1110-2-8 | Engineering and Design – Guidance on the Preparation of Deviations from Approved Water Control Plans | 12 September 2002 |

All instructions pertain to requirements for reports on reservoir regulation.

1-02. Purpose and Scope. This manual contains descriptive information, a detailed plan for water control management, and a Water Control Diagram for the Hidden Dam-Hensley Lake Project. It also assigns responsibilities for the water control operation of the project, and describes the authorized improvements to the downstream channels upon which the project plan for flood control operation is based. A description of the overall San Joaquin River Basin plan of flood control is given in the “Master Manual of Reservoir Regulations, San Joaquin River Basin, California.”

1-03. Related Manuals and Reports. This manual replaces the Reservoir Regulation Manual for Hidden Dam and Lake, Fresno River (a tributary to the San Joaquin River), California, dated March 1975 and is Appendix X to the San Joaquin River Basin Master Water Control Manual. It is prepared in accordance with instructions contained in ER 1110-2-240 and EM 1110-2-3600. Other related manuals and reports are as follows:

| <u>Related Manuals</u>                                          | <u>Date</u>    |
|-----------------------------------------------------------------|----------------|
| Master Water Control Manual San Joaquin River Basin, California | July 1954      |
| Appendix I - (reserved for Cosumnes River)                      |                |
| Appendix II - Camanche Dam and Reservoir                        | September 1981 |
| Appendix III - New Hogan Dam and Lake                           | June 1983      |

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|                                                           |                                       |                |
|-----------------------------------------------------------|---------------------------------------|----------------|
| Appendix IV                                               | - Farmington Reservoir                | December 2004  |
| Appendix V                                                | - New Melones Dam and Lake            | January 1980   |
| Appendix VI                                               | - Don Pedro Dam and Lake              | August 1972    |
| Appendix VII                                              | - New Exchequer Dam and Reservoir     | October 1981   |
| Appendix VIII                                             | - Merced County Stream Group Project  | September 1959 |
| Appendix IX                                               | - Buchanan Dam-H.V. Eastman Lake      | June 1975      |
| Appendix XI                                               | - Friant Dam and Millerton Lake       | August 1980    |
| Appendix XII                                              | - Redbank and Francher Creeks Project | May 1994       |
| Appendix XIII                                             | - Los Banos Detention Reservoir       | October 1970   |
| Operation and Maintenance Manual, Hidden Dam-Hensley Lake |                                       | January 1978   |

| <u>Related Reports</u>                                                                                                                |                                                 | <u>Date</u>    |
|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|----------------|
| DM 1                                                                                                                                  | - Hydrology                                     | June 1964      |
| DM 2                                                                                                                                  | - Water Quality Control Report                  | December 1964  |
| DM 3A                                                                                                                                 | - Preliminary Master Plan                       | May 1965       |
| DM 4                                                                                                                                  | - General Design Memorandum                     | July 1965      |
|                                                                                                                                       | Supplement #1                                   | May 1972       |
| DM 5                                                                                                                                  | - Site Geology                                  | December 1965  |
|                                                                                                                                       | Supplement #1                                   | August 1966    |
|                                                                                                                                       | Supplement #2                                   | August 1967    |
|                                                                                                                                       |                                                 |                |
| DM 7                                                                                                                                  | - Relocations                                   | August 1965    |
| DM 8                                                                                                                                  | - Administrative Buildings and Observation Area | September 1965 |
|                                                                                                                                       | Supplement #1                                   | January 1966   |
|                                                                                                                                       | Supplement #2                                   | June 1972      |
| DM 9                                                                                                                                  | - Reservoir Clearing                            | November 1965  |
| DM 10A                                                                                                                                | - Downstream Index Station                      | November 1974  |
|                                                                                                                                       |                                                 |                |
|                                                                                                                                       |                                                 |                |
|                                                                                                                                       |                                                 |                |
| DM 15                                                                                                                                 | - Master Plan and Initial Recreation Facilities | January 1968   |
|                                                                                                                                       |                                                 |                |
| Review of Spillway Adequacy                                                                                                           |                                                 | April 1982     |
| Geologic and Seismologic Investigation, Hidden and Buchanan Dams, Hensley and Eastman Lakes, Fresno and Chowchilla Rivers, California |                                                 | December 1988  |
| Sacramento and San Joaquin River Basins Comprehensive Study                                                                           |                                                 | December 2002  |

1-04. Project Owner. The Hidden Dam-Hensley Lake Project is owned by the U.S. Government and represented by the U.S. Army Corps of Engineers, Sacramento District.

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1-05. Operating Agency. The U.S. Army Corps of Engineers, Sacramento District, operates the Hidden Dam-Hensley Lake Project. The Park Manager has the administrative responsibilities for Hensley Lake. [REDACTED]

Operational responsibilities are explained in detail in Exhibit A. Business and home phone numbers of the individuals responsible for project operation are available at the front of this manual and in Exhibit A. The Park Manager or a designated Project Operator releases outflows specified by the regulating agencies. [REDACTED]

1-06. Regulating Agencies. The U.S. Army Corps of Engineers, Sacramento District, regulates the Hidden Dam-Hensley Lake Project. The Water Control Plan for Hensley Lake was developed by the U.S. Army Corps of Engineers, Sacramento District, with the objective of obtaining the greatest possible benefits from flood control, irrigation, and recreation. The Madera Irrigation District (MID) directs releases for purposes other than flood control. For more detailed information on MID operational responsibilities, refer to Exhibit A. The personnel responsible for project operation are listed at the front of this manual and in Exhibit A.

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## II - DESCRIPTION OF PROJECT

2-01. Location. The Hidden Dam-Hensley Lake Project is located in the southern half of the Central Valley in Madera County, California. The project is on the Fresno River, approximately 48 river miles (77.2 RKM) from its confluence with the San Joaquin River, via the Eastside Bypass. The city of Madera, approximately 15 miles (24.1 km) southwest, is the largest nearby community. The location of the project is shown on Plate 2-1, the General Map. The geographic coordinates of the structure are:



2-02. Purpose. The Fresno River valley floor area, located downstream from Madera Canal, has been subject to periodic flooding caused by winter rainfloods, which are damaging both to the urban areas of the city of Madera and to the highly developed agricultural lands of the basin. Conversely, during the irrigation season, the same Fresno River Basin areas suffered almost annually from severe shortages of irrigation water, even though local supplies are usually augmented by irrigation water imported via the USBR Madera Canal.

The Fresno River Channels were inadequate, specifically in the lower reaches, to safely convey the comparatively high Fresno River flows originating within the Fresno River Basin during winter rainfloods. Flood flows in excess of 5,000 cfs (141.6 m<sup>3</sup>/s), which caused agricultural damage, were found to occur as a 25% chance event. Now, with regulation, flood flows in excess of 5,000 cfs (141.6 m<sup>3</sup>/s) are expected to be a 1% chance event. Flood flows in excess of 16,000 cfs (453.1 m<sup>3</sup>/s), which were also damaging to the city of Madera and its surrounding suburban areas, were found to occur as a 5% chance event. With regulation, flood flows in excess of 16,000 cfs (453.1 m<sup>3</sup>/s) are now expected to be a 0.5% chance event.

Hydrologic studies and investigations conducted by the U.S. Army Corps of Engineers and other agencies resulted in the authorization and formulation of the plan for flood control and water utilization aimed at solving the major water resource and flood control problems that existed in the Fresno River Basin.

The Hidden Dam-Hensley Lake Project was authorized for the purposes of flood control, irrigation, and recreation. In addition, general Congressional acts have authorized fish and wildlife purposes. The following Congressional acts apply to Hidden Dam-Hensley Lake:

- a. PL 85-624 Fish and Wildlife Coordination Act of 1958
- b. PL 93-205 Endangered Species Act of 1973 (endangered or threatened fish/wildlife)
- c. PL 92-500 Federal Water Pollution Control Act Amendments of 1972 (water quality)

- d. PL 102-240 Clean Air Act of 1990
- e. PL 91-190 National Environmental Policy Act of 1969 (environmental protection)
- f. PL 89-665 National Historic Preservation Act of 1966 (historical and archaeological data preservation)
- g. PL 87-874 Flood Control Act of 1962

## 2-03. Physical Components.

A General site plan is shown on Plate 2-2. All elevations in this manual are based on the National Geodetic Vertical Datum of 1929 (NGVD29). As directed by EM 1110-1-1004, the datum has been changed to the North American Vertical Datum of 1988 (NAVD88). The elevations in this manual do not reflect the NAVD88.

a. Reservoir. Hensley Lake is three miles long (4.8 km) and has a shoreline of approximately 20 miles (32.2 km). At gross pool, elevation 540 feet MSL (164.6 m MSL), the reservoir water surface area is 1,570 acres (6.4 km<sup>2</sup>) and the depth is about 140 feet (42.7 m). Lake capacity at gross pool is 90,000 acre-feet (111.0 hm<sup>3</sup>), of which a maximum of 65,000 acre-feet (80.1 hm<sup>3</sup>) is allocated during flood season for flood control storage. The impact of sedimentation in Hensley Lake is discussed in detail in Section 4-04, and is projected to be 5,300 acre-feet (6.5 hm<sup>3</sup>) over 100-years, or 53 acre-feet (0.1 hm<sup>3</sup>) per year. There has not been a soil survey since the Hidden Dam-Hensley Lake project was completed, so all storage capacities discussed within this Water Control Manual are based on original storage capacity data. Hensley Lake is shown on Plate 2-2 and Photo 2-1. The Area Capacity Curves are shown on Plate A-1 and the Area Capacity Table on Plate A-2.

### b. Embankment.

Plan, Profile and Sections of Hidden Dam are shown on Plate 2-3 and Plate 2-4.

The location of the dikes

can be seen on Plate 2-2 and Dikes C and D are shown on Photo 2-4.

d. Outlet Works.

The service gates have a total flow capacity of 3,750 cfs (106.2 m<sup>3</sup>/s) at an inactive pool elevation of 448 feet (136.6 m). The flow capacity is 5,100 cfs (144.4 m<sup>3</sup>/s) at the bottom of the flood control pool elevation of 486 feet (148.1 m). The minimum irrigation release is 100 cfs (2.8 m<sup>3</sup>/s) using a single gate with an opening of 0.55 feet (0.2 m) at an inactive pool elevation of 448 feet (136.6 m). The general plan, profile and sections for the outlet works are shown on Plate 2-5. The Outlet Rating Curves are found on Plate A-5 Sheets 1-3, and the Outlet Rating Curve Tables on Plate A-6.

. This gate could be used whenever very small releases were required in order to prevent possible cavitation, which might result from the use of the comparatively large service gates for low flow releases. Specifically, the low flow gate would be operated when the service gate flow releases required a gate opening of less than 0.20 feet (0.1 m). The previous Water Control Manual included a rating curve for the 10" x 12" (25.4 x 30.5 cm) low-flow gate. This gate has been sealed and is no longer operable. The rating curve is included as Plate A-5 Sheet 3 and tabulated on Plate A-6 for historic purposes.

e. Spillway.

In 1982 a new Probable Maximum Flood was computed based on the updated Probable Maximum Precipitation (PMP) values determined by the revised 1969 HMR 36. This flood would have a maximum spillway discharge of 101,500 cfs (2,874.5 m<sup>3</sup>/s). See Section 8-02b for a further discussion. Plan, Profile, and Sections of the spillway are shown on Plate 2-6. The spillway entrance is shown on Photo 2-6. The Spillway Rating Curve for Hidden Dam is presented in Exhibit A, Plate A-7; the Spillway Rating Table follows as Plate A-8.

2-04. Related Control Facilities

a. Channel Improvements. Below Madera, the channel dimensions decrease progressively as river flows are decreased by percolation and dispersion. Safe channel capacities for the Fresno River system, before the authorized channel improvements were completed, were

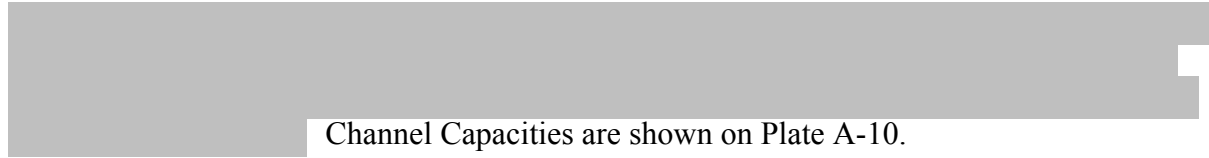
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estimated in 1959 by the U.S. Geological Survey as:

|                                   |            |
|-----------------------------------|------------|
| Hidden Dam Site to AT&SF Railroad | 10,000 cfs |
| AT&SF Railroad to SP Railroad     | 8,000 cfs  |
| SP Railroad to Road 22 extension  | 5,000 cfs  |

When the Project Document plan was developed, reliance was placed on the ability of the channels and contiguous levees to contain floodwaters, as evidenced by historical flow records. However, questions arose regarding the questionable capacities of the channels, particularly in reaches where local sand levees did not meet the Corps of Engineers' standards for the project levees. It was concluded that the channel capacities listed above would be available in the future, so they were incorporated in the pre-construction agreement with local interests, and are contained in Design Memorandum No. 16, "Channel Improvements and Levee Construction," dated March 1970. The resulting channel improvements did not increase channel capacity, but were required in order to maintain the above-listed capacities.

The downstream channel improvements, shown on Plate 2-7, were done to allow the Fresno River to provide for the project design flow of 5,000 cfs (141.6 m<sup>3</sup>/s). The plan of improvement included: (1) the construction of a new trapezoidal channel with levees on both banks, parallel to the right bank of the Chowchilla Canal Bypass, from the junction of the Fresno River and the Chowchilla Canal to a point about ½ mile south of the Fresno River; (2) construction of a new realigned channel and levees about ½ mile south and parallel to the Fresno River upstream to Road 16; (3) channel enlargement and levee construction on the Fresno River bypass channel from Road 16 upstream to where the bypass channel bifurcates with the Fresno River at about Road 17, and (4) channel enlargement and levee construction along the Fresno River from Road 17 to about Road 18½ upstream to about Road 22. A diversion weir and outlet culverts were constructed just upstream from Road 16 for the purpose of diverting flows to satisfy riparian water rights of landowners on the right bank (Photo 2-7). Also included was the construction of patrol roads on the project levee crowns, bank protection at existing channel cut-offs and slough crossings, and construction of gravity drainage structures necessitated by the new levees.



Channel Capacities are shown on Plate A-10.

b. Madera Lake and Madera Equalization Reservoir. Madera Lake and Madera Equalization Reservoir are located downstream from Hidden Dam (shown on Plate 2-1 and Photo 2-8 and 2-9, respectively). Madera Lake has a capacity of 4,700 acre-feet (5.8 hm<sup>3</sup>), with a drainage area of 2.6 square miles (6.7 km<sup>2</sup>). The lake is located on a small foothill creek, which releases water into the Fresno River about 4 miles (6.4 km) upstream from the city of Madera. It was built by the California Department of Fish and Game as a recreation lake, and is

currently operated and maintained by the Madera Irrigation District. Additional water is supplied to the lake during rain flood periods, via diversion, from the Fresno River.

The Madera Equalization Reservoir, with a capacity of 2,300 acre-feet ( $2.8 \text{ hm}^3$ ) and a drainage area of 9.4 square miles ( $24.3 \text{ km}^2$ ), was built by the U.S. Bureau of Reclamation as a forebay reservoir for the Bureau's Madera Canal (Photo 2-10). This small reservoir controls the runoff from several modest foothill creeks. Due to the small size of both reservoirs and their tributary areas, they normally have little effect on rain floods within the Fresno River Basin.

c. Cottonwood Creek Distributary Channel. The valley floor area does not significantly contribute to flood flows in the Fresno River, even though there are several small valley floor tributary streams entering the river from the north at the extreme lower end, just upstream from the Eastside Bypass. Cottonwood Creek, which originates south of the Fresno River in the vicinity of the Madera Canal Crossing and flows southwesterly, formerly served as an important distributary channel for Fresno River overflow in this reach. Construction of an extensive highway fill, with limited culvert capacity for Cottonwood Creek flows, has since reduced effectiveness of Cottonwood Creek as a relief valve for extensive Fresno River flows. The river slope in the valley floor reach varies from 1 foot per mile ( $0.2 \text{ m/km}$ ) at the upper end to 5 feet per mile ( $0.9 \text{ m/km}$ ) at Madera, and 2 feet per mile ( $0.4 \text{ m/km}$ ) in the vicinity of Eastside Bypass.

At the upper end of the valley floor area, about 4 miles (6.4 km) downstream of Hidden Dam, a portion of the Fresno River floodwater occasionally spills into the Cottonwood Creek distributary channel (shown on Plate 2-1 and Photo 2-11). A low dike at the head of this channel confines flows up to 7,000 cfs ( $198.2 \text{ m}^3/\text{s}$ ) to the Fresno River. Once the original design studies were approved, a secondary "dike," in the form of a highway embankment, was constructed. This embankment serves to limit any spills to Cottonwood Creek to the capacity of a 96-inch (2.4 m) diameter culvert. These spills cannot exceed a few hundred cfs, and therefore are not a significant flood control factor.

d. Eastside Bypass. In 1964, as part of the Lower San Joaquin River Flood Control Project, the state of California constructed the Eastside Bypass. The Eastside Bypass carries water to the San Joaquin River via the Fresno River and Chowchilla Canal Bypass. The capacity of the Eastside Bypass below the Fresno River is 10,000 cfs ( $283.2 \text{ m}^3/\text{s}$ ). The Eastside Bypass and the Chowchilla Canal Bypass are shown on Plate 2-1.

2-05. Real Estate Acquisition. Project lands consist of approximately 3,111 acres ( $12.6 \text{ km}^2$ ) acquired in fee and 79 acres ( $0.32 \text{ km}^2$ ) under easement. The project land boundaries are shown on Plate 2-8.

2-06. Public Facilities. Hidden Dam and Hensley Lake, located only a short distance from several large population centers, attract many visitors to the recreational areas created by the reservoir in the scenic rolling Sierra Nevada foothills. The recreational areas are shown on Plate

2.8 and Photo 2-12). For additional information and reservations, see the Corps web site at <http://www.spk.usace.army.mil/cespk-co/lakes/>.

a. The Hidden View Recreation Area has 55 campsites, flush restrooms with showers, and a trailer dump station. The campsites are equipped with tables, fire pits, and barbecue grills. Some sites have electric hookup and a shade shelter. Hidden View has two group camping areas with gazebo picnic shelters. All are available by reservation to groups of 25-100. Groups may also reserve the Wakalumi primitive area by calling the park headquarters. The Hidden View Area also has a self-guided nature trail, swim beach, and playground. The original plans were for 66 campsites with 40 additional sites to be built at a future time.

b. The Buck Ridge Recreation Area has a swim beach and 33 picnic sites, each equipped with a table and barbecue grill. A group picnic area with barbecue, tables, and horseshoe pits is available by reservation. The 500-acre wildlife area is available for those who enjoy hiking, bird watching, hunting, mountain biking, and horseback riding.

c. Vista Point, an observation area, is constructed on a peninsula on the east side of the lake, providing a general view of the dam, spillway, lake, and project lands.

Future recreations sites include the Arrowhead and Dry Creek areas, planned for picnicking and other day-use activities, and the Savage Area, which will include a group campsite in addition to facilities for picnicking and other day use.

A 320-acre (1.3 km<sup>2</sup>) area at the upper end of the reservoir is reserved for wildlife management. The area is expected to support a large amount of hunting use in season, and provide a natural area for other incidental recreation uses such as nature hikes and nature photography.

Accurate visitation records have been kept since 1978. Since that time, visitation has fluctuated considerably, with the highest visitation recorded in 1998 (1,512,100 visitor hours). Initial recreational use was estimated to be 65,000 recreation days, increasing to 390,000 recreation days within 10 years. (A "recreation day" equals 12 hours.) Recreation totals have not yet reached projected figures; however, the facilities are heavily used. Annual visitation is shown in Table 2-1 for the years 1978 through 2003.

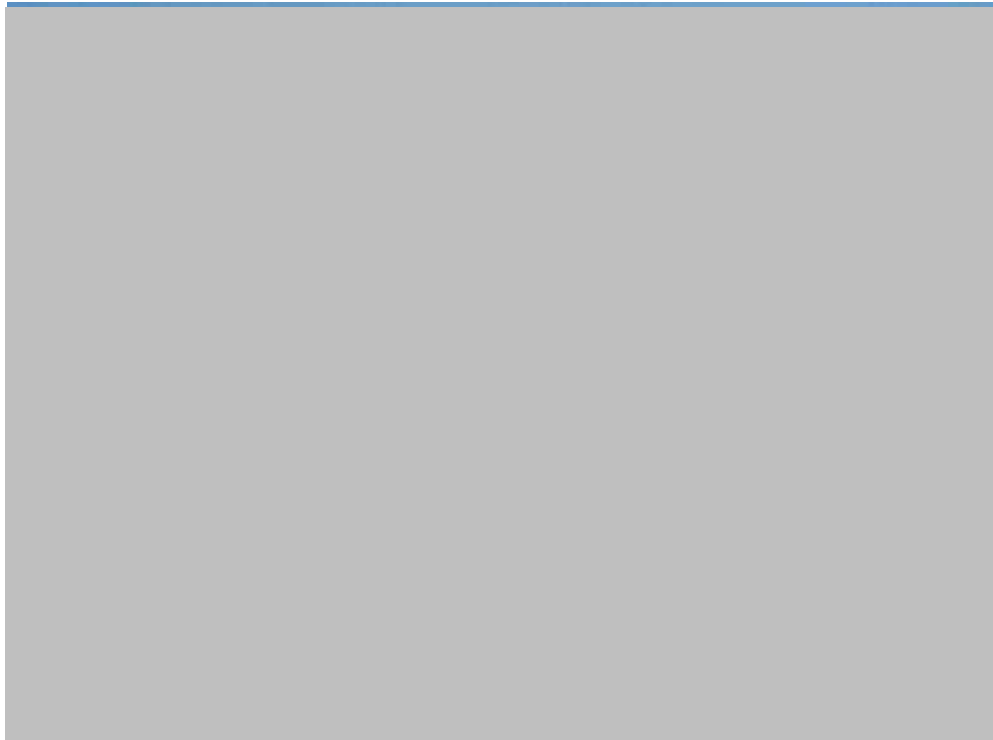
| TABLE 2-1<br>HENSLEY LAKE ESTIMATED ANNUAL VISITATION |                                             |
|-------------------------------------------------------|---------------------------------------------|
| Year                                                  | Attendance<br>in Thousands of Visitor Hours |
| 1978                                                  | 432                                         |
| 1979                                                  | 542                                         |
| 1980                                                  | 575                                         |
| 1981                                                  | 563                                         |
| 1982                                                  | 935                                         |
| 1983                                                  | 1,147                                       |
| 1984                                                  | 998                                         |
| 1985                                                  | 843                                         |
| 1986                                                  | 915                                         |
| 1987                                                  | 923                                         |
| 1988                                                  | 827                                         |
| 1989                                                  | 964                                         |
| 1990                                                  | 1,011                                       |
| 1991                                                  | 1,113                                       |
| 1992                                                  | 1,220                                       |
| 1993                                                  | 1,088                                       |
| 1994                                                  | 1,002                                       |
| 1995                                                  | 1,058                                       |
| 1996                                                  | 1,086                                       |
| 1997                                                  | 1,155                                       |
| 1998                                                  | 1,512                                       |
| 1999                                                  | 880                                         |
| 2000                                                  | 938                                         |
| 2001                                                  | 1,114                                       |
| 2002                                                  | 1,331                                       |
| 2003                                                  | 1,234                                       |
| Total                                                 | 24,172                                      |
| Average                                               | 977                                         |

Source: U.S. Army Corps of Engineers, Sacramento District, Operations Branch

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**Photo 2-1.** Hidden Dam-Hensley Lake looking north from the control tower



**Photo 2-2.** Upstream face of Hidden Dam

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**Photo 2-3.** Downstream face of Hidden Dam



**Photo 2-4.** Dikes at Hidden Dam-Hensley Lake

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**Photo 2-5.** Hidden Dam outlet works



**Photo 2-6.** Spillway at Hidden Dam

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**Photo 2-7.** Bridge and weir Fresno River below Hidden Dam



**Photo 2-8.** A dry Madera Lake downstream of Hidden Dam looking north



**Photo 2-9.** Start of the Madera Equalization Reservoir downstream of Hidden Dam



**Photo 2-10.** Madera Canal siphon at Fresno River



**Photo 2-11.** Cottonwood Creek levee at Fresno River



**Photo 2-12.** Recreation site operated by USACE

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### III - HISTORY OF PROJECT

3-01. Authorization. The Hidden Dam-Hensley Lake Project, of which downstream channel improvement is a part, is located on the Fresno River in California. The project was authorized by the Flood Control Act of 1962, which was approved 23 October 1962 (Public Law 87-874). The approval was substantially in accordance with the recommendation of the Chief of Engineers in Senate Document Number 37, 87th Congress, First Session, at the estimated cost of \$26,900,000 of which \$1,890,000 was projected for channel improvement. Minor changes and deviations in the Project Document plan as compared to the originally proposed plan (recommended by the Chief of Engineers) are summarized in Section 3-02 below.

3-02. Planning and Design. The Fresno River was investigated as part of the Comprehensive Flood Control Survey Report on Sacramento-San Joaquin Basin Streams (House Document 367, 81st Congress, First Session). Additional studies are contained in the Review Report for Flood Control in the Fresno River Basin, published as the Project Document (Senate Document 37, 81st Congress, First Session). Research done to prepare the Project Document was of sufficient detail to establish the need, cost, and economic justification for the Hidden Dam-Hensley Lake Project. It also established the project's size and scope.

Subsequent to project authorization, studies and investigations resulted in changes to the Project Document plan. The principal changes, described in Design Memorandum No. 4 and briefly summarized below, were based primarily on additional hydrologic, topographic, and geologic data. Other studies included cost comparisons of various alternative dam alignments and economic studies of dam heights verses spillway widths.

a. Reservoir. The amount of active and inactive capacities of the reservoir was not changed. However, the gross pool level was increased from elevation 534 feet (162.8 m) to 540 feet (164.6 m), and the inactive pool level was increased from elevation 440 feet (134.1 m) to 448 feet (136.6 m). This was based on revised Elevation-Capacity Curves, developed from an updated topographic survey of the reservoir area. The impact of sedimentation in Hensley Lake is discussed in detail in Section 4-04, and is projected to be 5,300 acre-feet ( $6.5 \text{ hm}^3$ ) over 100 years, or 53 acre-feet ( $0.1 \text{ hm}^3$ ) per year. There has not been a soil survey since the Hidden Dam-Hensley Lake project was completed, so all storage capacities discussed within this Water Control Manual are based on original storage capacity data.

b. Embankment.

[REDACTED] . The embankment slopes and cross sections were modified after additional stability studies. The axis of the dam was arched upstream, to provide greater stability and better drainage than the axis proposed in the Project Document.

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c. Dikes.

d. Outlet Works. The outlet features in the Project Document were modified as shown in the following tabulation.



e. Spillway.

It has a capacity of 106,400 cfs (3,013.2 m<sup>3</sup>/s) at Spillway Design Flood pool elevation of 556.2 feet (169.5 m).

NOTE: In 1982 a new Probable Maximum Flood was computed based on the updated Probable Maximum Precipitation (PMP) values determined by the revised 1969 HMR 36. This flood would have a maximum spillway discharge of 101,500 cfs (2,874.5 m<sup>3</sup>/s). See Section 8-02b for a further discussion.

f. Channel Improvements. The Project Document specified channel improvements consisting of the construction and enlargement of new levees along a 7-mile (11.3 km) reach upstream from Chowchilla Canal Bypass. This plan was modified to include an additional 6.3 miles (10.1 km) of channel improvements, consisting of channel clearing and enlargement.

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Also included in the new plan was a total of 18.2 miles (29.3 km) of new and improved levees. See Section 2-04 for more information on channel improvements

3-03. Construction. A contract for the construction of Hidden Dam and appurtenances was awarded to the Perini Brothers Corporation on 12 May 1972. Groundbreaking ceremonies were held on 24 June 1972. The project was completed in September 1975 and opened to the public in June 1978.

3-04. Related Projects. The Hidden Dam-Hensley Lake Project provides flood protection to the Fresno River, and is also part of a system of reservoirs providing flood protection to the San Joaquin River and adjacent areas. Major releases to the San Joaquin River may come from Pine Flat Lake on the Kings River, Millerton Lake on the San Joaquin River, H.V. Eastman Lake on the Chowchilla River, Lake McClure on the Merced River, Don Pedro Lake on the Tuolumne River, and New Melones Lake on the Stanislaus River.

3-05. Modifications to Regulations. There have been no modifications to the Water Control Plan since project formulation.

3-06. Principal Regulation Problems. The Hidden Dam-Hensley Lake Project is operated so that flows will not exceed 5,000 cfs (141.6 m<sup>3</sup>/s) on the Fresno River at Madera Canal. During rain floods, flows on Willow Creek and Mud Spring Creek should be estimated on a short-term basis by using 10 percent of Hidden inflows. An estimate of this local flow will aid in the adjustment of reservoir releases. This will help minimize damaging flows on the Fresno River, below the confluence points of these creeks. There are no stream gaging stations located on either of these creeks. Channel capacities are shown on Plate A-10.

Under certain conditions (e.g., during floods), seepage and erosion along the San Joaquin River are factors that could be minimized by coordinating reservoir releases with operators of other dams in the San Joaquin system. Many of the reclamation districts along the San Joaquin River that maintain levees coordinate with the Flood Operations Branch of the California Department of Water Resources to maintain optimum channel conditions.

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## IV - WATERSHED CHARACTERISTICS

4-01. General Characteristics. The Fresno River Basin is located in Central California and it is the most southerly of the major eastside tributaries of the San Joaquin River. The Fresno River rises on the western slope of the Sierra Nevada and flows in a southwesterly direction through the mountains and foothills and across the flat valley (via the Eastside Bypass) to the San Joaquin River. The drainage basin, including the valley floor portion, has a length of about 60 miles (97 km) and an average width of about 10 miles (16 km). For descriptive purposes, the project area is divided into three portions: the mountainous area above Hidden Dam, the foothill area below the dam, and the valley floor area. A map with topographic features of the area is shown on Plate 4-1. Photo 4-1 shows an aerial view of Hidden Dam-Hensley Lake.

a. Area Above Hidden Dam. The Fresno River drainage area above Hidden Dam consists of 236 square miles ( $611 \text{ km}^2$ ) of mountainous and foothill terrain. The basin is about 33 miles (53 km) long and 7 miles (11 km) wide, and ranges in elevation from about 7,000 feet (2 km) at the headwaters to about 400 feet (.12 km) at the dam. The drainage system above Hidden Dam includes the Fresno River and its major tributary, Coarse Gold Creek (Photo 4-2), which joins the Fresno River about 5 miles (8 km) above Hidden Dam. The streams flow in steep narrow canyons that have slopes ranging from about 300 feet per mile (57 m per km) in the headwater areas to about 20 feet per mile (4 m per km) near the reservoir area, as indicated by Plate 4-2. An Area-Elevation Curve for the drainage area above Hidden Dam is shown on Plate 4-3

b. Foothill Area. The foothill area consists of about 40 square miles ( $104 \text{ km}^2$ ) of hilly terrain, draining exclusively below Hidden Dam and terminating at the Madera Canal. It includes 25 square miles ( $65 \text{ km}^2$ ) that are drained by Willow Creek, which is north of the Fresno River. Another 12 square miles ( $31 \text{ km}^2$ ) are drained by Mud Springs Creek, flowing south of the Fresno River. This foothill portion of the Fresno River Basin ranges in elevation from 2,000 feet (610 m) to about 400 feet (120 m). It is largely grassland with scattered deciduous brush and trees and is used mostly for grazing.

c. Valley Floor Area. The valley floor area extends about 25 miles (40.2 km) west of the Madera Canal crossing to California's Eastside Bypass. It contains approximately 230 square miles ( $595.7 \text{ km}^2$ ) of poorly defined drainage area and includes the city of Madera, the county seat of Madera County. The topography of the area is very flat, with a gentle westerly slope. General leveling, cultivation patterns, and construction of roads and irrigation canals have extensively modified the natural drainage pattern. The soils are favorable for agricultural pursuits, evidenced by extensive development of vineyards, orchards, and various row crops. The main lines of the Southern Pacific and the Atchison, Topeka, and Santa Fe railroads, State Highway 99, and various county roads cross the area.

The valley floor area does not significantly contribute to flood flows in the Fresno River, even though there are several small valley floor tributary streams entering the river from the north at

the extreme lower end just upstream from the Eastside Bypass. Cottonwood Creek, which originates south of the Fresno River in the vicinity of the Madera Canal Crossing and flows southwesterly, formerly served as an important distributary channel for Fresno River overflow in this reach. Construction of an extensive highway fill with limited culvert capacity for Cottonwood Creek flows has since reduced the effectiveness of Cottonwood Creek as a relief valve for extensive Fresno River flows. The river slope in the valley floor reach varies from 1 foot per mile (.2 m per km) at the upper end to 5 feet per mile (.9 m per km) at Madera, and 2 feet per mile (.4 m per km) in the vicinity of the Eastside Bypass. Below Madera, the channel dimensions decrease progressively as river flows are decreased by percolation and dispersion. Estimated safe channel capacities for Fresno River system before the authorized channel improvements were completed are given in Design Memorandum No. 16, "Channel Improvements and Levee Construction," dated March 1970.

The vegetative cover of the basin (above Hidden Dam) ranges from relatively heavy coniferous forests, at higher elevations, to open grasslands in the lower elevations. Table 4-1 shows the percentage of vegetative distribution with respect to elevation.

| TABLE 4-1<br>LAND COVERAGE DISTRIBUTION     |                              |                          |
|---------------------------------------------|------------------------------|--------------------------|
| DESCRIPTION                                 | RANGE OF ELEVATION<br>(Feet) | PERCENT OF BASIN<br>AREA |
| Developed                                   | 500 to 4000                  | 2.3%                     |
| Barren                                      | 500 to 4000                  | 1.6%                     |
| Forested Upland                             | 700 to 8000                  | 62.4 %                   |
| Shrubland                                   | 900 to 6000                  | 11.6%                    |
| Non-Natural Woody<br>(Orchards/Ornamentals) | 500 to 6000                  | 4.3%                     |
| Herbaceous Upland                           | 500 to 6000                  | 17.8%                    |

Derived from the National Land Coverage Datasets (NLCD 1992), a 21-class land cover classification scheme. See <<http://landcover.usgs.gov/classes.html>>.

4-02. Topography. The area above Hidden Dam consists of 236 square miles (611 km<sup>2</sup>) of mountainous and foothill terrain. Elevations range from about 400 feet (.120 km) at the dam, to about 7,000 feet (2.1 km) at the headwaters of the Fresno River. Above the dam, the slope of the stream ranges from about 20 feet per mile (4 m per km) in the lower reaches near Hensley Lake, to about 300 feet per mile (57 m per km) in the headwater areas. Table 4-2 shows the distribution of the basin area above Hidden Dam.

| TABLE 4-2<br>ELEVATION DISTRIBUTION |                                          |
|-------------------------------------|------------------------------------------|
| Elevation (feet)                    | Percent of Basin Area<br>Above Elevation |
| 400                                 | 100.0%                                   |
| 600                                 | 98.3%                                    |
| 800                                 | 96.4%                                    |
| 1000                                | 93.0%                                    |
| 2000                                | 62.4%                                    |
| 3000                                | 30.3%                                    |
| 4000                                | 14.4%                                    |
| 5000                                | 5.9%                                     |
| 6000                                | 0.9%                                     |
| 7000                                | less than 1/2 percent                    |

Derived from 30 meter Digital Elevation Models (DEMs) available at the USGS Seamless Data Distribution System website. See <http://gisdata.usgs.net/NED/default.asp>.

The uncontrolled area below Hidden Dam, which contributes to the Fresno River, totals about 270 square miles (699.3 km<sup>2</sup>). This region includes approximately 40 square miles (103.6 km<sup>2</sup>) of hilly area between the dam and the foothill line, and approximately 230 square miles (595.7 km<sup>2</sup>) of developed agricultural land on the valley floor. The valley floor area slopes from the foothill line, 200 feet (61.0 m) in elevation, toward the San Joaquin River, 40 feet (12.2 m) in elevation.

A Topographic Map of the Fresno River Basin is presented on Plate 4-1, and Stream Profiles of the Fresno River and its larger tributaries are shown on Plate 4-2. An Area-Elevation Curve of the Fresno River Basin, above Hidden Dam, is shown on Plate 4-3.

4-03. Geology and Soils. Igneous rocks of the Sierra Nevada batholith underlie the region. These igneous and sedimentary rocks vary in mineral composition and color and include Granitic rock, Paleozoic metamorphosed sedimentary and volcanic rock (Calaveras Formation), and Mesozoic metamorphosed sedimentary and volcanic rock (Logtown Ridge and Mariposa formations). The land, at lower elevations, consists of gently rolling, rounded hills, with isolated rock outcrops, dissected by round-bottomed drainage troughs. Because of the flat gradient, there are alluvial deposits up to 20 feet (6.1 m) thick in the streambed near the dam.

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The Hidden Dam area lies within the Sierran structural block. This area is considered tectonically stable and has reacted little to the strong stresses ongoing throughout most of the Cenozoic Era. It has also had little volcanic activity since middle Cenozoic time, in contrast with the Coast Ranges, the Cascade Range, and the desert regions of Southern California. Present day seismicity is expressed along two major active fault systems that lie within 70 miles (113 km) of the project area. They are the San Andreas and the Sierran Frontal (Owens Valley) fault systems. These faults were recognized during all phases of planning and construction of Hidden Dam. In addition to these two active fault systems, the dam is located near the Melones and Bear Mountains fault zones of the Foothill fault system and other smaller faults within or adjacent to the area.

4-04. Sediment. The estimate of sedimentation allowance in Hensley Lake is based primarily on data furnished by the U.S. Natural Resource Conservation Service (NRCS), formerly known as the U.S. Soil Conservation Service. This data is contained in the July 1947 Special Report No. 10, entitled "Reservoir Sedimentation in the Sacramento-San Joaquin Drainage Basins, California," prepared by the U.S. Department of Agriculture. The NRCS report estimated that sedimentation within the lake may reduce the capacity by about 5,300 acre-feet ( $6.5 \text{ hm}^3$ ) or 6 percent of the total capacity of the lake within a 100-year period, and that it was probable that about 3,000 acre-feet ( $3.7 \text{ hm}^3$ ) of this sediment would occur within the inactive pool and most of the remainder would occur in the upper portion of the lake area outside the original river channel.

Installation of a complete network of permanent sediment ranges was not considered necessary for Hensley Lake at the time of construction. No operational or special problems were anticipated within or below the reservoir.

It was proposed to monument and survey two sedimentation ranges across the main river floodway immediately below the division of flow point at Cottonwood Creek, and to resurvey this range at about 5-year intervals. Information at this range would have been supplemented by occasional staff gage readings. Then, in the event unanticipated special sedimentation problems should occur within the reservoir, such problems would be monitored by special surveys during the regular seasonal drawdown period utilizing reconnaissance techniques or land survey methods. If necessary, it was proposed that these surveys could be tied to the network of permanent survey monuments that were established around the rim of the reservoir for other purposes.

There have been no soil surveys since the dam was completed and began operating. However, based on computed negative inflows at certain elevations, a special sediment survey should be performed at Hidden Dam-Hensley Lake. Although funding requests for a sediment survey have been requested for the past five years, none have been approved. The Water Control Diagram for Hidden Dam-Hensley Lake includes the original storage capacity computed for gross pool (90,000 acre-feet) ( $111 \text{ hm}^3$ ) as well as estimated storage with sedimentation of 53 acre-feet per year ( $0.1 \text{ hm}^3$ ) through 2004 (88,463 acre-feet) ( $109.1 \text{ hm}^3$ ). This diagram will be adjusted as information concerning sediment deposition in the lake becomes available.

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#### 4-05. Climate

a. General. The Fresno River Basin has a temperate semi-arid climate characterized by cool wet winters and warm dry summers. Observed extreme temperatures are 116°F and 10°F (46.7°C and –12.2°C) at Madera and 102°F and –5°F (38.9°C and –20.6°C) at South Entrance Yosemite. The location of climatological stations and normal annual precipitation isohyets are shown on Plate 4-4.

b. Temperature. Temperatures in the basin vary considerably. Temperatures in the lower portion of the basin range from lows slightly below freezing during the winter to highs over 100°F (37.8°C) during the summer. During the winter, the temperatures at 5,000 feet (1.5 km) and higher may remain below freezing for extended periods. The mean monthly and annual temperatures at Madera, Hidden Dam, and the South Entrance of Yosemite National Park are shown in Table 4-3.

| TABLE 4-3<br>MEAN MONTHLY AND ANNUAL TEMPERATURES (°F) |                               |                                   |                                                        |
|--------------------------------------------------------|-------------------------------|-----------------------------------|--------------------------------------------------------|
| MONTH                                                  | MADERA<br>(Elevation: 268 ft) | HIDDEN DAM<br>(Elevation: 560 ft) | SO. ENTRANCE<br>YOSEMITE N.P.<br>(Elevation: 5,120 ft) |
| October                                                | 63.7                          | 65.3                              | 51.8                                                   |
| November                                               | 52.8                          | 53.0                              | 42.5                                                   |
| December                                               | 44.8                          | 46.8                              | 37.4                                                   |
| January                                                | 45.2                          | 45.8                              | 36.1                                                   |
| February                                               | 49.7                          | 49.7                              | 37.5                                                   |
| March                                                  | 54.5                          | 54.2                              | 39.0                                                   |
| April                                                  | 59.5                          | 59.2                              | 43.7                                                   |
| May                                                    | 67.6                          | 66.6                              | 51.1                                                   |
| June                                                   | 74.7                          | 74.2                              | 59.1                                                   |
| July                                                   | 78.7                          | 80.2                              | 65.7                                                   |
| August                                                 | 78.2                          | 80.3                              | 64.9                                                   |
| September                                              | 73.3                          | 75.0                              | 60.0                                                   |
| AVERAGE<br>ANNUAL                                      | 61.9                          | 62.5                              | 49.1                                                   |
| PERIOD<br>OF RECORD                                    | NOAA<br>1901-2003             | USACE<br>1977-2004                | NOAA<br>1949-2003                                      |

c. Precipitation. Precipitation characteristics in the Fresno River Basin are significantly affected by topography. For instance, normal annual precipitation varies from about 43 inches

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(109 cm) in the headwater areas to about 14 inches (36 cm) at Hidden Dam, and down to 10 inches (25 cm) at the Valley floor near Madera. The watershed above Hidden Dam has a basin mean NAP of 28.2 inches (71.6 cm) as displayed on Plate 4-4. The precipitation data coverage was created using Geospatial Information System (GIS) and Parameter-Elevation Regressions on Independent Slope Models (PRISM) analysis by the Spatial Climate Analysis Service at Oregon State University, dataset United States Average Annual Precipitation, 1961-1990. The sum of multiplying the area (mi<sup>2</sup>) of the basin within each precipitation band by the average precipitation (inches) of the precipitation band, and then dividing this sum by the total area of the basin provides the basis of Basin Normal Annual Precipitation (BNAP).

$$\frac{\sum_{A_i} A_i PPT(in) * Area(sq\ mi)}{Total\ Area(sq\ mi)} = Basin\ Nap(in)$$

About 80 percent of the basin precipitation occurs from November through March. This winter precipitation is largely orographic and results from air masses traveling inland from the Pacific Ocean. From November through April, Pacific storms frequently cross the coast of Northern and Central California. Severe winter storms may involve warm and moist maritime tropical air from the central Pacific. Occasionally, in winter or spring, a large circulation pattern will develop and steer many successive low-pressure systems across the coast, resulting in prolonged periods of wet weather. Summer precipitation is usually in the form of occasional showers or thunderstorms, and it occurs largely above the foothill portion of the basin. Such precipitation may be quite intense for short periods of time, but it is confined to relatively small areas. Although summer precipitation can produce a moderate rise in flow on minor tributaries, it generally does not significantly affect flow on the main streams. Mean monthly and total annual precipitation for three stations are shown in Table 4-4

TABLE 4-4  
MEAN MONTHLY AND AVERAGE ANNUAL PRECIPITATION

| MONTH          | MADERA<br>(Elevation: 268 ft)    |       | HIDDEN DAM<br>(Elevation: 440 ft) |      | SOUTH ENTRANCE<br>YOSEMITE N.P.<br>(Elevation: 5,120 ft) |       |
|----------------|----------------------------------|-------|-----------------------------------|------|----------------------------------------------------------|-------|
|                | In                               | %     | in                                | %    | in                                                       | %     |
| Jan            | 2.00                             | 18.9  | 2.62                              | 19.0 | 8.05                                                     | 18.6  |
| Feb            | 1.91                             | 18.0  | 2.59                              | 18.7 | 7.05                                                     | 16.3  |
| Mar            | 1.80                             | 17.0  | 2.52                              | 18.3 | 6.69                                                     | 15.4  |
| Apr            | 1.00                             | 9.5   | 1.05                              | 7.6  | 3.87                                                     | 8.9   |
| May            | 0.40                             | 3.7   | 0.43                              | 3.1  | 1.71                                                     | 3.9   |
| Jun            | 0.08                             | 0.7   | 0.24                              | 1.7  | 0.60                                                     | 1.4   |
| Jul            | 0.01                             | 0.1   | 0.02                              | 0.2  | 0.13                                                     | 0.3   |
| Aug            | 0.01                             | 0.1   | 0.05                              | 0.4  | 0.10                                                     | 0.3   |
| Sep            | 0.14                             | 1.4   | 0.22                              | 1.6  | 0.71                                                     | 1.6   |
| Oct            | 0.53                             | 5.0   | 0.70                              | 5.0  | 2.10                                                     | 4.8   |
| Nov            | 1.13                             | 10.6  | 1.43                              | 10.3 | 5.53                                                     | 12.8  |
| Dec            | 1.59                             | 15.0  | 1.94                              | 14.1 | 6.81                                                     | 15.7  |
| Average-Annual | 10.6                             | 100%  | 13.82                             | 100% | 43.35                                                    | 100%  |
| Nov-Mar        | 8.43                             | 79.5% | 11.11                             | 80%  | 34.13                                                    | 78.7% |
| Source:        | NOAA<br>WATER YEARS<br>1900-2003 |       | USACE<br>WATER YEARS<br>1976-2004 |      | NOAA<br>WATER YEARS<br>1972-2003                         |       |

d. Snow. As discussed in 4-05c, 80 percent of basin precipitation occurs during the months of November through March. On the valley floor and foothill portion of the basin it occurs as rain, but in higher elevations of the basin it may be in the form of rain or snow. However, as only a small portion of the basin lies above 5,000 feet (1.5 km) elevation, as shown on Table 4-2, snowmelt floods are therefore not a problem in the Fresno River Basin.

e. Evaporation. The evaporation pan is located at Hidden Dam-Hensley Lake. Monthly readings for the period 1976-2004 are shown on Table 4-5.

| TABLE 4-5<br>HISTORICAL MONTHLY EVAPORATION<br>HIDDEN DAM |                                   |
|-----------------------------------------------------------|-----------------------------------|
| MONTH                                                     | MEAN<br>EVAPORATION<br>(in)       |
| January                                                   | 1.40                              |
| February                                                  | 2.43                              |
| March                                                     | 4.37                              |
| April                                                     | 6.98                              |
| May                                                       | 10.76                             |
| June                                                      | 13.24                             |
| July                                                      | 15.16                             |
| August                                                    | 13.72                             |
| September                                                 | 10.44                             |
| October                                                   | 7.03                              |
| November                                                  | 2.75                              |
| December                                                  | 1.45                              |
| ANNUAL TOTAL                                              | 89.7                              |
| Source:                                                   | USACE<br>WATER YEARS<br>1976-2004 |

f. Wind. Peak wind velocities generally occur in the spring, with prevailing winds blowing from a westerly direction. The nearest wind gage recording mean monthly miles of wind is located at Hidden Dam-Hensley Lake and the nearest wind gage that records average and peak wind gusts is located at Fresno Airport. Average wind movement (mean monthly miles) and average and peak wind gusts (mph) are presented in Table 4-6.

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| <p align="center">TABLE 4-6<br/>MEAN MONTHLY WIND MOVEMENT<br/>AVERAGE HOURLY WIND AND PEAK GUSTS</p> |                                                                          |                                           |         |
|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------|---------|
| MONTH                                                                                                 | WIND MOVEMENT<br>(mean monthly miles)<br>HIDDEN DAM                      | WIND<br>(mph)<br>FRESNO AIR TERMINAL      |         |
|                                                                                                       |                                                                          | Average                                   | Peak    |
| January                                                                                               | 1,750                                                                    | 5.1                                       | 55      |
| February                                                                                              | 1,922                                                                    | 5.6                                       | 46      |
| March                                                                                                 | 2,032                                                                    | 6.5                                       | 43      |
| April                                                                                                 | 1,782                                                                    | 7.3                                       | 41      |
| May                                                                                                   | 1,991                                                                    | 8.2                                       | 41      |
| June                                                                                                  | 1,927                                                                    | 8.3                                       | 35      |
| July                                                                                                  | 1,872                                                                    | 7.4                                       | 28      |
| August                                                                                                | 1,961                                                                    | 6.9                                       | 36      |
| September                                                                                             | 1,836                                                                    | 6.1                                       | 33      |
| October                                                                                               | 1,897                                                                    | 5.1                                       | 46      |
| November                                                                                              | 1,819                                                                    | 4.6                                       | 44      |
| December                                                                                              | 1,715                                                                    | 4.7                                       | 48      |
|                                                                                                       |                                                                          | Average                                   | Average |
|                                                                                                       |                                                                          | 6.3                                       | 41      |
| TOTAL ANNUAL                                                                                          | 22,504                                                                   |                                           |         |
| PERIOD<br>OF RECORD                                                                                   | USACE<br>WATER YEARS<br>1977-2004<br>(Data missing Dec1998-<br>Apr 2003) | NOAA<br>WATER YEARS<br>1956-88, 1992-2004 |         |

4-06. Storms and Floods. Floods on the Fresno River are rainfloods and occur primarily from November to April. High sharp peaks and relatively small volumes characterize these rainfloods. Table 4-7 provides peak and 1- and 3-day volumes of several flood and high water events.

| TABLE 4-7<br>HISTORICAL FLOOD FLOWS ON<br>FRESNO RIVER AT HIDDEN DAM                                                                          |               |                          |                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------------------|--------------------------|
| DATE                                                                                                                                          | PEAK<br>(cfs) | 1-DAY VOL<br>(acre-feet) | 3-DAY VOL<br>(acre-feet) |
| March 1995                                                                                                                                    | 21,517        | 17,080                   | 36,440                   |
| January 1993                                                                                                                                  | 19,372        | 14,287                   | 19,815                   |
| December 1955                                                                                                                                 | 17,500        | 20,628                   | 40,861                   |
| February 1969                                                                                                                                 | 17,300        | 14,380                   | 30,347                   |
| January 1997                                                                                                                                  | 14,203        | 15,308                   | 32,584                   |
| January 1983                                                                                                                                  | 11,700        | 11,236                   | 25,099                   |
| U.S. Army Corps of Engineers, Sacramento District. Period of record: 1976-2004.<br>U.S. Geological Survey (USGS), Period of record: 1942-1990 |               |                          |                          |

A tabulation of peak flows, 1-day, 3-day, 7-day, 15-day, and 30-day volumes for the period 1912, 1916-2004 is on Table 8-1 (Tables Section, page T 8-1) and the historical monthly inflows to Hidden Dam-Hensley Lake are tabulated on Table 4-8 (Tables Section, page T4-1). The data for Table 4-8 are a combination of estimated (1912-1941) and gaged data (1941-2004).

Plate 4-5 shows the historical operation of Hidden Dam, including records of inflow, outflow, storage, and flood conservation requirements, for the period water year 1976 through June 2004. Historical flood control requirements are tabulated on Plate 4-6. Plate 8-5 provides hypothetical flood routing through Hensley Lake-Hidden Dam for the floods of 1955 and 1969. Table 4-17, provided by the U.S. Army Corps of Engineers, Economics Branch, lists flood damages prevented by the Hidden Dam-Hensley Lake Project. One record storm, 1937-38, with a peak flow of about 15,000 cfs (425 m<sup>3</sup>/s), is listed on Table 8-1 but is not included on Table 4-7 because these data were computed based on regional frequency analysis and correlation with flow records at Knowles, California. The 1955-56 and 1968-69 storms occurred before the completion of Hidden Dam-Hensley Lake, and the Daulton stream gage located just downstream of the eventual dam site was used to record the event. These storms, as well as more recent events, are described below:

a. Storm of 9-12 March 1995. The winter season of 1994-95 produced the largest peak inflow ever recorded at Hidden Dam-Hensley Lake at 21,517 cfs (609.4 m<sup>3</sup>/s) on 11 March 1995. This storm was the second of two significant storms that saturated the area. Monthly precipitation during January recorded at Bunning Ranch, Magoon, Oakhurst, Westfall Ranger Station, and Hidden Dam averaged 14.1 inches (35.8 cm). The average rainfall recorded at the

same five stations during March was 13.8 inches (35.1 cm) with approximately one-half this amount occurring 9-12 March. Floodwaters from other Northern California rivers swept away two bridges on Interstate 5 near Coalinga, closing a 150-mile section of the state's main north-south artery for a month, and also broke through the walls of the California Aqueduct in western Fresno County. Statewide, the toll was 28 deaths. President Clinton declared 39 counties in California disaster areas, including Madera and Fresno counties. Volume totals for 1- and 3-days were 17,080 acre-feet (21.1 hm<sup>3</sup>) and 36,440 acre-feet (44.9 hm<sup>3</sup>), respectively. Storage at Hidden Dam-Hensley Lake increased 36,603 acre-feet (45.1 hm<sup>3</sup>) in 12 days: 42,525 acre-feet (52.4 hm<sup>3</sup>) on March 1 to 79,128 acre-feet (97.6 hm<sup>3</sup>) on 12 March. Climatologists rank 1994-95 as a strong El Niño season. Statewide, this storm is considered number one of the 10 costliest California storms, with damages of \$1.95 billion. (Jan Null, Golden Gate Weather Service, <<http://ggweather.com/>> and <[http://ggweather.com/nino/calif\\_flood.html](http://ggweather.com/nino/calif_flood.html)>). Damages prevented by the Hidden Dam-Hensley Lake Project, as shown on Table 4-17, were \$26.7 million.

b. Storm of 12-14 January 1993. The winter season of 1992-93 was characterized by a series of low-latitude Pacific storms that moved across California from the west, driven by cooler than normal temperatures across the North Pacific Ocean. Following significant rainfall recorded at Bunning Ranch, Magoon, Oakhurst, Westfall Ranger Station, and Hidden Dam during December 1992 (7 inches (17.8 cm)) – which partially saturated the area above Hidden Dam-Hensley Lake – the January rainfall, recorded at the above five precipitation stations, averaged 13.1 inches (33.3 cm). Damage and problems created by the pounding winds and heavy rains added to the weather woes. Madera County reported more than a \$1 million in damage to county highways alone. Governor Wilson proclaimed a state of emergency for nearly one-third of California, including Fresno and Madera counties. Pacific Gas and Electric (PG&E) reported that a total of 127,000 customers, about one-third of their Fresno region customers, lost power at some time in Fresno and nearby communities. This storm resulted in the second largest peak inflow ever recorded at Hidden Dam-Hensley Lake, 19,372 cfs (548.6 m<sup>3</sup>/s), on 14 January. Hidden Dam was able to keep flood releases within channel capacity during the event. Volumes were 14,287 acre-feet (17.6 hm<sup>3</sup>) for 1 day and 19,815 acre-feet (24.4hm<sup>3</sup>) for 3 days. Climatologists classify the 1992-93 season as a weak El Niño. Statewide, the storm is listed as the ninth of the 10 most costly California storms, with damages at \$0.68 billion. (Jan Null, Golden Gate Weather Service, see web pages at <<http://ggweather.com/>> and <[http://ggweather.com/nino/calif\\_flood.html](http://ggweather.com/nino/calif_flood.html)>.) Damages prevented by the Hidden Dam-Hensley Lake Project, as shown on Table 4-17, were \$20.2 million.

c. Storm of 22-23 December 1955. Prior to the flood seasons in 1994-95, 1996-97, 1982-83, and 1968-69, the flood of 1955-56 was considered the most widespread and destructive of any in the recorded history of Northern California since the legendary storms of 1862 and 1867. In the Sacramento-San Joaquin Valley and adjacent western-Nevada, 834,000 acres of land were inundated and 50,000 people were evacuated. Damages along the Fresno River were \$330,000 and along the San Joaquin River \$2,020,000. The largest concentration of destruction was at Yuba City on the Feather River, where 40 people lost their lives. Statewide the death toll was 74. The storm began with moderately heavy rain from 5-9 December, depositing 3-7 inches

(7.6-17.8 cm) of rain along the whole length of the Sierra Nevada. Monthly precipitation during December above the site of the future Hidden Dam-Hensley Lake Project averaged 21.8 inches (55.4 cm), with approximately 75 percent falling between 15 and 31 December as recorded at Madera, Mariposa, North Fork Ranger Station, Crane Valley, and Big Creek Powerhouse. Of the total rainfall received, over 50 percent occurred 23-26 December, averaging 12.2 inches (31 cm). This storm produced the third largest peak inflow ever reported at the site, 17,500 cfs (495.6 m<sup>3</sup>/s), on 23 December. However, this storm produced the largest recorded 1- and 3-day volumes at this site: 20,628 acre-feet (25.4 hm<sup>3</sup>) and 40,861 acre-feet (50.4 hm<sup>3</sup>), respectively. 1955-56 is classified as a strong La Niña season, which is the “cool” event counterpart of El Niño. Statewide, the storm is ranked fifth of the 10 most costly California storms, with damages of \$1.20 billion. (Jan Null, Golden Gate Weather Service, <http://ggweather.com/> and [http://ggweather.com/nino/calif\\_flood.html](http://ggweather.com/nino/calif_flood.html).)

d. Storm of 22-25 February 1969. Heavy rain, recorded at Madera, Mariposa, North Fork Ranger Station, and Crane Valley 18-22 and 24-27 January, saturated the soils over much of the San Joaquin basin, and intermittent precipitation, sometimes heavy, continued throughout February, maintaining the saturated soil conditions. The total monthly precipitation recorded at these locations during January and February averaged 31.4 inches (79.8 cm) for the area above the future site of Hidden Dam-Hensley Lake. The period 15-28 February accounted for 30 percent of this amount, or an average of 9.2 inches (23.4 cm). Flood damage was heaviest in the San Joaquin Valley areas as a result of the ponding of overflows from streams, breached canals, and irrigation ditches, and subsequent inundation of agricultural lands and of homes in parts of Fresno and in many smaller communities. Damages were \$2,630,000 along the Fresno River and \$7,800,000 along the San Joaquin. Statewide the death toll was 47. The storm produced the fourth largest peak inflow at the future Hidden Dam-Hensley Lake site at 17,300 cfs (489.9 m<sup>3</sup>/s) on 24 February 1969. The 1-and 3-day volumes were 14,380 and 30,347 acre-feet (17.7 and 37.4 hm<sup>3</sup>), respectively. Climatologists classify the 1968-69 season as neither El Niño nor La Niña. This storm is ranked as fourth of the 10 most costly California storms, with damages statewide listed at \$1.34 billion. (Jan Null, Golden Gate Weather Service, <<http://ggweather.com/>> and <[http://ggweather.com/nino/calif\\_flood.html](http://ggweather.com/nino/calif_flood.html)>.)

e. Storm of 1 January 1997. The New Year's Day flood of 1997 was caused by one of the largest storms in Northern California this century. The storm represented a classic orographic event with warm winds from the southwest blowing over the Sierra Nevada and dropping astounding amounts of rain at middle and high elevations. Watersheds were already saturated from earlier storms. Forty-eight counties were declared disaster areas, including all 46 counties in Northern California. The death toll was 8. Precipitation recorded at Bunning Ranch, Magoon, Oakhurst, Westfall Ranger Station, and Hidden Dam for the final two weeks of 1996 averaged 8.6 inches (21.8 cm), and during the first 5 days of 1997 an additional average of 5.5 inches (14 cm) was recorded. The volume of runoff exceeded previously recorded volumes in most of the Sierra streams flowing to the west. Many of the flood control reservoirs receiving these historical volumes filled and spilled and made uncontrollable downstream releases. In the San Joaquin River basin, Hidden and Buchanan dams held releases, allowing operators of other dams to make theirs. This storm produced the fifth largest peak inflow ever recorded at Hidden

Dam-Hensley Lake, at 14,203 cfs (402.2 m<sup>3</sup>/s) on 2 January 1997. The volume for 1 day was 15,308 acre-feet (18.9 hm<sup>3</sup>) and 3 day was 32,584 acre-feet (40.2 hm<sup>3</sup>). Climatologists classify the 1996-97 season as neither El Niño nor La Niña. Statewide, this storm is ranked as second of the 10 most costly California storms with damages of \$1.88 billion. (Jan Null, Golden Gate Weather Service, <<http://ggweather.com/>> and <[http://ggweather.com/nino/calif\\_flood.html](http://ggweather.com/nino/calif_flood.html)>.) Damages prevented by the Hidden Dam-Hensley Lake project, as shown on Table 4-17, were \$5.7 million.

f. Storm of 25-28 January 1983. The stage for a disastrous year of flooding was set even before the 1982-83 water year began. September 1982 (the close of water year 1981-82) was one of the wettest Septembers of record. Rainfall recorded at Bunning Ranch, Magoon, Oakhurst, Westfall Ranger Station, and Hidden Dam for September was 571% over normal and 356% over normal in October. November and December precipitation over the area averaged 8.1 inches (20.6 cm). During the period 15-31 January an average of 9.3 inches (23.6 cm) was received. Persistent high winds accompanying the late January storms left thousands of residents without power. Trees toppled by 35-mph winds made travel unpredictable and hazardous, and some roads were closed. The death toll was 36, with 481 injured. As the storms extended into February, street flooding added to the problems of commuters and business establishments. High-water problems along the San Joaquin River system continued until mid-July, because as runoff pressure from the storm systems eased, runoff pressure from the record snowpack began for some areas of the Central Valley. This storm season produced the sixth largest peak inflow ever recorded at Hidden Dam-Hensley Lake: 11,700 cfs (331.3 m<sup>3</sup>/s) on 27 January 1983. The 1-day volume was 11,236 acre-feet (13.9 hm<sup>3</sup>) and 3-day was 25,099 acre-feet (30.9 hm<sup>3</sup>). Water year 1982-83 is classified as a strong El Niño season and ranked as third of the 10 most costly California storms with damages at \$1.44 billion. (Jan Null, Golden Gate Weather Service, <<http://ggweather.com/>> and <[http://ggweather.com/nino/calif\\_flood.html](http://ggweather.com/nino/calif_flood.html)>.) Damages prevented by the Hidden Dam-Hensley Lake project were \$2.9 million for the January/February event, \$4.2 million, as shown on Table 4-17, when additional March storms are included.

4-07. Runoff Characteristics. Most Fresno River runoff originates from the area above Hidden Dam, usually as the result of intensive short-duration rainfall. However, during winter rainfloods considerable runoff is generated from the foothill portion of the basin, mainly from the Willow Creek drainage area. This runoff enters the Fresno River between Hidden Dam and the Daulton gaging station (Fresno River below Hidden Dam) (see Plate 4-1). Also, some runoff originates over the Mud Spring Creek drainage area and enters the Fresno River about a mile downstream from the Daulton gaging station.

Often, during dry years, the Fresno River becomes completely dry in late summer and early fall. Of the total annual runoff at Hidden Dam, computed to be 81,604 acre-feet (100.6 hm<sup>3</sup>), only 5.1 percent occurred during the five-month period of July through November (Table 4-9). Also, there is a large variation of recorded runoff within the basin (Table 4-10). For example, the maximum recorded water year runoff of Fresno River below Hidden Dam near Daulton gaging station occurred in 1983 and equaled 355,403 acre-feet (438.2 hm<sup>3</sup>), while the minimum water year runoff occurred in 1977 and was recorded as 5,800 acre-feet (7.2 hm<sup>3</sup>). These represent

435.5% and 7.1% percent of the total 93-year average of 81,604 acre-feet (100.6 hm<sup>3</sup>).

| TABLE 4-9<br>MEAN MONTHLY AND TOTAL ANNUAL RUNOFF<br>INTO HIDDEN DAM-HENSLEY LAKE |                                                                                                                                                                                                                                                                                    |                            |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| MONTH                                                                             | VOLUME<br>(acre-feet)                                                                                                                                                                                                                                                              | PERCENT OF<br>ANNUAL TOTAL |
| October                                                                           | 464                                                                                                                                                                                                                                                                                | 0.6                        |
| November                                                                          | 1,608                                                                                                                                                                                                                                                                              | 2.1                        |
| December                                                                          | 5,035                                                                                                                                                                                                                                                                              | 6.0                        |
| January                                                                           | 10,965                                                                                                                                                                                                                                                                             | 13.5                       |
| February                                                                          | 16,599                                                                                                                                                                                                                                                                             | 20.3                       |
| March                                                                             | 18,426                                                                                                                                                                                                                                                                             | 22.6                       |
| April                                                                             | 13,652                                                                                                                                                                                                                                                                             | 16.6                       |
| May                                                                               | 8,456                                                                                                                                                                                                                                                                              | 10.4                       |
| June                                                                              | 4,311                                                                                                                                                                                                                                                                              | 5.3                        |
| July                                                                              | 1,440                                                                                                                                                                                                                                                                              | 1.8                        |
| August                                                                            | 386                                                                                                                                                                                                                                                                                | 0.5                        |
| September                                                                         | 263                                                                                                                                                                                                                                                                                | 0.3                        |
| TOTAL<br>ANNUAL                                                                   | 81,604                                                                                                                                                                                                                                                                             | 100.0                      |
| PERIOD OF<br>RECORD                                                               | 1912-2004*<br>*1912-1941 Based on flows Fresno River at Knowles and<br>Chowchilla River near Raymond (Sacramento-San Joaquin<br>Comprehensive Study, December 2002)<br>*1942-1990 Fresno River below Hidden Dam<br>(USGS)<br>*1991 - 2004 Fresno River below Hidden Dam<br>(USACE) |                            |

Recorded runoff data from three stream gages on the Fresno River are shown on Table 4-10. Since the construction of the dam in 1975, flows on the Fresno River (below Hidden Dam) have been completely regulated by the dam. The U.S. Army Corps of Engineers maintains the official operation records for Hidden Dam. A graphical representation of Historical Operations is shown

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on Plate 4-5 (Sheets 1-3) and Historical Flood Control Requirements are tabulated on Plate 4-6.

| TABLE 4-10<br>RECORDED RUNOFF DATA                                |                                           |                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                   | Fresno River near Knowles<br>Gage         | Fresno River below Hidden Dam<br>near Daulton Gage                                                                                                                                                                                             |
| Period of Record                                                  | 1912, 1917-1990                           | 1912-2004*                                                                                                                                                                                                                                     |
| Drainage Area (mi <sup>2</sup> )                                  | 133                                       | 237                                                                                                                                                                                                                                            |
| Daily Flows (sfd)<br>Maximum<br>Minimum<br>Mean                   | 7,610 (1955)<br>0 (several years)<br>82.4 | 10,400 (1955)<br>0 (several years)<br>110                                                                                                                                                                                                      |
| Daily Flows (cfs/ mi <sup>2</sup> )<br>Maximum<br>Minimum<br>Mean | 57.2<br>0 (several years)<br>0.6          | 43.9<br>0 (several years)<br>0.5                                                                                                                                                                                                               |
| Annual Flows (ac-ft)<br>Maximum<br>Minimum<br>Mean                | 246,890 (1983)<br>6,138 (1931)<br>60,301  | 355,403 (1983)<br>5,800 (1977)<br>81,604                                                                                                                                                                                                       |
| Annual Flows (in)<br>Maximum<br>Minimum<br>Mean                   | 34.8<br>0.9<br>8.5                        | 28.1<br>0.5<br>6.5                                                                                                                                                                                                                             |
| SOURCE:                                                           | USGS                                      | 1912-1941 Based on flows Fresno River<br>at Knowles and Chowchilla River near<br>Raymond (Comprehensive Study –<br>2002)<br><br>USGS (1942-1990)<br>USACE (1991-2004)<br>*The Corps took over this gage in 1990.<br>The location is unchanged. |

4-08. Water Quality. There is no significant agriculture or industry in the basin above Hidden Dam that would affect the water quality of the lake. Tests of inflow, outflow, and lake storage at Hidden Dam-Hensley Lake by state-certified laboratories indicate that the water quality is generally good. The Hidden Dam-Hensley Lake Project does not operate for water quality

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purposes.

Field data and water samples are collected at Hensley Lake during April and August of each water year. These data are reported as instantaneous values and are not accumulated as daily average values. Table 4-11 provides a summary of field data collected during the spring and summer monitoring and includes the parameters of temperature, conductivity, dissolved oxygen (DO), pH, and Secchi Disc depths.

| TABLE 4-11<br>HIDDEN DAM-HENSLEY LAKE FIELD DATA<br>TEMPERATURE, CONDUCTIVITY, DISSOLVED OXYGEN, pH,<br>AND SECCHI DEPTH FOR WATER YEAR 2003<br>(From deepest to nearest surface measurement) |         |                      |         |                     |        |              |                    |        |        |                      |        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------------------|---------|---------------------|--------|--------------|--------------------|--------|--------|----------------------|--------|
| Depth                                                                                                                                                                                         |         | Temperature<br>(° F) |         | Conductivity        |        | DO<br>(mg/L) |                    | pH     |        | Secchi Depth<br>(ft) |        |
| (m)                                                                                                                                                                                           | (ft)    | Spring               | Summer  | Spring              | Summer | Spring       | Summer             | Spring | Summer | Spring               | Summer |
| 23.5                                                                                                                                                                                          |         |                      | 78.7    |                     | 60.6   |              | 178                |        | 0.32   |                      |        |
| 22.0                                                                                                                                                                                          |         |                      | 72.2    |                     | 63.5   |              | 178                |        | 0.32   |                      |        |
| 20.0                                                                                                                                                                                          |         |                      | 65.6    |                     | 64.8   |              | 160                |        | 0.32   |                      |        |
| 18.0                                                                                                                                                                                          |         |                      | 59.1    |                     | 67.5   |              | 156                |        | 0.35   |                      |        |
| 16.2                                                                                                                                                                                          | 52.5    | 54.5                 | 52.5    | 163                 |        | 3.62         |                    | 7.10   |        |                      |        |
| 16.0                                                                                                                                                                                          |         |                      | 45.9    |                     | 71.2   |              | 156                |        | 0.36   | 6.25                 | 3.42   |
| 14.0                                                                                                                                                                                          | 45.9    | 54.7                 | 39.4    | 163                 | 73.6   | 3.91         | 155                | 7.19   | 0.49   |                      |        |
| 12.0                                                                                                                                                                                          | 39.4    | 56.5                 | 32.8    | 162                 | 78.4   | 5.50         | 154                | 7.24   | 1.19   |                      |        |
| 10.0                                                                                                                                                                                          | 32.8    | 58.8                 | 26.2    | 159                 | 79.5   | 7.40         | 158                | 7.49   | 5.90   |                      |        |
| 8.0                                                                                                                                                                                           | 26.2    | 59.4                 | 19.7    | 159                 | 79.9   | 8.10         | 158                | 7.66   | 6.75   |                      |        |
| 6.0                                                                                                                                                                                           | 19.7    | 61.2                 | 13.1    | 159                 | 79.9   | 8.85         | 159                | 7.81   | 6.89   |                      |        |
| 4.0                                                                                                                                                                                           | 13.1    | 61.5                 | 1.0     | 158                 | 80.2   | 9.09         | 159                | 7.92   | 7.06   |                      |        |
| 2.0                                                                                                                                                                                           | 6.6     | 61.5                 |         | 159                 |        | 9.21         |                    | 7.89   |        |                      |        |
| 0.3                                                                                                                                                                                           | 1.0     | 61.5                 |         | 160                 | 80.2   | 10.24        | 158                | 7.97   | 7.14   |                      |        |
| Fresno River Inflow                                                                                                                                                                           |         |                      |         |                     |        |              |                    |        |        |                      |        |
|                                                                                                                                                                                               | 4/16/03 | 54.8 (F)             | pH 8.01 | Flow Rate = 174 cfs |        |              | Lake Elev = 488.28 |        |        |                      |        |
|                                                                                                                                                                                               | 8/13/03 | 80.9 F               | pH 9.03 | Flow Rate = -       |        |              | Lake Elev = 482.14 |        |        |                      |        |
| VISUAL OBSERVATIONS-SPRING: None.                                                                                                                                                             |         |                      |         |                     |        |              |                    |        |        |                      |        |
| VISUAL OBSERVATIONS-SUMMER: Algae Bloom; Strong hydrogen sulfide smell.                                                                                                                       |         |                      |         |                     |        |              |                    |        |        |                      |        |

Source: Environmental Engineering Section, U.S. Army Corps of Engineers, Sacramento District

Table 4-12 provides a summary of the analysis of water samples collected with field data during spring and late summer from the bottom, surface, inflow, outflow or from different locations at Hidden Dam-Hensley lake and includes such parameters as dissolved metal concentrations, MTBE concentrations, inorganic characterization (alkalinity, phosphorous, nitrogen, etc.).

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TABLE 4-12  
HIDDEN DAM-HENSLEY LAKE  
WATER QUALITY SUMMARY FOR WATER YEAR 2003

| Constituents and<br>Water Quality Criteria                                               | Spring  |        |        | Summer  |         |        |
|------------------------------------------------------------------------------------------|---------|--------|--------|---------|---------|--------|
|                                                                                          | Surface | Bottom | Inflow | Surface | Bottom  | Inflow |
| Arsenic, dissolved (µg/L)<br>Water Quality MCL = 10 µg/L<br>Fish Criteria = 150 µg/L     | <4.0    | <4.0   | <4.0   | <4.0    | <4.0    | <4.0   |
| Cadmium, dissolved (µg/L)<br>Water Quality MCL = 5 µg/L<br>Fish Criteria = 2. µg/L       | <1.0    | <1.0   | <1.0   | <1.0    | <1.0    | <1.0   |
| Chromium, dissolved (µg/L)<br>Water Quality MCL = 50 µg/L<br>Fish Criteria = 11 µg/L     | <5.0    | <5.0   | <5.0   | <5.0    | <5.0    | <5.0   |
| Copper, dissolved (µg/L)<br>Water Quality MCL = 1300 µg/L<br>Fish Criteria = 9 µg/L      | 0.9     | 0.8    | 0.9    | 0.7     | 0.6     | 0.8    |
| Iron, dissolved (µg/L)<br>Water Quality MCL = 300 µg/L<br>Fish Criteria = 1000 µg/L      | <50.0   | 60.0   | 120.0  | <50.0   | 1,100.0 | 100.0  |
| Lead, dissolved (µg/L)<br>Water Quality MCL = 15 µg/L<br>Fish Criteria = 2.5 µg/L        | <0.25   | <0.25  | <0.25  | 0.061   | 0.039   | 0.077  |
| Manganese, dissolved (µg/L)<br>Water Quality MCL = 50 µg/L<br>Fish Criteria = none       | <5.0    | <6.0   | <5.0   | 2.0     | 110.0   | 21.0   |
| Mercury, Trace Level (µg/L)<br>Water Quality MCL = 2.0 µg/L<br>Fish Criteria = 0.77 µg/L | 0.0008  | 0.0039 |        | 0.0008  | 0.012   |        |
| Selenium, dissolved (µg/L)<br>Water Quality MCL = 50 µg/L<br>Fish Criteria = 5 µg/L      | <2.0    | <2.0   | <2.0   | <2.0    | <2.0    | <2.0   |
| Zinc, dissolved (µg/L)<br>Water Quality MCL=5000 µg/L<br>Fish Criteria = 120 µg/L        | <20.0   | <20.0  | <20.0  | <20.0   | <20.0   | <20.0  |
| MTBE µg/L                                                                                |         |        |        |         |         |        |
| Near dam                                                                                 | <2.0    |        |        | <2.0    |         |        |
| Near marina                                                                              | <2.0    |        |        | <2.0    |         |        |
| Alkalinity as CaCO (mg/L)                                                                | 50.0    |        | 40.0   | 50.0    |         | 50.0   |
| Ammonia (mg/L)                                                                           | 0.1     |        | <0.1   | 0.2     |         |        |
| Chloride (mg/L)                                                                          | 22.0    |        | 12.0   | 13.0    |         | 14.0   |
| Nitrate (mg/L)                                                                           | 0.3     |        | 0.2    | <0.1    |         |        |
| Total Phosphate (mg/L)                                                                   | <0.1    |        | <0.1   | <0.1    |         |        |
| Ortho Phosphate (mg/L)                                                                   | <0.05   |        | <0.05  |         |         |        |
| Sulfate (mg/L)                                                                           | 3.8     |        | 1.9    | 2.6     |         | 2.7    |
| TKN, Kjeldahl Nitrogen, (mg/L)                                                           | 0.2     |        | 0.2    | 0.7     |         |        |
| Chemical Oxygen<br>Demand (COD) (mg/L)                                                   |         |        | <50.0  | <50.0   |         |        |
| Total Solids (mg/L)                                                                      | 100.0   |        | 100.0  | 120.0   |         | 130.0  |

Source: Environmental Engineering Section, U.S. Army Corps of Engineers, Sacramento District

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In 2003, most of the dissolved heavy metal samples did not exceed the maximum contaminant level (MCL) or the freshwater fishery criteria during either the spring or summer, except for dissolved iron (Fall 2003 lake bottom Fe = 1,100 µg/L) and manganese (Fall 2003 lake bottom Mn = 110 µg/L, which were above secondary MCLs (Fe SMCL = 300 µg/L, Mn SMCL = 50 µg/L). Similar results for Iron and Manganese were found in previous sampling years.

While most results of the inorganic analysis were within acceptable historic ranges, the 2003 Hensley Lake inorganic analysis water samples had elevated nitrogen (nitrate, ammonia, and TKN) concentrations. In 2003, surface lake waters had a nitrate concentration of 0.3 mg/L during the spring, but were below the detection limit (<0.1 mg/L) during the late summer sampling. While ammonia concentrations have been historically below the detection limit (<0.1 mg/L), ammonia concentrations of 0.1 mg/L were seen during the spring, and 0.2 mg/L during the summer in lake waters. The toxicity of ammonia on fish populations is generally based on three factors: the water ammonia concentration, pH, and temperature. Based on the above summer lake surface ammonia sample and the lake temperature/pH profiles at the time, potentially toxic ammonia concentrations could have existed down to a depth of ~ 30 feet. Total Kjeldahl nitrogen (TKN) values are traditionally high in Hensley Lake and generally range from 0.2 to 0.6 mg/L in lake surface waters. While values were 0.2 mg/L during the spring sample, the TKN concentration of 0.7 mg/L during the fall was slightly higher than previous monitored concentrations.

In the spring 2003 Phytoplankton characterization sample, algal biomass within the lake (2003 Spring Biomass = 1,677.72 µg/L) was lower than the value seen in spring 2002 (2002 Spring Biomass = 3,070.7 µg/L), but higher than values seen in spring 2001 (2001 spring biomass = 420.24 µg/L). In spring 2001 dinoflagellates were the most dominant species followed by diatoms in spring 2002, but blue-green algae was the most dominant species in spring 2003. In late summer 2003, the phytoplankton population (2003 Fall Biomass = 6,389.56 µg/L) was much higher than summer 2001 (2001 Summer Biomass 2,357.8 µg/L), but lower than summer 2002 (2002 Summer Biomass = 9,357.3 µg/L). Blue-green algae were the most dominant species during 2002 and 2003 late summer sampling events, but diatoms dominated in summer 2001. Blue-green algae often grow well under warm stagnant conditions

Fish tissue analysis for total mercury was performed on a composite sample composed of tissue from three black bass collected in November 2003. The sample had a resulting total mercury concentration of 0.68 ppm. This is below the U.S. FDA criteria for a fish advisory (1 ppm), but above the concentrations found in the other lakes monitored. The 2003 composite sample had a higher mercury concentration than in 2000 (0.30 ppm), but lower than the 2001 (0.70 ppm) and 2003 (0.72 ppm) fish composite samples. Due to three consecutive years of high mercury concentrations within samples, a more detailed fish analysis has been suggested.

The chemical, physical, and biological properties of surface water at any given point are the product of a multitude of factors, including geography, geology, climatic conditions, discharge, floral and faunal communities, ground water supply, and of major significance, the effect of man, his activities and domestic animals.

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4-09. Channel and Floodway Characteristics. The floodplain of the Fresno River extends from the foothill line to the San Joaquin River and contains about 145,000 acres (587 km<sup>2</sup>) including the urban and suburban areas of the city of Madera. It is predominately agricultural, with large areas of highly developed lands, including many homes and improvements. Principal crops grown include grapes, orchard fruit, corn, cotton, small grains, alfalfa, and irrigated pastures. During large floods, small quantities of Fresno River flows spill into Cottonwood Creek distributary channel, augmenting the flooding of agricultural lands within the Cottonwood Creek drainage area. Flood flows of the Fresno River also contribute to flooding of additional agricultural lands and improvements located along the San Joaquin River Downstream from the Fresno River. The Fresno River, from Hidden Dam to the Chowchilla Canal Bypass, is about 30 miles (48.3 km) long. The channel capacity of the Fresno River, downstream from Hidden Dam, varies from 10,000 cfs (283.2 m<sup>3</sup>/s) below Hidden Dam, 8,000 cfs (226.6 m<sup>3</sup>/s) through the city of Madera—not the 12,000 cfs (340 m<sup>3</sup>/s) listed in the 1975 Water Control Manual—and 5,000 cfs (141.6 m<sup>3</sup>/s) downstream of Madera to the Eastside Bypass. As described in the Operation and Maintenance Manual for Fresno River Channel Improvement and Levee Construction, accepted by the Reclamation Board 25 May 1976, and Design Memorandum No. 16 from March 1970, channel capacity is:

|                 |                      |            |
|-----------------|----------------------|------------|
| Hidden Dam      | to AT&SF RR tracks   | 10,000 cfs |
| AT&SF RR tracks | to SP RR tracks      | 8,000 cfs  |
| SP RR tracks    | to Road 22 extension | 5,000 cfs  |

Travel times provided by the Madera Irrigation District, based on a flowing channel with 300-500 cfs increase, are:

|                                          |         |
|------------------------------------------|---------|
| Hidden Dam to Madera Canal               | 1 hour  |
| Madera Canal to City of Madera (Road 25) | 3 hours |
| City of Madera (Road 25) to Road 19      | 2 hours |
| Road 19 to Road 16 gaging station        | 1 hour  |

Through the city of Madera, levees and channel clearing give substantial protection against flood overflow. During the 1997 flood, with less than 1 foot of freeboard at Road 20 in Madera, flows of 6,000-6,500 cfs (169.9-184 m<sup>3</sup>/s) did not cause damage. Channel capacities and travel times are displayed on Plate A-10 and discussed in more detail in Section 2-04a.

4-10. Upstream Structures. There are no significant structures located in the drainage basin above Hensley Lake. A small quantity of water is imported for irrigation purposes to the Fresno River Basin by two small inter-basin diversion canals. These canals, one from the San Joaquin River Basin (50 cfs (1.4 m<sup>3</sup>/s) capacity) and the other from the Merced River Basin (50 cfs (1.4 m<sup>3</sup>/s) capacity), are located upstream from Hidden Dam.

4-11. Downstream Structures. Two small reservoirs are located downstream from Hidden Dam:

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Madera Lake and Madera Equalization Reservoir (shown on Plate 2-1 and Photos 2-8 and 2-9). Madera Lake has a capacity of 4,700 acre-feet ( $5.8 \text{ hm}^3$ ) with a drainage area of 2.6 square miles ( $6.7 \text{ km}^2$ ). The lake is located on a small foothill creek, which releases water into the Fresno River about 4 miles (6.4 km) upstream from the city of Madera. It was built by the California Department of Fish and Game as a recreation lake, and is currently operated and maintained by the Madera Irrigation District. Additional water is supplied to the lake during rain flood periods, via diversion, from the Fresno River. The Madera Equalization Reservoir, with a capacity of 2,300 acre-feet ( $2.8 \text{ hm}^3$ ) and a drainage area of 9.4 square miles ( $24.3 \text{ km}^2$ ), was built by the U.S. Bureau of Reclamation as a forebay reservoir for the Bureaus' Madera Canal. This small reservoir controls the runoff from several modest foothill creeks. Due to the small size of both reservoirs and their tributary areas, they normally have little effect on rain floods within the Fresno River Basin.

At the upper end of the valley floor area, about 4 miles (6.4 km) downstream of Hidden Dam, a portion of the Fresno River floodwater occasionally spills into the Cottonwood Creek distributary channel (shown on Plate 2-1 and Photo 2-11). A low dike at the head of this channel confines flows, up to 7,000 cfs ( $198.2 \text{ m}^3/\text{s}$ ), to the Fresno River. Once the original design studies were approved, a secondary "dike," in the form of a highway embankment, was constructed. This embankment serves to limit any spills to Cottonwood Creek to the capacity of a 96-inch (2.4 m) diameter culvert. These spills cannot exceed a few hundred cfs, and therefore are not a significant flood control factor.

The Madera Irrigation District diverts water from the Fresno River at a point about 2 miles (3.2 km) east of Madera. Part of the diverted water is used for surface irrigation and part for groundwater replenishment. However, these diversions, especially during the winter, are small and have practically no effect on large rain floods.

In 1964, as part of the Lower San Joaquin River Flood Control Project, the state of California constructed the Eastside Bypass. The Eastside Bypass carries water to the San Joaquin River via the Fresno River and Chowchilla Canal Bypass. The capacity of the Eastside Bypass below the Fresno River is 10,000 cfs ( $283.2 \text{ m}^3/\text{s}$ ). The Eastside Bypass and the Chowchilla Canal Bypass are shown on Plate 2-1.

4-12. Economic Data. The Fresno River Basin lies in Madera and Mariposa counties. Mariposa County, population of 17,250 and work force of 7,200, is dotted with rural farms, ranches, orchards, vineyards, and small communities, and is home to Yosemite National Park. The major employers are services industries related to the park, and government agencies. Madera County, population of 129,700 and work force of 54,400, is the third fastest-growing county in the state. The major employers are agriculture and service industries. See Table 4-13.

| .TABLE 4-13<br>EMPLOYMENT AND TOTAL SALES BY TRADE CATEGORY                                                                                                                                                                                                                                                                                                                                                                                                                                           |                    |                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------|
| TRADE CATEGORY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | TOTAL<br>EMPLOYEES | TOTAL SALES<br>(\$1,000) |
| Manufacturing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3,913              | 952,330                  |
| Wholesale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 623                | 265,797                  |
| Retail                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 8,086              | 798,116                  |
| Services (Taxable)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2,350              | 161,006                  |
| Mining and Construction <sup>1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1,900              | Not Available            |
| Agricultural Workers <sup>1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 8,920              | See Table 4-15           |
| Government (All) <sup>1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 9,470              | -                        |
| <sup>1</sup> 2003 Statistics for mining and construction, agricultural and government workers at:<br><a href="http://www.calmis.ca.gov/htmlfile/subject/COsnaps.htm">http://www.calmis.ca.gov/htmlfile/subject/COsnaps.htm</a><br>All others:<br><a href="http://www.census.gov/epcd/ec97/ca/CA039.HTM">http://www.census.gov/epcd/ec97/ca/CA039.HTM</a> (Madera County)<br><a href="http://www.census.gov/epcd/ec97/ca/CA043.HTM">http://www.census.gov/epcd/ec97/ca/CA043.HTM</a> (Mariposa County) |                    |                          |

a. Population. The main population center in the Fresno River Basin is the city of Madera. Madera has experienced rapid growth along with the rest of Madera County. It is projected that by the year 2020 the population of Madera County will reach 229,000, a growth rate of 86 percent. The populations of both Madera and Mariposa counties are given in Table 4-14.

| TABLE 4-14<br>POPULATION                                                                                                                                                                                                                                                                                                                                              |                    |        |        |        |         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------|--------|--------|---------|
| LOCALITY                                                                                                                                                                                                                                                                                                                                                              | POPULATION BY YEAR |        |        |        |         |
|                                                                                                                                                                                                                                                                                                                                                                       | 1970               | 1980   | 1985   | 1990   | 2003    |
| Madera County                                                                                                                                                                                                                                                                                                                                                         | 41,700             | 63,900 | 76,300 | 88,090 | 131,200 |
| Madera                                                                                                                                                                                                                                                                                                                                                                | N/A                | N/A    | N/A    | 29,283 | 46,400  |
| Chowchilla                                                                                                                                                                                                                                                                                                                                                            | N/A                | N/A    | N/A    | 5,930  | 8,183   |
| Mariposa County                                                                                                                                                                                                                                                                                                                                                       | 6,100              | 11,200 | 13,400 | 14,302 | 17,450  |
| Sources: U.S. Bureau of the Census, California Integrated Waste Management Board,<br><a href="http://www.calmis.ca.gov/file/COSnaps/maderSNAP.pdf">http://www.calmis.ca.gov/file/COSnaps/maderSNAP.pdf</a> (Madera County)<br><a href="http://www.calmis.ca.gov/file/COSnaps/maripSNAP.pdf">http://www.calmis.ca.gov/file/COSnaps/maripSNAP.pdf</a> (Mariposa County) |                    |        |        |        |         |

b. Agriculture. The valley floor below Hidden Dam, especially in Madera County, is a highly developed agricultural area. Agricultural pursuits in the valley include irrigated pasture for both beef and dairy cattle, vineyards, extensive orchards including pistachio and almond, and the production of alfalfa, nursery and greenhouse products, cotton lint, hay, oranges, apples and vegetables (although vegetable production was not in the top ten agricultural products). Untilled portions of the basin support livestock (primarily cattle). Tables 4-15 and 4-16 indicate the value of agricultural activities in the region.

c. Industry. The agricultural industry is the largest employer in the area. Other economic activities in the Fresno River Basin include mining, sand and gravel operations, food processing industries, and recreation. Table 4-13 represents the total work force for Madera and Mariposa counties by trade category.

TABLE 4-15  
GROSS VALUE OF COMMODITY GROUP PRODUCTION  
BY COUNTY, SEPTEMBER 2003

| COMMODITY GROUP               | GROSS VALUE OF AGRICULTURAL PRODUCTION (\$1000) |          |
|-------------------------------|-------------------------------------------------|----------|
|                               | MADERA                                          | MARIPOSA |
| Field Crops                   | 78,374                                          | 7,273    |
| Vegetable Crops               | 18,317                                          | 0        |
| Fruit and Nut Crops           | 394,843                                         | 644      |
| Nursery, Flowers, and Foliage | 20,660                                          | 160      |
| Livestock                     | 76,210                                          | 10,044   |
| Livestock Products            | 141,081                                         | 1,251    |
| Poultry                       | 22,125                                          | 974      |
| TOTALS                        | 751,610                                         | 20,346   |

Source: California Agricultural Statistics Service, County Agricultural Commissioner Reports 2002-2003  
<ftp://www.nass.usda.gov/pub/nass/ca/AgComm/200308cavtb00.pdf>

TABLE 4-16  
GROSS VALUE OF FIVE MAJOR CROPS  
GROWN IN MADERA COUNTY, SEPTEMBER 2003

| CROP                   | GROSS VALUE (\$1,000) | PERCENT STATE TOTAL |
|------------------------|-----------------------|---------------------|
| Grapes, All            | 148,260               | 4.9                 |
| Almonds                | 154,989               | 10.3                |
| Milk and Cream         | 126,954               | 3.1                 |
| Pistachios             | 31,891                | 18.4                |
| Cattle and Calves, All | 76,210                | 2.8                 |

Source: California Agricultural Statistics Service, County Agricultural Commissioner Reports 2002-2003  
<ftp://www.nass.usda.gov/pub/nass/ca/AgComm/200308cavtb00.pdf>

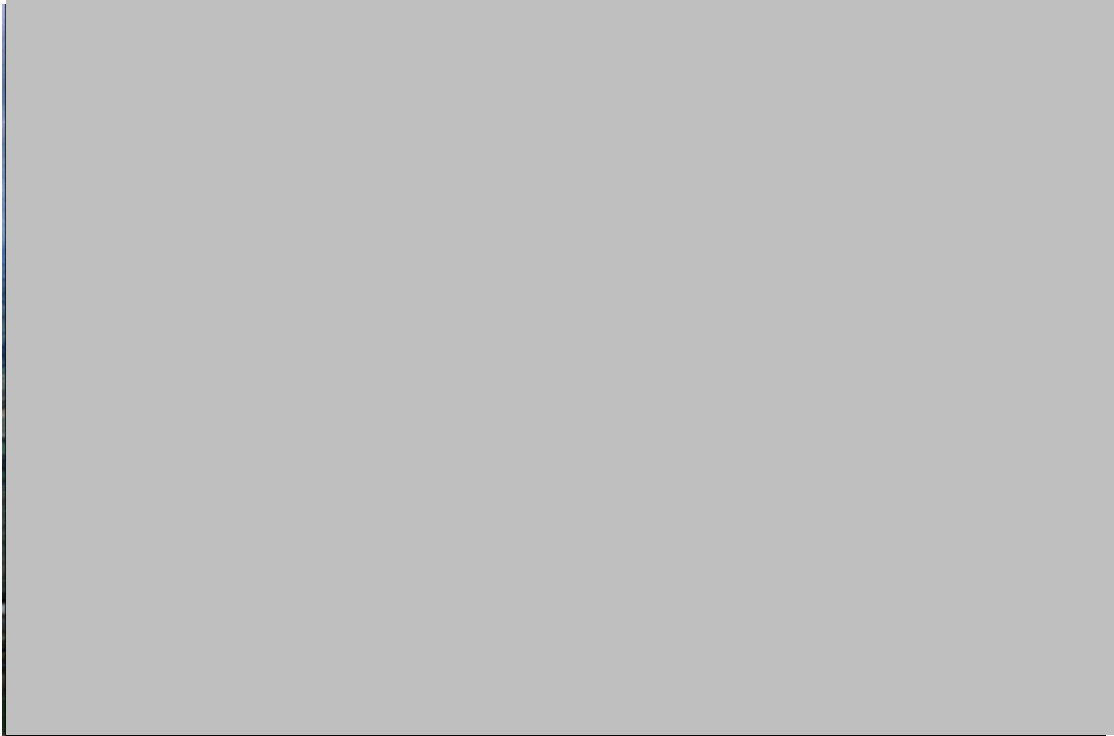
d. Flood Damages. Agricultural losses during floods would include: (1) erosion and deposition of debris and silt on crop and pasture lands; (2) damage to orchards due to flooding of trees; (3) damage to farm improvements such as irrigation systems, diversion facilities, and fences; (4) possible loss of crops, livestock, and poultry; (5) increased cost of livestock maintenance; (6) the cost of having land out of production for extended periods, and (7) land treatment for weed infestation. Other flood losses would include damage to foundations, floors, furnishings, and lawns and gardens. Commercial losses would include damage to structures and equipment, loss of business and inventories, and costs of cleanup and repair.

The impact of flooding is not limited to areas actually flooded. For example, floodwater may interrupt or contaminate domestic and industrial water supply or break sewer mains that an entire subdivision depends upon, thus creating inconvenience and potential health hazards. Floods may also interrupt surface transportation, public utility services, and may affect areas far removed from those actually flooded, resulting in personal discomfort, inconvenience, cessation of industrial and commercial activities, and loss of business and worker income. Also, emergency situations could be very difficult to deal with due to lack of communications or transportation. Meeting the costs of emergency flood relief, flood-fighting, other flood emergency activities, cleanup, and repair and restoration of public facilities damaged or destroyed by floods has an impact that far transcends the flooded areas, because city, county, state, and federal tax revenues must be used, thus reducing revenues available for other services, especially on the local level. Other results of flooding that have an impact outside the flooded areas may include closed schools and inconvenience to the traveling public. Farm center communities such as Madera could suffer from loss of business activity when agricultural areas, upon which the community depends, are flooded and crops are lost or significantly reduced.

Flood damages along the Fresno River, below Hidden Dam, are caused by rainfloods only. These floods, characterized by comparatively high peaks, small volumes, and short durations, are damaging to both urban and agricultural areas. Flood damages in Madera's urban areas consist mainly of damages to residential and commercial property and public utilities, while flood damages in the rural areas include damages to lands, crops, buildings, and public utility facilities. In addition, flood flows on the Fresno River may contribute to flooding along the San Joaquin River, downstream from the Fresno River.

Table 4-17 shows dollar values of damages prevented by the Hidden Dam-Hensley Lake Project during selected historic floods through water year 2004. Dollar values are presented as calculated in the year of occurrence. To date the total value of damages prevented by Hidden Dam is estimated to be \$58,395,000.





**Photo 4-1.** Aerial view of Hidden Dam-Hensley Lake looking northwest



**Photo 4-2.** Coarse Gold Creek at confluence with Fresno River upstream from dam

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## V - DATA COLLECTION AND COMMUNICATION NETWORKS

### 5-01. Hydrometeorological Stations

a. Facilities. Reservoir pool elevation is collected at Hidden Dam-Hensley Lake and precipitation and stream stage are collected at locations upstream and/or downstream of Hidden Dam-Hensley Lake. Plate 4-1 shows the location of stream gages operated by the Corps (USACE), the U.S. Geological Survey (USGS), and the California Department of Water Resources (DWR). Plate 4-4 shows the location of climatological gages operated by USACE, U.S. Bureau of Reclamation (USBR), the National Weather Service (NWS), National Oceanic and Atmospheric Association (NOAA), Pacific Gas and Electric (PG&E), U.S. Forest Service (USFS), California Department of Forestry (CDF), Madera County, and Merced County.

The Sacramento District, U.S. Army Corps of Engineers (CESPK), maintains its own network of Data Collection Platforms (DCP) to collect pertinent hydrometeorological data for Corps projects. This district-wide system is known as the Hydrometeorologic Automatic Data Acquisition (HADA) system. Gages are added to the HADA system when CESPK Water Managers deem a gage site to be necessary for the proper operation of a project. Table 5-1 lists the HADA system gages used by CESPK Water Managers for the real-time flood control regulation of Hidden Dam.

The facilities at the project include the following:



| TABLE 5-1                                                                                                                   |      |                                                     |     |        |
|-----------------------------------------------------------------------------------------------------------------------------|------|-----------------------------------------------------|-----|--------|
| HIDDEN DAM REAL-TIME<br>HYDROMETEOROLOGIC DATA COLLECTION SITES                                                             |      |                                                     |     |        |
| Station Name and Mnemonic                                                                                                   |      | Collected Parameters                                | Via | Agency |
| Hidden Dam-Hensley Lake (Pool)                                                                                              | HIDP | Pool Elevation/Gate Opening                         | R   | Corps  |
| Fresno River below Hidden Dam                                                                                               | HIDQ | Stream Stage<br>Water Temperature                   | R   | Corps  |
| Hidden Dam Weather Station                                                                                                  | HIDW | Evaporation<br>Precipitation<br>Temperature<br>Wind | R   | Corps  |
| Bunning Ranch                                                                                                               | BNR  | Precipitation<br>Temperature                        | R   | Corps  |
| Magoon                                                                                                                      | MGN  | Precipitation<br>Temperature                        | R   | Corps  |
| Oakhurst                                                                                                                    | OKH  | Precipitation<br>Temperature                        | R   | Corps  |
| Westfall                                                                                                                    | WST  | Precipitation<br>Temperature                        | R   | Corps  |
| <b>KEY:</b><br>Via: R=Radio<br>Agency: Indicates the agency responsible for the gage<br>Corps: U.S. Army Corps of Engineers |      |                                                     |     |        |

b. Reporting. Hydrometeorological data at Hensley Lake and elsewhere in the Fresno River Basin is monitored through the Hydrologic Automatic Data Acquisition (HADA) system. The Hidden Dam Project Office Computer (HIDPC) automatically polls the Remote Telemetry Units (RTU) listed in Table 5-2. The pool elevation and local river stages are polled every 15 minutes, and the remote precipitation gages are polled/received every hour. Data from HIDPC is transferred, via Wide Area Network (WAN) or telephone, to the District Office at least once an hour. Other agencies collect and publish hydrometeorologic data for other sites throughout the Fresno River Basin and adjacent basins. These sites are shown on Plate 4-1 and Plate 4-4.

| TABLE 5-2<br>HYDROMETEOROLOGIC DATA COLLECTED AT HIDDEN DAM                                                                                                                                                                                                                                                                                                                                                                                                               |      |                            |        |        |                     |                     |        |        |        |        |        |        |        |        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------------------------|--------|--------|---------------------|---------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Station and Mnemonic                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      | SHEF Physical Element Code |        |        |                     |                     |        |        |        |        |        |        |        |        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      | E<br>D                     | H<br>G | H<br>P | N<br>O <sub>1</sub> | N<br>O <sub>2</sub> | P<br>C | T<br>A | T<br>P | T<br>W | U<br>C | U<br>D | U<br>S | V<br>B |
| Hidden Dam                                                                                                                                                                                                                                                                                                                                                                                                                                                                | HIDP |                            |        | x      | x                   | x                   |        |        |        |        |        |        |        | x      |
| Hidden Dam Outflow                                                                                                                                                                                                                                                                                                                                                                                                                                                        | HIDQ |                            | x      |        |                     |                     |        |        |        | x      |        |        |        | x      |
| Hidden Dam Weather                                                                                                                                                                                                                                                                                                                                                                                                                                                        | HIDW | x                          |        |        |                     |                     | x      | x      | x      |        | x      | x      | x      | x      |
| Deadwood Repeater 1                                                                                                                                                                                                                                                                                                                                                                                                                                                       | DW1  |                            |        |        |                     |                     |        | x      |        |        |        |        |        | x      |
| Deadwood Repeater 2                                                                                                                                                                                                                                                                                                                                                                                                                                                       | DW2  |                            |        |        |                     |                     |        | x      |        |        |        |        |        | x      |
| Oakhurst                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | OKH  |                            |        |        |                     |                     | x      | x      |        |        |        |        |        | x      |
| Westfall                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | WST  |                            |        |        |                     |                     | x      | x      |        |        |        |        |        | x      |
| Bunning Ranch                                                                                                                                                                                                                                                                                                                                                                                                                                                             | BNR  |                            |        |        |                     |                     | x      | x      |        |        |        |        |        | x      |
| Magoon                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | MGN  |                            |        |        |                     |                     | x      | x      |        |        |        |        |        | x      |
| <u>Key to SHEF Physical Element Codes:</u><br>ED - Evaporation, Pan Depth (in)      TP - Temperature, Evap. Pan (°F)<br>HG - Height, River Stage (ft)      TW - Temperature, Water (°F)<br>HP - Height, Pool Elevation (ft)      UC - Wind, Accumulated Wind Travel (mi)<br>NO - Gate Opening (ft)      UD - Wind, Direction (Tens of Degrees)<br>PC - Precipitation, Accumulated (in)      US - Wind, Speed (mi/hr)<br>TA - Temperature, Air (°F)      VB - Volt Battery |      |                            |        |        |                     |                     |        |        |        |        |        |        |        |        |

c. Maintenance. The Water Management Section, Engineering Division, Sacramento District, U.S. Army Corps of Engineers, is responsible for maintaining all gages listed in Table 5-1. All gages have back-up battery power and will continue to operate for several days without commercial power.

#### 5-02. Water Quality Stations

a. Facilities. The Sacramento District does not maintain any water quality stations at Hidden Dam. However, a temperature sensor at the Hidden Dam outflow gage continuously records outflow water temperature every 15 minutes. Other agencies that collect and monitor water quality in the surrounding area include USGS and DWR. Hensley Lake water samples and

measurements are collected using manual field sampling methods. The Corps of Engineers contracts for water quality measurements on the lake, inflow, and outflow to be taken every April and August. The samples are submitted to certified private laboratories under contract to the Corps. Parameter measurements include:

(1) Temperature, dissolved oxygen, pH, electro-conductivity, nutrients, and heavy metals at the inflow and Hensley Lake.

(2) Profiles of temperature, light transparency (Secchi disk), algae enumerations, analysis of fish tissues, plus the parameters listed in (1) at Hensley Lake.

(3) Chemical oxygen and the parameters listed in (1) at the inflow.

(4) Temperature and heavy metals at the outflow.

b. Reporting. Except for continuous temperature data, water quality data is not available on a real-time basis at CESPCK. The continuous temperature data is stored on the District's Water Control Data System (WCDS) and has been published by the USGS in "Water Resources Data for California" from water year 1976 through 1990 when USACE took over operation of the gage. The results of the reservoir water quality analysis are published in the Sacramento District's "Annual Water Quality Report," which is produced in accordance with ER 1130-2-8154, "Water Quality and Environmental Management for Corps Civil Works Projects," 31 May 1995. Annual Water Quality Reports are available at: <http://www.spk.usace.army.mil/cespk-ed/EnvirProj/AWQM-WY2002/awqm-wy2002.html>.

c. Maintenance. The Water Management Section, Engineering Division, Sacramento District, U.S. Army Corps of Engineers, is responsible for maintaining the water temperature gage at the Hidden Dam Outflow gage. Maintenance is performed via contract with a small business company. Other water quality gages are maintained by various agencies.

#### 5-03. Sediment Stations

a. Facilities. CESPCK does not maintain or collect any sediment data on either the upstream or downstream tributaries of Hidden Dam. This type data is not required for the real-time operation of Hidden Dam. The impact of sedimentation in Hensley Lake is discussed in detail in Section 4-04, and is projected to be 5,300 acre-feet ( $6.5 \text{ hm}^3$ ) over 100-years, or 53 ac-ft ( $0.1 \text{ hm}^3$ ) per year. There has not been a soil survey since the Hidden Dam-Hensley Lake project was completed, so all storage capacities discussed within this Water Control Manual are based on original storage capacity data. A sediment survey needs to be done at Hidden Dam-Hensley Lake because computation of inflow at certain elevations results in negative values, which could be related to excess sedimentation.

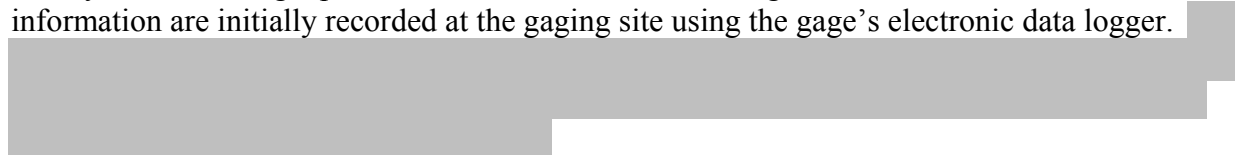
b. Reporting. Sediment data are not currently collected, reported, or maintained by

CESPK for Hidden Dam.

c. Maintenance. CESPK has no maintenance responsibilities with respect to sediment stations.

5-04. Recording Hydrologic Data. In general, the agency or organization responsible for a particular gage is also responsible for maintaining the official record for that gage. Therefore, the Sacramento District maintains the official record for the Corps gages listed in Table 5-1.

The hydrometeorologic parameters listed in Table 5-1 along with additional maintenance information are initially recorded at the gaging site using the gage's electronic data logger.



A small, private company under contract with the Corps measures and analyzes publishable surface water data. Parameters include stream flow and climatological measurements (precipitation, evaporation, anemometer/wind direction). They also maintain the gage house, facilities, and data collection platform (DCP), and perform instrument sensor maintenance. Flow measurements are needed to verify that the flows requested are being released from the dam and that releases from the dam do not exceed channel capacities. The records are transmitted to the Hidden Dam-Hensley Lake Project Office PC and stored in the local database, and then electronically transferred to the Water Control Data System of the Sacramento District.

Once transmitted to the District Office, the data is stored and maintained in the database files located on the District's Water Control Data System (WCDS) computers. Both the raw hydrometeorologic data listed in Table 5-1 and data computed from the raw data (e.g., reservoir storage, inflow, outflow, and stream flows) are maintained in the database. This data will be kept on file, for archival purposes, for the life of the project and beyond.

WCDS quality control procedures consist of a combination of automated screening and subsequent manual inspection. Specific sensor type screening criteria are built into the computational algorithms. As an example of an automated process, raw precipitation data is screened and updated to ensure that any hysteresis is smoothed prior to further processing. After the automated processing, WCDS data technicians review raw and computed results to ensure accuracy. Errors are manually corrected. Finally, an official record of daily values, based on USGS standards, is provided on an annual basis by the contractor responsible for gage maintenance.

The Water Management Section of the Corps of Engineers in Sacramento publishes records of storage, inflow, outflow, precipitation, air temperature, water temperature, and evaporation. Prior to October 1991, the U.S. Geological Survey, using Corps records, published outflows and

storages for the project. From October 1975 to September 1990, water temperatures were recorded and published by the U.S. Geological Survey.

5-05. [REDACTED]

The HADA Data Collection System can interrogate the project PC's either by WAN or telephone. The Water Control Data System utilizes back-up power from an Uninterruptible Power Supply (UPS) and standby generators.

5-06. Communication with Project

a. Regulating Office with Hidden Lake Project Office. Direct communication between the Water Management Section, Sacramento District Office, and the Hidden Dam Project Office is normally conducted via telephone for all matters relating to the single operating purpose of flood control. Communication can be via voice radio or WAN (e-mail). In the event that all communication should be interrupted, a set of "Standing Instructions to Project Operators" has been compiled for Hidden Dam, and a copy of these instructions is included in Exhibit A of this manual. Personnel responsible for project operation are listed at the front of this manual and in Exhibit A.

b. Between Regulating Office and Others. Close coordination via telephone between the Water Management Section, Sacramento District Office, Corps of Engineers, and the Madera Irrigation District is necessary when transitioning to and from flood operation, in order to limit the effects of the operation on diversion structures. Additionally, flood releases are coordinated with the Lower San Joaquin Levee District.

c. Between Hidden Dam Project Office and Others. Direct communication between the Project Office and other local and federal agencies is normally conducted via telephone or radio for all matters relating to the operation of the project. Pertinent agencies are listed at the front of this manual and in Exhibit A. Exhibit D identifies the various agencies that require notification in the event of a flood emergency.

5-07. Project Reporting Instructions. The Water Management Section, Sacramento District, may communicate with the Hidden Dam Project Office to provide special instructions regarding the project. Voice radio, WAN, or telephone communication should be used by the Hidden Dam project operators to report any failure of machinery, equipment, or any other unusual conditions at the dam. Hydrologic data should be reported in the same manner, if requested. Personnel responsible for project operation are listed at the front of this manual and in Exhibit A.

All significant inquiries received from citizens, constituents, or interest groups regarding water control procedures or actions must be referred directly to the Water Management Section,

Sacramento District. Press inquiries must be directly referred to the Public Affairs Office (PAO), Sacramento District.

5-08. Warnings. The Corps of Engineers, Sacramento District, maintains contact with the local district office of the National Weather Service (NWS) at all times concerning general meteorological conditions. Warnings are presented in Exhibit A.

Personnel from the NWS Office in Sacramento and the California Department of Water Resources (DWR) are assigned to the Joint Federal-State River Forecast Center in Sacramento, which monitors weather conditions and river stages on a year-round basis. When floods are imminent, the State Flood Operations Center is activated. It operates on a 24-hour basis in conjunction with the River Forecast Center. In addition, among other flood emergency activities, the center furnishes interested parties with information about flood situations as they develop. The flood Operations Center furnishes flood information and flood warnings to the local news media, law enforcement agencies, and other agencies for dissemination to the public.

The DWR, through the Flood Operations Center, coordinates flood-fighting activities throughout the state and is authorized to receive requests from local public agencies for assistance during floods. The Corps of Engineers responds to requests for flood fighting and rescues from the California Office of Emergency Services (OES) when the emergency is beyond the capabilities of other government agencies.

Pursuant to the provisions of Section 8589.5, Government Code of California, emergency procedures must be established for the evacuation and control of potential flood areas, in the event of sudden failure of dams. [REDACTED]

[REDACTED] The local jurisdiction must then adopt emergency procedures that include, among other things, specific routes to be used for evacuation, traffic control measures, movement of people without their own transportation, shelter of evacuees, evacuation and care of people from institutions, and perimeter security, interior security, and re-occupation of evacuation areas.



**Photo 5-1.** Control tower at Hidden Dam



**Photo 5-2.** Beaver dam below Hidden Dam

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**Photo 5-3.** Gaging station downstream of Hidden Dam



**Photo 5-4.** Climate station at Hidden Dam

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## VI - HYDROLOGIC FORECASTS

6-01. General. Reliable long-term rain flood forecasts are not available at this time. However, short-term precipitation forecasts are available and are useful for anticipating release changes due to increased inflow or changes in downstream conditions. Forecasting may also aid in the anticipation of damaging flows and thereby allow for the earliest possible warnings. Based on antecedent basin conditions and forecasted runoff, flood control space should be kept at a level sufficient to allow storage of an event without releases exceeding downstream channel capacity.

a. Role of the U.S. Army Corps of Engineers. The Corps of Engineers, by regulation, cannot furnish forecasts of flows into Hensley Lake. That mission is the responsibility of the National Weather Service (NWS). However, during flood conditions, the Corps of Engineers provides the Department of Water Resources (DWR) with 5-day flood release forecasts. The DWR then coordinates with the National Weather Service's River Forecast Center, which uses the information to aid in forecasting project inflows and flows on the San Joaquin River.

b. Role of Other Agencies

(1) The NWS provides Quantitative Precipitation Forecasts (QPF) for the Fresno River Basin and river flow forecast data for the San Joaquin River. The QPF is for the succeeding 24-hour period and is broken down into 6-hour increments. These short-term forecasts are updated twice daily at 4:00 a.m. and 4:00 p.m. The NWS also provides freezing levels, an index of loss potential of the basin, short-term local precipitation forecasts up to 24 hours in advance, and medium-range forecasts (5-day).

(2) The Joint Federal-State River Forecast Center (RFC) monitors weather conditions and river stages on a year-round basis. The RFC will forecast stages and flows on major river systems; however, only flow forecasts are made for the Fresno River.

(3) The Madera Irrigation District monitors water supply and irrigation demands within the basin.

### 6-02. Flood Condition Forecasts

a. Requirements. Knowledge of current basin conditions and general basin characteristics aids in forecasting flows during flood conditions. Information from the NWS, real-time climatological data, antecedent basin wetness, inflow recession values, and local flow estimates can all be used to help determine the forecast during flood conditions.

Uncontrolled local flows (occurring downstream during a rainfall flood event) may be substantial and would require that the release from the project be reduced. The release should be adjusted to maintain the combination of project release plus uncontrolled local flow at or below

the objective flow of 5,000 cfs (141.6 m<sup>3</sup>/s), for as long as possible. For a discussion of downstream channel capacities, see Chapter 2, Paragraph 2-04a and Chapter 4, Paragraph 4-09.

b. Methods. The forecast of basin mean precipitation and snow level for the Fresno River Basin is conducted by the NWS, and is issued as part of the QPF. The QPF provides 6-day forecasts that are updated daily at 4:00 am PST and every 6 hours when read. The NWS River Forecast Center also forecasts inflow and provides information on the antecedent moisture index and the freezing level for the Fresno River Basin. Real-time stream flow data and the anticipated precipitation amounts can be translated into estimated flows by means of a unit hydrograph.

Antecedent Index (AI), a method of forecasting the inflow hydrograph to Hidden Dam-Hensley Lake, was developed by RFC (the agency that prepares periodic inflow forecasts during flood periods). The forecast method is illustrated by the rainflood forecasting criteria shown on Plate 6-1. Figure 1 of the chart gives the rainfall-runoff relationship as computed by RFC for the area above Hidden Dam. It gives the potential runoff resulting from total basin mean precipitation for any desired period. Figure 2 of Plate 6-1 adjusts the total potential runoff to immediate runoff caused by the rainfall only during a specified period of precipitation. This adjustment is based mainly on the freezing level of the total contributing area above Hidden Dam (236 mi<sup>2</sup>) (611 km<sup>2</sup>). The approximate freezing level is usually reported during storm periods by the National Weather Service (NWS). An average freezing level should be used whenever this level changes rapidly during a storm period. (Because all large flood-producing storms have high freezing levels, and since only a small portion of the Fresno River Basin at Hidden Dam is above elevation 5,000 feet (1,524 m), it can be assumed that all drainage areas above the dam will be contributing during large rainfloods). The AI Chart shown on Plate 6-1 is no longer used by RFC but is included in this Water Control Manual for historical purposes.

#### 6-03. Conservation Purpose Forecasts

a. Requirements. The operation of Hensley Lake for conservation is generally as requested by the Madera Irrigation District. The Corps is not currently required to perform water quality forecasts for Hensley Lake. Sections 4-08 “Water Quality” and 5-02 “Water Quality Stations” contain further information related to water quality.

b. Methods. The Corps of Engineers relies on irrigation demand estimates from the Madera Irrigation District to evaluate the timeliness of releases, when balancing flood control and conservation storage space requirements. The required flood control space for any given time of the year is as shown on the Water Control Diagram on Plate A-11.

6-04. Long-Range Forecasts. Long-range forecasts are snowmelt runoff forecasts, and are characterized by large flow volumes, several months in duration, and low to moderate peak inflows. However, long-range forecasting for flood control is not a consideration in the Fresno River Basin, due to short storm durations and because there is no significant snow in the basin. Snowmelt is not normally a concern for this area of the basin.

6-05. Drought Forecasts. The Corps of Engineers' Drought Contingency Plan for the Hidden Dam-Hensley Lake Project is presented in Exhibit C.

a. Requirements. The state of California has developed criteria to judge drought severity based on inflow to the Delta at the mouths of the Sacramento and San Joaquin Rivers. An annual runoff graphic is provided as Plate C-2. This graph was derived from a least squares estimate of annual runoff based on total runoff to date. This chart provides values that have a 50 percent chance of not being exceeded.

b. Methods. The Governor can declare a statewide drought emergency. The Governor's Drought Action Team, headed by the Drought Administrator, has been formed to address drought planning. The team develops an index of drought conditions for the entire Sacramento/San Joaquin River System. This team was established 1 February 1991 by the Governor's Executive Order No.W-3-91 and consists of representatives from the following state agencies:

- State Resource Agency
- Department of Food and Agriculture
- Office of Emergency Services
- Department of Finance
- Department of Fish and Game
- Department of Forestry and Fire Protection
- Department of Health Services
- Office of Planning and Research
- Adjutant General of the Military Department

Representatives from other state agencies may be appointed upon the recommendation of the Drought Administrator where he finds their department or agency has statutory responsibilities, expertise, or resources that would significantly contribute to mitigation of the effects of the drought.

The Drought Administrator is also directed to invite the participation of any independent boards, commissions, and federal agencies that have jurisdiction, expertise, and resources that would significantly contribute to the mitigation of the effects of the drought. These include, but are not limited to, the following:

- State Water Resources Control Board
- Public Utilities Commission
- United States Department of Agriculture
- United States Department of the Interior
- United States Army Corps of Engineers
- Federal Emergency Management Agency

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Any drought declaration, drought forecasts, or drought planning which may impact project operation will be the responsibility of this Drought Action Team.

c. Reference Documents. The Drought Action Team has produced a report on California droughts, dated 15 February 1991 and December 1991. A report on California droughts may be found in the "California Water Plan Update, 1993." Currently, drought indexes each year are reported in Bulletin 120, "Water Supply Outlooks," published by the DWR.

## VII - WATER CONTROL PLAN

7-01. General Objectives. The Hidden Dam-Hensley Lake Project is a multi-purpose development with the objectives of: (1) protecting areas below Hidden Dam from floods by restricting flows downstream in the Fresno River to the objective flow rate of 5,000 cfs (141.6 m<sup>3</sup>/s), insofar as possible, (2) providing maximum possible conservation yield for irrigation, and (3) maintaining a minimum pool of at least 5,000 acre-feet (6.2 hm<sup>3</sup>) for recreation.

7-02. Constraints. The objective flow of the Fresno River, below Hidden Dam (Fresno River at Madera Canal), is 5,000 cfs (141.6 m<sup>3</sup>/s). Fresno River channel capacities are shown on Plate A-10. The maximum discharge capacity of the outlet works at given elevations is shown in the pertinent data table at the beginning of this manual and on Plate A-5, Sheets 1-3 and tabulated on Plate A-6. The gross pool of Hensley Lake is 90,000 acre-feet (111.0 hm<sup>3</sup>). The lake's maximum storage (normally available) for flood control is 65,000 acre-feet (80.2 hm<sup>3</sup>). The impact of sedimentation in Hensley Lake is discussed in detail in Section 4-04, and is projected to be 5,300 acre-feet (6.5 hm<sup>3</sup>) over 100-years, or 53 acre-feet (0.1 hm<sup>3</sup>) per year. There has not been a soil survey since the Hidden Dam-Hensley Lake project was completed, so all storage capacities discussed within this Water Control Manual are based on original storage capacity data.

Hensley Lake is part of a large system of reservoirs contributing water to the San Joaquin River. It is possible for flows that are rated less than design flow to cause damage in the San Joaquin River, because the flows may inundate land inside the levee system, or may seep through the levees and damage adjacent areas. Whenever possible, releases from the reservoir should reflect consideration of the conditions in all downstream channels, and the operation of the numerous other projects that contribute to the San Joaquin River. For a complete description of the San Joaquin River system, refer to the Master Water Control Manual for the San Joaquin River Basin.

7-03. Overall Plan for Water Control. The Water Control Plan for the Hidden Dam-Hensley Lake Project coordinates flood control space, irrigation storage, and recreational uses in order to meet the following objectives:

- a. Restrict flows in the downstream reaches of the Fresno River, Road 22 to the Eastside Bypass, to non-damaging rates (5,000 cfs) (141.6 m<sup>3</sup>/s).
- b. Provide the maximum practical amount of storage for conservation of irrigation water without impairing the flood control functions of the reservoir.
- c. Maintain a minimum pool of at least 5,000 acre-feet (6.2 hm<sup>3</sup>) for recreation.

7-04. Standing Instructions to Project Operators. During flood periods, Hensley Lake will be

regulated in accordance with the normal instructions for flood control operation, as explained in Paragraph 7-05 and Exhibit A of this manual. Exhibit A is designed to function as a separate and complete document, and is to be used as a water management guide. To facilitate independent use of Exhibit A, plates required for the flood control operation of Hidden Dam-Hensley Lake are provided therein. The storage and release of floodwater in the flood control space is under the direct control of the Water Management Section, Sacramento District, Corps of Engineers. Standing instructions to project operators, in the event of a flood emergency, are contained in Exhibit A, Section A-03. It is the responsibility of the Water Management staff to oversee all releases made from the project.

7-05. Flood Control. A detailed explanation of flood control operation is included in the text of Exhibit A.

a. Normal Regulation for Flood Control. Flood control regulation begins when storage in Hensley Lake exceeds the flood control reservation required at any time, according to the Water Control Diagram, Plate A-11, located in Exhibit A. The Water Control Diagram and this manual are the authorized project documents regarding flood control operations. The diagram is the result of analyses of flood frequency, seasonal flood potential, and downstream channel capacities consistent with project objectives. The diagram requires the following:

(1) Uniformly increasing flood control reservation from a minimum requirement of zero on 01 September to 65,000 acre-feet ( $80.1 \text{ hm}^3$ ) by 30 November.

(2) Conditional flood control reservation up to a maximum of 65,000 acre-feet ( $80.1 \text{ hm}^3$ ) from 20 December through 15 March, decreasing to zero as early as 12 May and as late as 20 June, depending on the rain flood parameter (a precipitation index of basin wetness).

The basin wetness parameter is computed from daily mean basin precipitation weighted according to station normal annual precipitation at the five project hydrometeorological system gages. Unit weightings are indicated on the Water Control Diagram, Plate A-11. The index is computed by adding previous daily mean basin precipitation values decayed by 3 percent each day to the current date's basin precipitation, starting with zero parameter on 1 September.

If the reservoir storage is encroached within the flood control reservation, then flood control releases will be made as rapidly as downstream conditions permit. However, flood control releases have the following limitations, also indicated on the Water Control Diagram: (1) releases during normal flood control operations shall not be changed more than 500 cfs ( $14.2 \text{ m}^3/\text{s}$ ) per hour, (2) no flood-control reservation is required during the months of July and August, and (3) releases shall be limited to such quantities as will not cause flows in the Fresno River at Madera Canal to exceed 5,000 cfs ( $141.6 \text{ m}^3/\text{s}$ ). For detailed information on responsibilities for flood control, refer to Chapter IX.

When the reservoir pool elevation is below gross pool (540 feet MSL) (164.6 m MSL), flood control releases will be made in accordance with the release schedule shown on the Water

Control Diagram, Plate A-11. During floods in which the pool level exceeds the spillway crest (540 feet MSL) (164.4 m MSL), the Spillway Rating Curve and Table (shown on Plates A-7 and A-8) should be checked frequently as the spill bypasses the outflow gage. The outlet gates are used to manage small to moderate floods. However, occasionally, during large floods it will be necessary to gradually close the outlet gates as the pool elevation rises above gross pool (540 feet MSL) (164.6 m MSL), in order to control total outflow from the spillway and outlets to the objective flow as long as possible. During such floods, the outlet gates will remain closed as long as spillway outflow exceeds 5,000 cfs (141.6 m<sup>3</sup>/s). Subsequently, as the spillway flow recedes below 5,000 cfs (141.6 m<sup>3</sup>/s), the gates will be gradually re-opened to maintain the maximum objective flow as long as needed to evacuate the flood space, in accordance with the Water Control Diagram, Plate A-11.

b. Emergency Regulation. If communications between the project and Water Management technical staff are disrupted, the following procedures will be followed for project operation:

(1) Continue releases in accordance with the last instructions from the Water Management Section staff and make every attempt to re-establish communication.

(2) If communications cannot be re-established, make releases in accordance with the Water Control Diagram (Plate A-11) and consult the Spillway Rating Curve/Table frequently while spilling is occurring.

c. Constraints. Releases from Hidden Dam, insofar as possible, will be restricted to the non-damaging channel capacity of 5,000 cfs (141.6 m<sup>3</sup>/s) at Fresno River at Madera Canal. (Refer to Paragraph 7-16, which pertains to the rate of release change.)

7-06. Recreation. A 5,000 acre-foot (6.2 hm<sup>3</sup>) minimum pool is maintained for the Hensley Lake recreational features shown on Plate 2-8. Whenever the pool elevation is expected to rise or fall drastically, the park employees disconnect and move the boat docks. The docks at Hidden View Campground have the following elevations: lower ramp 448-479 feet MSL (136.6-146 m MSL), the middle ramp 464-499 feet MSL (141.4-152.1 m MSL) and the upper ramp 491-540 feet MSL (149.7-164.6 m MSL). The dock at Buck Ridge has a lower ramp 451-483 feet MSL (137.5-147.2 m MSL) and upper ramp 470-540 feet MSL (143.3-164.6 m MSL).

7-07. Water Quality. Hensley Lake is not operated for water quality. Although water quality control may not be an authorized project purpose, compliance with Public Law 92-500 requires that all federal facilities be managed, operated, and maintained to protect and enhance the quality of water and land resources through conformance with applicable federal, state, interstate, and local substantive standards. Water quality measurements and water quality of the lake are discussed in Paragraph 4-08, "Water Quality."

7-08. Fish and Wildlife. The Hidden Dam-Hensley Lake Project is not operated specifically for fish and wildlife purposes, although the lake supports a significant and diverse fish, bird, and

mammal population. Approximately 500 acres (2.0 km<sup>2</sup>) at the northeast end of Hensley Lake have been set aside as a wildlife management area. Since releases are zero much of the year, no downstream fishery exists.

7-09. Water Supply. Space not reserved for flood control is operated for irrigation, as directed by the Madera Irrigation District and monitored by the Water Management Section. The user contract No. 14-06-200-4020A between the United States (represented by the USBR) and the Madera Irrigation District provides for operation and maintenance of irrigation space.

7-10. Hydroelectric Power. Currently, there are no facilities for hydroelectric power.

7-11. Navigation. Navigation is not a project purpose. However, navigable waters include all “waters of the United States” which are in turn defined in Title 33 CFR Part 329 to include all waters that might be susceptible to use in interstate commerce, and all other waters, such as lakes and wetlands, which could affect interstate commerce, including those from which fish could be taken and sold in interstate commerce.

7-12. Drought Contingency Plans. ER 1110-2-1941 (Drought Contingency Plans) requires the development and implementation of drought management plans as part of the overall water control management activities for all projects with controlled storage. A detailed Drought Contingency Plan is included in Exhibit C.

The Governor can declare a statewide drought emergency. The Governor's State Drought Action Team (SDAT) has been formed to address drought planning. This team, established 1 February 1991 by the Governor's Executive Order No. W-3-91, consists of key state and federal personnel who are responsible for overseeing and coordinating state and federal responses to droughts. The Division Engineer is a SDAT member. Any drought declaration, drought forecasts, or drought planning that may impact project operation will be the responsibility of this entity.

7-13. Flood Emergency Action Plans. [REDACTED]

[REDACTED] The flood emergency activities of the Sacramento District, U.S. Army Corps of Engineers, are divided into the following four phases:

a. Normal Phase (Normal Operations). This phase is in effect during normal day-to-day operations. Emergency functions will be conducted by the normal organizational units assigned to this type of work. The Chief, Water Management Section, will determine the need for obtaining hydrologic and meteorologic data during non-duty hours. If the assistance of reservoir personnel is needed, a request will be sent directly to the Park Manager, or to the Project Operators. Prior to the flood season, personnel assigned to the emergency flood organization will review ER 500-1-1, “Emergency Employment of Army and Other Resources – Civil Emergency Management Program,” and then ready themselves to accomplish their duties.

b. Information Phase. The Chief, Water Management Section, will place the District in Information Phase upon indication of impending floods, flash floods, localized short duration floods, minor floods, and the early stages of major floods, when property damage is not extensive and danger to life is not serious. An alert or warning will be issued to all District personnel, including field offices, and local interests in the area affected. The District may assign liaison personnel to the federal or state center during non-duty hours.

c. Alert Phase. Whenever the flood situation becomes so severe that forecast gage heights indicate that river stages will reach or exceed the bank-full stages, the Chief, Water Management Section, will recommend to the Chief, Engineering Division, to advise the District Engineer to declare an Alert Stage. The Chief, Construction-Operations Division, will activate the Flood Emergency Operations Center (EOC). The EOC will be staffed with personnel necessary to maintain a close, continuous check on weather and hydrological conditions, and issue situation reports to all District elements concerned. Liaison Engineers will be assigned to the Federal-State Flood Center.

d. Mobilization Phase. The District Engineer will order mobilization whenever major flooding appears imminent, and when the District may be called to furnish major emergency assistance. Notification will be given to all parties as rapidly as possible, and flood emergency activities will be given priority over all other District activities for the duration of the mobilization period. In addition, the District's flood emergency organization will be fully activated.

7-14. Other. There are no other project purposes.

7-15. Deviation from Normal Regulation. Deviations from approved Water Control Plans occur because every possible circumstance cannot be accounted for in a Water Control Plan. Because of the often competing goals and complex interactions of interested groups/agencies, even seemingly inconsequential deviations from an approved plan can lead to unforeseen environmental and legal complications. Deviations from approved Water Control Plans are intended, therefore, to address unforeseen and unique circumstances. They are not intended as a means for identifying or initiating new opportunities to re-operate or reallocate storage in response to new and changing public needs. Section A-04 in Exhibit A and Exhibit B of this manual provide general information for preparing all deviations.

7-16. Rate of Release Change. Release changes should not be made without notifying the Madera Irrigation District.



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## VIII - EFFECT OF WATER CONTROL PLAN

8-01. General. The Hidden Dam-Hensley Lake Project regulates flood flows in the Fresno River Basin to obtain the maximum practical reduction in flood damages, increase water available for irrigation during irrigation season, and increase the recreational opportunities within the Fresno River Basin. The flood control storage in Hensley Lake is sufficient to impound up to 65,000 acre-feet ( $80.1 \text{ hm}^3$ ) of floodwater from the 236 square miles ( $611 \text{ km}^2$ ) of the Hidden Dam drainage area. The impact of sedimentation in Hensley Lake is discussed in detail in Section 4-04, and is projected to be 5,300 acre-feet ( $6.5 \text{ hm}^3$ ) over 100-years, or 53 acre-feet ( $0.1 \text{ hm}^3$ ) per year (1,537 acre-feet ( $1.9 \text{ hm}^3$ ) through water year 2004). The historical operation of Hensley Lake is shown graphically on Plate 4-5 and the historical flood control requirements are tabulated on Plate 4-6.

8-02. Flood Control. [REDACTED]

The following storages computed for Spillway Design Flood (SDF), Probable Maximum Flood (PMF), Reservoir Design Flood (RDF), and Standard Project Flood (SPF) do not reflect the impact of sedimentation (see Paragraphs 8-01, above, and 4-04 for additional information on sedimentation). There has not been a soil survey since the Hidden Dam-Hensley Lake project was completed, so all storage capacities discussed within this Water Control Manual are based on original storage capacity data.

a. Spillway Design Flood. The (1964) Probable Maximum Flood (PMF) at Hensley Lake—the largest flood considered to be reasonably possible from a combination of the most critical meteorological and hydrologic conditions at this location—has a peak inflow of 114,000 cfs ( $3,228.5 \text{ m}^3/\text{s}$ ) with a 4-day volume of 229,000 acre-feet ( $282.4 \text{ hm}^3$ ). It was used as the basis for design of the spillway for Hidden Dam. The PMF was calculated in 1964 for presentation in the “Fresno River Basin, California; Hidden Project, Design Memorandum No. 1 – Hydrology,” dated 15 June 1964. Storm amounts were based on the U.S. Weather Bureau’s Hydrometeorological Report No. 36, “Interim Report, Probable Maximum Precipitation in California,” dated October 1961 (HMR 36). The total Probable Maximum Precipitation (PMP) above the dam was computed to be 25.17 inches (63.9 cm). The resulting flood routing established maximum storage of 117,500 acre-feet ( $144.9 \text{ hm}^3$ ), spillway design pool elevation of 556.2 feet MSL (169.5 m MSL), and maximum outflow of 106,400 cfs ( $3,013.2 \text{ m}^3/\text{s}$ ) as shown on Plate 8-1.

b. Probable Maximum Flood (PMF). In 1982, a new Probable Maximum Flood was computed based on the updated Probable Maximum Precipitation (PMP) values determined from the revised 1969 HMR 36, and is shown on Plate 8-2. The HMR 36 revisions incorporate a downward adjustment of the orographic component. The updated PMP value is 26.75 inches

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(67.9 cm) and is assumed to have been part of a large storm series with the standard project storm preceding the PMP. This storm series removed most of the antecedent snow cover and saturated the basin, resulting in low loss rates and the filling of Hensley Lake.

This flood has a peak flow of 111,000 cfs (3,143.5 m<sup>3</sup>/s) and a 4-day volume of 206,200 acre-feet (254.2 hm<sup>3</sup>). A constant loss rate of .15 inch (0.4 cm) per hour was used based on values determined from reconstitution of the December 1955, April 1958, and February 1969 floods. Unitgraph optimization of those flood events produced a unitgraph differing little from the historical type unitgraph developed for the 1964 study. It was therefore decided to compute the new PMF using the PMF unitgraph derived during the 1964 study. This unitgraph was modified by increasing by 14 percent the peak of the historical unitgraph to allow for an assumed increase in hydraulic efficiency. The snowmelt contribution was not taken into account in computing the 1982 PMF, as it was considered to be insignificant.

The 1982 PMF was routed through Hensley Lake assuming starting storage at gross pool level (540 feet MSL) (164.6 m MSL), the spillway crest elevation. The reservoir is assumed filled by the standard project flood 5 days previous, which allows for only a negligible drawdown. (The 1964 PMF routing had also assumed a starting storage at gross pool level.) Under present day operational criteria, the outlet works gates are gradually closed as the elevation rises above gross pool level, to minimize downstream flows as long as possible. Outlet gates remain closed as long as the spillway flow exceeds 5,000 cfs (141.6 m<sup>3</sup>/s). For the 1982 PMF routing through Hensley Lake, the maximum spillway outflow is 101,500 cfs (2,874.5 m<sup>3</sup>/s) with maximum reservoir storage of 116,000 acre-feet (143 hm<sup>3</sup>). Hidden dam can safely pass the new PMF with five feet of freeboard. Pertinent data regarding the original Spillway Design Flood and the later Probable Maximum Flood are presented below with the estimated effect of sedimentation from 1975-2004 in italics:

|                                  | SPILLWAY DESIGN<br>FLOOD ROUTING<br>(1964) | PROBABLE MAXIMUM<br>FLOOD ROUTING (1982) |
|----------------------------------|--------------------------------------------|------------------------------------------|
| Storm Amounts (in)               | 25.17                                      | 26.75                                    |
| Snow Melt (in)                   | 2.73                                       | 0                                        |
| Peak Inflow (cfs)                | 114,000                                    | 111,000                                  |
| 4-Day Volume (ac-ft)             | 229,000                                    | 206,200                                  |
| Starting Storage (ac-ft)         | 90,200 ( <i>88,663</i> )                   | 90,200 ( <i>88,663</i> )                 |
| Maximum Storage (ac-ft)          | 117,500 ( <i>115,963</i> )                 | 116,600 ( <i>115,063</i> )               |
| Maximum Pool Elevation (ft MSL)  | 556.2                                      | 555.4                                    |
| Maximum Spillway Discharge (cfs) | 106,400                                    | 101,500                                  |

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c. Reservoir Design Flood. A hypothetical flood, representing the maximum flood controllable to project objective outflows (corresponding to 5,000 cfs ( $141.6 \text{ m}^3/\text{s}$ ) through downstream channel reaches) and utilizing 65,000 acre-feet ( $80.1 \text{ hm}^3$ ) of flood control space, was derived. This flood, referred to as the “Reservoir Design Flood (RDF)” or “Project Design Flood,” resulted from using 83 percent of the Standard Project Flood. It has a maximum flow of 40,600 cfs ( $1,149.8 \text{ m}^3/\text{s}$ ) and a 5-day volume of 92,100 acre-feet ( $113.6 \text{ hm}^3$ ). The maximum outflow is 4,000 cfs ( $113.3 \text{ m}^3/\text{s}$ ), with maximum reservoir storage of 90,000 acre-feet ( $111.0 \text{ hm}^3$ ) and a maximum pool elevation of 540 feet (164.6 m). A routing of this flood through Hensley Lake and below Hidden Dam through the city of Madera is shown on Plate 8-3. As indicated on Plate 8-6, this flood is about the same as the 0.3 percent exceedence frequency flood.

d. Standard Project Flood. A Standard Project Flood (SPF) was developed for the drainage area above Hidden Dam by using the criteria published in the office report "Standard Project Rain Flood Criteria, Sacramento-San Joaquin Valley, California," dated April 1957 (revised September 1958). This flood has a peak inflow of 48,900 cfs ( $1,384.8 \text{ m}^3/\text{s}$ ) and a 5-day volume of 110,000 acre-feet ( $135.6 \text{ hm}^3$ ). The maximum outflow is 20,400 cfs ( $577.7 \text{ m}^3/\text{s}$ ), with maximum reservoir storage of 100,000 acre-feet ( $123.3 \text{ hm}^3$ ) and a maximum pool elevation of 546.1 feet (166.5 m). A routing of this flood through Hensley Lake and below Hidden Dam through the city of Madera is shown on Plate 8-4.

A concurrent flood, developed for the foothill portion of the basin, has a peak flow and volume of 2,200 cfs ( $62.3 \text{ m}^3/\text{s}$ ) and 3,500 acre-feet ( $4.3 \text{ hm}^3$ ), respectively. A flood that was computed using a Standard Project Storm centered over the foothill area and a concurrent storm centered over the Hensley Lake contributing area resulted in lower flows downstream from Hidden Dam.

e. Floods of Record. Hypothetical flood routings of the December 1955 and February 1969 rain floods are shown on Plate 8-5. Historical operations for the period 1975-2004 are shown in Plate 4-5, Sheets 1-3, and historical flood requirements are tabulated on Plate 4-6.

8-03. Recreation. Table 2-1 shows the estimated annual visitation hours since 1978. Hensley Lake provides opportunities for many types of recreation. A description of the recreational development at the lake is presented in Chapter 2, Paragraph 2-06.

8-04. Water Quality. Water quality sampling and testing are conducted in April and August of every year. The results of the water quality testing program are presented in Chapter IV, Paragraph 4-08, “Water Quality,” and include Table 4-11 “Temperature, Conductivity, Dissolved Oxygen, pH, and Secchi Depth” and Table 4-12 “Water Quality Summary.” Although the recreational activities at the lake may have some detrimental affect on water quality, Hensley Lake provides water for recreation and irrigation at times when there would otherwise be none. The quality of water is good to excellent relative to its beneficial uses.

8-05. Fish and Wildlife. Hensley Lake supports warm water fish such as bass, crappie, bluegill, and catfish. This is a considerable enhancement, given that the natural flow in the Fresno River often falls to zero.

8-06. Water Supply. Under natural conditions, a large portion of annual runoff can occur during one or more relatively short flood events. Nearly all flood events occur from late fall through early spring (November through April). The annual natural runoff is highly variable, so relatively dry periods can occur over several years. During the dry periods, annual demand may exceed annual runoff. Hensley Lake makes available for irrigation a new water supply, which should average about 23,800 acre-feet (29.3 hm<sup>3</sup>) per year and make it possible to irrigate additional lands within the Madera Irrigation District (MID) or adjacent to the district. Releases of irrigation water from Hensley Lake are closely coordinated with delivery of such water to the district from the U.S. Bureau of Reclamation's Central Valley Project (CVP) via the Madera Canal, to assure that irrigation releases from the lake will not interfere with prior agreements for delivery of CVP water to the District. When releases must be made to provide flood control space, such releases, insofar as possible, should be used to meet all irrigation demands, channel percolation losses, and spreading demands. Operation for irrigation will be as follows:

a. All inflows in excess of irrigation demands, channel losses, and spreading demands will be stored to the extent that conservation space is available as determined from the Water Control Diagram.

b. Releases of stored water, determined on a daily basis by the Madera Irrigation District, will be made to meet that portion of MID irrigation demand not supplied from the natural flow of the river, and also from water imported through the Madera Canal from CVP.

8-07. Hydroelectric Power. There are no hydroelectric generating facilities associated with this project.

8-08. Navigation. Navigation is not a project purpose. However, navigable waters include all waters of the United States, which are in turn defined by Title 33 CFR Part 329 to include all waters which might be susceptible to use in interstate commerce and all other waters, such as lakes and wetlands, which could affect interstate commerce, including those from which fish could be taken and sold in interstate commerce.

8-09. Drought Contingency Plans. A detailed explanation of the Drought Contingency Plan is included in Exhibit C.

8-10. Flood Emergency Action Plans. During flood emergencies, project operation provides benefits by defining procedures for warning downstream interests. Benefits can also be expected during non-flood emergencies, such as pollution abatement. Procedures and responsibilities during emergencies are presented in Chapter VII, Exhibit A, and Exhibit D.

## 8-11. Frequencies

a. Unregulated Flow Frequency. Unregulated rain flows and statistical parameters for the Fresno River below Hidden Dam are shown on Plate 8-6 and tabulated in Table 8-1 (Tables Section, page T8-1). The computed and adopted statistics, shown in Table 8-1, are based on the data presented for water years 1912-1941 and are adjusted based on correlation with the Fresno River near Knowles and the Chowchilla River at the Buchanan Dam site with observed data for the period 1942-2004. The rainflood flow frequency curves are for peak, 1-day, 3-day, 7-day, 15-day, and 30-day durations. These curves were derived using procedures contained in Bulletin 17B, "A Guideline for Determining Flood Flow Frequency," published by the U.S. Water Resources Council, March 1982. The final statistics have been adjusted to allow for orderly transition between curves of different durations.

b. Regulated Flow Frequency. The Peak Flow Frequency Curve for Fresno River below Hidden Dam is shown on Plate 8-7 and tabulated below in Table 8-2. This curve reflects the operation of Hidden Dam from 1976-2004. In order to extend the frequency curves to include hypothetical operations, floods were routed through Hidden Dam and down the Fresno River.

c. Pool Elevation, Duration and Frequency. Pool Elevation-Duration and Pool Elevation-Frequency curves for Hensley Lake are shown on Plates 8-8 and 8-9, respectively. These curves reflect the operation of Hensley Lake during the years 1976-2004.

d. Seasonal Variation of Storage. The Seasonal Variation of Storage Frequency is shown on Plate 8-10. The level of storage is highest in spring at the beginning of the recreation season (May through September) as a result of storing runoff for water supply. Subsequent releases made through the summer for water supply and downstream rights draw the reservoir system down for the beginning of the winter flood season.

8-12. Other Studies. Madera Irrigation District is planning to explore the possibility of pumping water from Madera Canal (Central Valley Project (CVP) water) into Hidden Dam, when available. The Sacramento-San Joaquin Comprehensive Study was completed in December 2002.

TABLE 8-2  
TABULATED VALUES OF RAINFLOOD  
FREQUENCY CURVE (PLATE 8-7)  
REGULATED CONDITIONS  
FRESNO RIVER BELOW HIDDEN DAM

| Water Year                                                                          | Date of Maximum 1-Day Flow | Flow (cfs) |
|-------------------------------------------------------------------------------------|----------------------------|------------|
| 1976                                                                                | 22-Jun-76                  | 329        |
| 1977                                                                                | 14-Jul-77                  | 115        |
| 1978                                                                                | 14-Feb-78                  | 2,760      |
| 1979                                                                                | 29-Mar-79                  | 1,020      |
| 1980                                                                                | 22-Feb-80                  | 3,469      |
| 1981                                                                                | 27-Jul-81                  | 244        |
| 1982                                                                                | 03-Apr-82                  | 2,003      |
| 1983                                                                                | 02-Mar-83                  | 3,827      |
| 1984                                                                                | 28-Dec-83                  | 2,220      |
| 1985                                                                                | 19-Jun-85                  | 227        |
| 1986                                                                                | 18-Feb-86                  | 3,076      |
| 1987                                                                                | 27-Jul-87                  | 222        |
| 1988                                                                                | 02-Jul-88                  | 162        |
| 1989                                                                                | 08-Jul-89                  | 228        |
| 1990                                                                                | 23-Jul-90                  | 248        |
| 1991                                                                                | 13-Jul-91                  | 224        |
| 1992                                                                                | 23-Jul-92                  | 248        |
| 1993                                                                                | 25-Feb-93                  | 1,413      |
| 1994                                                                                | 01-Jul-94                  | 254        |
| 1995                                                                                | 13-Mar-95                  | 3,036      |
| 1996                                                                                | 27-Feb-96                  | 506        |
| 1997                                                                                | 25-Jan-97                  | 4,256      |
| 1998                                                                                | 05-Feb-98                  | 2,117      |
| 1999                                                                                | 11-Feb-99                  | 502        |
| 2000                                                                                | 09-Mar-00                  | 494        |
| 2001                                                                                | 26-Jul-01                  | 194        |
| 2002                                                                                | 20-Jun-02                  | 201        |
| 2003                                                                                | 16-Mar-03                  | 323        |
| 2004                                                                                | 28-Mar-04                  | 507        |
| HYPOTHETICAL OPERATION                                                              |                            |            |
|                                                                                     | Probability (percent)      | Flow (cfs) |
|                                                                                     | 1.0                        | 4,975      |
|                                                                                     | 0.5                        | 16,209     |
|                                                                                     | 0.2                        | 50,735     |
|                                                                                     | 0.1                        | 65,371     |
| Source: U.S. Army Corps of Engineers, Sacramento District, Water Management Section |                            |            |

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## IX - WATER CONTROL MANAGEMENT

### 9-01. Responsibilities and Organization

a. Role of the Corps of Engineers. The primary responsibility for operating Hidden Dam-Hensley Lake is delegated to units of the Engineering Division and Construction-Operations Division of the Sacramento District, Corps of Engineers, as outlined below. The Sacramento District's Public Affairs Office (PAO) coordinates with local press regarding floods and other aspects of the project operation. Names, addresses, and telephone numbers of those individuals whose responsibilities are outlined in the following paragraphs are listed in the front of this manual and Exhibit A.

(1) Water Management Section (Engineering Division). The Water Management Section responsibilities are as follows:

(a) Obtaining current hydrometeorological data and weather forecasts for the region.

(b) Analyzing current reservoir information, hydrometeorologic data, and weather forecasts for the region, determining the condition under which the reservoir shall be operated, and issuing appropriate operating instructions (except for routine day-to-day conservation operation) to the designated damtender.

(c) Providing Project Operator training to Hidden Dam-Hensley Lake personnel in the Water Control Plan, operations procedures, and instrumentation.

(d) Providing maintenance for hydrometeorological instrumentation and gage control equipment at the project, and supervising its operation.

(e) Preparing monthly operation reports and other reports relative to the operation of the project as requested by the Office, Chief of Engineers, and as needed for operational purposes.

(f) Making revisions to this Water Control Manual and distributing them.

(g) Advising the District Engineer whenever there has been a departure from the operating instructions, or when there is a need for making a temporary modification of these instructions.

(h) Staying informed at all times of downstream channel conditions and making periodic field inspections.

(i) Arranging with local interests for collection of flow and diversion data.

(j) Obtaining from local interests each month a summary of requested flows and maintaining a record of the instructions issued, data transmitted to other agencies, and requests received from other agencies.

(k) Keeping the Madera Irrigation District and other local interests continuously advised of the operation of the reservoir.

(2) The Hidden Dam-Hensley Lake Park Manager (Construction-Operations Division) has the following responsibilities:

(a) Keeping well informed of the operating rules contained in this Water Control Manual and bringing to the attention of the Water Management Section any feature of the manual that may require clarification or revision.

(b) Keeping familiar with the operation of all recording and communication equipment.

(c) Accomplishing the physical operation of the dam, in accordance with instructions contained in the Water Control Manual, or those issued by the Water Management Section. During storms, this may require 24-hour attendance at the dam.

(d) Calculating and maintaining a continuous record of inflow, outflows, storage, pre-project inflow, weather data, and other data specified by the Water Management Section.

(e) Reporting by radio, telephone, or e-mail to the Water Management Section the data outlined in Exhibit A, Section A-02.

(f) Reporting any unusual conditions of the dam embankment, the reservoir, the downstream channel of the Fresno River, Cottonwood Creek Distributary Channel, or the Eastside Bypass that might interfere with the planned operation of the project.

(g) Maintaining a log of gate operation containing any change in gate position, date, time, and water surface elevation, when such changes were made, and initials of individuals making the change.

(h) Immediately after each month, transmitting to the Water Management Section the data specified in Exhibit A, Section A-02.

(i)

[REDACTED] .

(j) Making and recording weekly checks on reservoir outflow, and weather gage readings to assure proper operation of all recording equipment.

(k) Assisting with obtaining samples for water quality and sedimentation analysis as required.

(l) Making emergency operation changes when contact with the Water Management Section is broken and a clearly defined change occurs that warrants immediate action.

(m) Maintaining records of instructions received from the Water Management Section and requests from the Madera Irrigation District.

(n) Reading and inspecting bi-weekly the Parshall Flume, gaging weirs, piezometers, and observation wells when pool levels exceed an elevation of 520 feet (158.5 m).

(3) The Operations and Readiness Branch (Construction-Operations Division) is responsible for budgeting project operation and maintenance funds.

(4) All significant inquiries received from citizens, constituents, or interest groups regarding water control procedures or actions must be referred directly to the Water Management Section, Sacramento District. Press inquiries must be directly referred to the Public Affairs Office (PAO), Sacramento District.

b. Other Federal Agencies

(1) The Bureau of Reclamation (BOR) acts as the agent for the United States in the execution of the repayment contract (14-06-200-4020A) wherein water users are repaying a percentage of the capital for the construction of Hidden Dam with annual operational and maintenance costs. BOR is also responsible for the marketing and administration of project water supply.

(2) The National Oceanic and Atmospheric Administration (NOAA), through its National Weather Service (NWS), maintains year-round surveillance of weather conditions. NOAA weather and storm forecasts, pertinent to the area, are furnished to the NWS office in Sacramento for distribution to agencies responsible for flood protection. The NWS furnishes meteorological data and weather forecasts on a 24-hour basis. When the meteorological situation indicates general area precipitation, NWS furnishes Quantitative Precipitation Forecasts (QPF). (See Paragraph 6-01b.)

(3) Personnel from the NWS office in Sacramento and the California Department of Water Resources are assigned to the Joint Federal-State River Forecast Center (RFC), which

monitors weather conditions and river stages on a year-round basis. The RFC forecasts stages and flows on major river systems; however, only inflows to Hidden Dam-Hensley Lake on the Fresno River are forecasted.

(4) The Federal-State Flood Operations Center furnishes flood warnings and forecasts of river stages and flows to the local news media, law enforcement agencies, and other responsible agencies for their use and for dissemination to the public.

c. State and County Agencies

(1) The California Department of Fish and Game enforces fish and game laws on the lake and within the wildlife area. They also stock fish in the lake.

(2) The California Division of Forestry is responsible for fire fighting on project land.

(3) The County of Madera provides normal law enforcement at the project.

(4) The Madera Irrigation District directs the use of conservation storage in Hensley Lake.

d. Private Organizations. None.

9-02. Interagency Coordination. To ensure that the flood control operation of Hidden Dam will be as effective as possible, it is essential that the Corps be continually apprised of possible flood hazards, weather conditions, inflow to the reservoir, and flows at key locations in the Fresno River. This requires close liaison between the U.S. Army Corps of Engineers, U.S. Bureau of Reclamation, the National Weather Service (NWS), the Federal-State River Forecast Center (RFC), the California Department of Water Resources (DWR), and the Madera Irrigation District (MID).

a. Local Press and Corps Bulletins. The Sacramento District, U.S. Army Corps of Engineers, Public Affairs Office (PAO) coordinates with the local press regarding floods and other aspects of project operation. The Water Management Section, Sacramento District, maintains official records on Corps projects. Current reservoir status information is available, via “electronic media,” on the Corps’ Sacramento District Water Control Data Systems website: <http://www.spk-wc.usace.army.mil/>.

b. National Weather Service. Congress has given the National Weather Service responsibility for providing flood warnings to the public. The NWS office in Sacramento maintains a year-round surveillance of weather conditions. The National Weather Service also prepares and distributes weather forecasts to agencies responsible for flood protection, and to the public by way of the local news media. The NWS furnishes meteorological data and weather

forecasts on a 24-hour basis. Regular forecasts are made twice a day. When the meteorological situation indicates general area precipitation, Quantitative Precipitation Forecasts are also furnished.

c. California Department of Water Resources. The Corps of Engineers furnishes the Department of Water Resources (DWR) with precipitation, temperature, evaporation, wind (travel length), reservoir elevation, reservoir (scheduled release-event), reservoir storage, reservoir storage (change), reservoir outflow, reservoir inflow, reservoir inflow (last 6-hour average), and reservoir (top of conservation storage) from climatological stations it maintains in the Fresno River Basin at Hidden Dam. For two other stations the Corps maintains in the Fresno River Basin, Westfall and Oakhurst, it provides precipitation data. DWR publishes the data on its California Data Exchange Center (CDEC) web site: <<http://cdec.water.ca.gov/>>.

d. Bureau of Reclamation. The Madera Canal, which is operated by the Bureau of Reclamation (BOR), carries water northerly from Millerton Lake to the Madera and Chowchilla Water Districts. The operation of the Madera Canal and Hensley Lake impact each other and, therefore, must be coordinated. The coordination of the Madera Canal and the conservation releases is normally the responsibility of the Madera Irrigation District. However, during floods, Corps personnel and Bureau personnel should be aware of how the operation of Hensley Lake and the Madera Canal will impact the Fresno River.

e. U.S. Geological Survey. The U.S. Geological Survey (USGS) operates and maintains gaging stations on a cooperative basis with local, state, and federal agencies. The USGS publishes records of their own measurements and those furnished by other agencies, such as the Bureau of Reclamation. Complete records of flows of the Fresno River below Hidden Dam near Daulton from 1942 to 1990 were published by USGS. However, the Corps currently operates, services, and now maintains the complete official record for all gaging stations used in the operation of Hidden Dam. Refer to Plate 4-1 for the gaging station locations operated by various agencies within and around the basin.

f. Madera Irrigation District. All releases from Hensley Lake should be coordinated with the Madera Irrigation District, since they have first-hand knowledge of downstream conditions and may have to operate downstream structures to accommodate a release change.

g. Other Agencies. The Hidden Dam-Hensley Lake Project is operated so that it does not exceed 5,000 cfs (141.6 m<sup>3</sup>/s) below the dam. Under certain conditions, it may be necessary to consider critical conditions on the San Joaquin River. Major releases to the San Joaquin River may come from Pine Flat Dam and Lake on the Kings River (operated by the Corps of Engineers), Friant Dam and Millerton Lake on the San Joaquin River (operated by the USBR), Buchanan Dam and H.V. Eastman Lake on the Chowchilla River (operated by the Corps of Engineers), Lake McClure on the Merced River (operated by the Merced Irrigation District), Don Pedro Dam and Lake on the Tuolumne River (operated by Turlock and Modesto Irrigation Districts), and New Melones Dam and Lake on the Stanislaus River (operated by the USBR).

During floods and other high releases, seepage and erosion along the San Joaquin River should be a consideration. Many reclamation districts along the San Joaquin River maintain levees and coordinate with the Flood Operations Branch of the California Department of Water Resources to obtain channel conditions.

(1) Federal-State River Forecast Center. Personnel from the California-Nevada River Forecast Center, the National Weather Service Office in Sacramento, and the California Department of Water Resources are assigned to the Joint Federal-State Forecast Center (RFC), which monitors weather conditions and river stages on a year-round basis. The RFC forecasts stages and/or flows on major river systems, including the Fresno River.

(2) Federal-State Flood Operations Center. The Federal-State Flood Operations Center is activated when floods on major streams become imminent. This center operates on a 24-hour basis and, among other flood emergency activities, advises all interested parties of flood situations as they develop. The center furnishes flood warnings and forecasts of river stages to local news media, law enforcement agencies, and other responsible agencies for their use and for dissemination to the public.

9-03. Interagency Agreements. The provisions for payment of project, operations, and maintenance costs by local interests are set forth in the Bureau of Reclamation contract number 14-06-200-4020A.

9-04. Commissions, River Authorities, Compacts, and Committees. None.

9-05. Non-Federal Hydropower. There are no hydropower facilities at the Hidden Dam-Hensley Lake Project.

9-06. Reports. Reporting requirements are listed in Exhibit A, Section A-02.

BUCHANAN DAM AND H.V. EASTMAN LAKE  
CHOWCHILLA RIVER, CALIFORNIA

U.S. Army Corps of Engineers  
Sacramento District  
Revised June 2005

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|------------------|-------------------------------------------------------------------------------------------------------------|-------------|
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TABLE 4-8  
HISTORICAL UNREGULATED <sup>1</sup>  
MONTHLY INFLOWS  
TO HIDDEN DAM - HENSLEY LAKE PROJECT  
(1,000 ACRE-FEET)

| WATER<br>YEAR                                        | OCT | NOV | DEC  | JAN  | FEB  | MAR   | APR  | MAY  | JUN  | JUL | AUG | SEP | TOTAL |
|------------------------------------------------------|-----|-----|------|------|------|-------|------|------|------|-----|-----|-----|-------|
| <b>1912-1941 are estimated data - see footnote 1</b> |     |     |      |      |      |       |      |      |      |     |     |     |       |
| 1912                                                 | 1.0 | 1.5 | 1.6  | 3.3  | 2.8  | 7.4   | 7.9  | 7.7  | 5.2  | 1.5 | 0.2 | 0.1 | 40.2  |
| 1913                                                 | 0.2 | 0.9 | 0.8  | 1.5  | 1.7  | 3.0   | 4.5  | 0.8  | 2.2  | 0.1 | 0.1 | 0.2 | 16.0  |
| 1914                                                 | 0.0 | 0.5 | 2.0  | 55.2 | 36.2 | 17.1  | 11.0 | 14.0 | 4.2  | 0.7 | 0.5 | 0.3 | 141.7 |
| 1915                                                 | 0.2 | 0.5 | 2.9  | 2.5  | 18.7 | 5.3   | 12.0 | 16.9 | 8.6  | 2.0 | 0.2 | 0.3 | 70.1  |
| 1916                                                 | 0.2 | 0.8 | 2.7  | 46.7 | 35.5 | 72.2  | 16.7 | 9.7  | 7.1  | 3.0 | 0.6 | 0.3 | 195.5 |
| 1917                                                 | 2.0 | 1.6 | 5.1  | 6.3  | 40.9 | 19.2  | 14.2 | 10.0 | 6.4  | 3.2 | 0.7 | 0.2 | 109.8 |
| 1918                                                 | 0.2 | 0.5 | 0.7  | 0.8  | 8.1  | 42.5  | 7.1  | 6.4  | 3.2  | 0.6 | 0.0 | 0.1 | 70.2  |
| 1919                                                 | 0.6 | 0.9 | 1.0  | 1.6  | 15.1 | 17.1  | 11.1 | 6.8  | 1.5  | 0.1 | 0.0 | 0.0 | 55.8  |
| 1920                                                 | 0.2 | 0.5 | 2.0  | 1.4  | 1.9  | 13.2  | 17.7 | 7.9  | 4.2  | 0.9 | 0.1 | 0.0 | 50.0  |
| 1921                                                 | 0.8 | 1.7 | 2.3  | 16.2 | 12.1 | 14.3  | 10.1 | 8.3  | 4.2  | 0.8 | 0.1 | 0.0 | 70.9  |
| 1922                                                 | 0.1 | 0.2 | 9.2  | 7.2  | 36.2 | 26.8  | 18.3 | 15.4 | 4.2  | 2.3 | 0.4 | 0.3 | 120.6 |
| 1923                                                 | 0.2 | 2.0 | 14.5 | 15.3 | 9.8  | 8.1   | 27.0 | 13.0 | 6.4  | 3.2 | 0.5 | 0.4 | 100.4 |
| 1924                                                 | 0.6 | 0.5 | 0.8  | 1.4  | 1.4  | 2.8   | 4.9  | 1.2  | 0.1  | 0.0 | 0.0 | 0.0 | 13.7  |
| 1925                                                 | 0.0 | 1.0 | 1.0  | 1.4  | 14.7 | 7.2   | 13.5 | 8.5  | 5.4  | 0.5 | 0.1 | 0.1 | 53.4  |
| 1926                                                 | 0.3 | 0.5 | 0.7  | 1.4  | 6.2  | 3.9   | 15.9 | 5.7  | 1.2  | 0.1 | 0.0 | 0.0 | 35.9  |
| 1927                                                 | 0.0 | 5.5 | 3.7  | 3.7  | 27.2 | 12.5  | 17.7 | 8.7  | 5.2  | 1.3 | 0.1 | 0.0 | 85.6  |
| 1928                                                 | 0.8 | 4.2 | 2.9  | 5.1  | 8.0  | 14.4  | 12.3 | 4.0  | 1.2  | 0.1 | 0.0 | 0.0 | 53.0  |
| 1929                                                 | 0.0 | 0.8 | 1.0  | 1.4  | 2.6  | 3.3   | 5.5  | 5.2  | 1.9  | 0.1 | 0.0 | 0.0 | 21.8  |
| 1930                                                 | 0.0 | 0.0 | 0.1  | 2.6  | 4.0  | 7.4   | 3.5  | 2.4  | 0.1  | 0.0 | 0.0 | 0.0 | 20.1  |
| 1931                                                 | 0.0 | 0.5 | 0.3  | 1.0  | 1.5  | 0.8   | 1.1  | 0.8  | 0.2  | 0.0 | 0.0 | 0.0 | 6.2   |
| 1932                                                 | 0.0 | 0.1 | 11.9 | 9.4  | 37.4 | 9.9   | 12.0 | 12.0 | 6.7  | 1.9 | 0.1 | 0.0 | 101.4 |
| 1933                                                 | 0.0 | 0.2 | 0.8  | 1.9  | 2.6  | 5.3   | 6.5  | 5.2  | 5.1  | 0.4 | 0.0 | 0.0 | 28.0  |
| 1934                                                 | 0.0 | 0.2 | 1.1  | 1.9  | 3.6  | 4.0   | 2.7  | 0.7  | 0.4  | 0.0 | 0.0 | 0.0 | 14.6  |
| 1935                                                 | 0.1 | 1.4 | 1.8  | 11.8 | 9.4  | 14.7  | 27.2 | 14.0 | 8.9  | 2.7 | 0.3 | 0.1 | 92.4  |
| 1936                                                 | 0.0 | 0.5 | 0.8  | 3.3  | 40.3 | 11.9  | 17.7 | 13.3 | 6.4  | 1.5 | 0.3 | 0.1 | 96.6  |
| 1937                                                 | 0.0 | 0.5 | 1.6  | 3.3  | 64.6 | 30.1  | 17.0 | 16.9 | 8.6  | 2.6 | 0.5 | 0.3 | 146.3 |
| 1938                                                 | 0.0 | 0.9 | 7.9  | 11.2 | 75.3 | 124.0 | 32.6 | 20.8 | 14.5 | 6.9 | 1.8 | 0.7 | 297.1 |
| 1939                                                 | 0.0 | 2.2 | 2.3  | 2.8  | 5.8  | 9.1   | 9.4  | 4.8  | 1.3  | 0.3 | 0.1 | 0.7 | 40.4  |
| 1940                                                 | 0.0 | 0.9 | 1.3  | 22.8 | 28.0 | 23.5  | 14.6 | 12.0 | 4.2  | 0.5 | 0.1 | 0.2 | 108.8 |

<sup>1</sup>Monthly inflows for water years 1912-1941 based on a correlation with gaged flow records for Fresno R near Knowles and Chowchilla R at Buchanan Dam site.

TABLE 4-8  
HISTORICAL UNREGULATED <sup>1</sup>  
MONTHLY INFLOWS  
TO HIDDEN DAM - HENSLEY LAKE PROJECT  
(1,000 ACRE-FEET)

| WATER<br>YEAR | OCT | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL | AUG | SEP | TOTAL |
|---------------|-----|------|------|------|------|------|------|------|------|-----|-----|-----|-------|
| 1941          | 0.4 | 0.5  | 15.1 | 17.9 | 46.9 | 39.7 | 26.4 | 15.7 | 11.7 | 3.9 | 0.4 | 0.2 | 178.8 |
| 1942          | 0.8 | 1.0  | 12.5 | 15.9 | 17.5 | 19.7 | 17.9 | 15.0 | 10.1 | 4.7 | 0.5 | 0.3 | 115.9 |
| 1943          | 0.5 | 2.7  | 3.3  | 18.1 | 14.0 | 40.5 | 18.5 | 12.2 | 4.5  | 1.5 | 0.5 | 0.2 | 116.4 |
| 1944          | 0.6 | 0.5  | 0.9  | 2.2  | 11.0 | 14.2 | 8.8  | 8.7  | 5.3  | 0.7 | 0.2 | 0.1 | 53.3  |
| 1945          | 0.1 | 5.5  | 2.7  | 2.7  | 31.4 | 32.1 | 16.7 | 11.1 | 7.7  | 1.9 | 0.3 | 0.0 | 112.3 |
| 1946          | 0.5 | 1.2  | 7.3  | 3.8  | 3.0  | 8.4  | 10.6 | 10.0 | 3.9  | 1.1 | 0.1 | 0.1 | 49.9  |
| 1947          | 0.5 | 2.8  | 6.1  | 2.7  | 4.4  | 4.7  | 4.7  | 3.4  | 1.3  | 0.2 | 0.0 | 0.0 | 30.9  |
| 1948          | 0.3 | 0.5  | 0.5  | 0.5  | 0.7  | 3.3  | 12.7 | 8.2  | 5.9  | 1.4 | 0.1 | 0.0 | 34.2  |
| 1949          | 0.0 | 0.2  | 0.7  | 1.0  | 1.9  | 10.5 | 5.6  | 9.1  | 4.9  | 0.8 | 0.1 | 0.0 | 34.9  |
| 1950          | 0.1 | 0.5  | 0.6  | 3.1  | 8.3  | 4.2  | 6.6  | 7.1  | 3.2  | 0.6 | 0.0 | 0.0 | 34.2  |
| 1951          | 0.1 | 14.3 | 23.0 | 12.8 | 11.1 | 10.4 | 7.6  | 7.7  | 2.6  | 0.9 | 0.1 | 0.0 | 90.5  |
| 1952          | 0.1 | 0.8  | 7.4  | 31.0 | 12.9 | 49.3 | 23.7 | 11.8 | 8.0  | 4.9 | 0.8 | 0.5 | 151.3 |
| 1953          | 0.6 | 1.0  | 5.2  | 12.6 | 4.4  | 5.7  | 7.1  | 6.9  | 5.6  | 1.4 | 0.1 | 0.1 | 50.8  |
| 1954          | 0.3 | 0.8  | 1.1  | 2.8  | 4.9  | 10.5 | 8.8  | 8.1  | 3.4  | 1.0 | 0.0 | 0.0 | 41.6  |
| 1955          | 0.1 | 0.8  | 2.0  | 4.5  | 3.7  | 4.4  | 5.4  | 8.5  | 3.5  | 0.8 | 0.0 | 0.0 | 33.8  |
| 1956          | 0.0 | 0.6  | 59.8 | 44.2 | 20.0 | 9.3  | 10.0 | 12.0 | 5.0  | 1.3 | 0.2 | 0.2 | 162.7 |
| 1957          | 0.5 | 0.7  | 1.2  | 1.6  | 3.4  | 6.9  | 5.6  | 9.4  | 4.6  | 1.1 | 0.1 | 0.0 | 35.1  |
| 1958          | 0.4 | 0.6  | 1.9  | 2.8  | 14.8 | 41.5 | 66.9 | 12.1 | 7.5  | 4.0 | 1.6 | 0.6 | 154.7 |
| 1959          | 0.6 | 0.9  | 1.0  | 2.4  | 7.7  | 5.8  | 4.5  | 3.7  | 1.1  | 0.1 | 0.0 | 0.3 | 28.2  |
| 1960          | 0.3 | 0.4  | 0.6  | 1.2  | 5.1  | 4.5  | 5.4  | 4.7  | 1.7  | 0.1 | 0.0 | 0.0 | 24.0  |
| 1961          | 0.1 | 0.9  | 1.6  | 1.6  | 2.1  | 2.3  | 2.8  | 2.3  | 0.8  | 0.0 | 0.0 | 0.0 | 14.6  |
| 1962          | 0.0 | 0.4  | 1.3  | 1.5  | 45.6 | 20.6 | 8.5  | 6.8  | 5.8  | 1.2 | 0.2 | 0.0 | 91.9  |
| 1963          | 0.4 | 0.5  | 0.7  | 4.3  | 19.1 | 10.2 | 19.1 | 13.0 | 6.5  | 2.3 | 0.5 | 0.3 | 76.9  |
| 1964          | 0.6 | 3.7  | 2.7  | 3.0  | 3.0  | 3.8  | 5.8  | 5.7  | 2.8  | 0.7 | 0.0 | 0.0 | 31.8  |
| 1965          | 0.3 | 2.7  | 16.2 | 27.3 | 9.1  | 9.4  | 27.7 | 8.6  | 5.8  | 2.0 | 0.7 | 0.4 | 110.2 |
| 1966          | 0.6 | 5.3  | 5.8  | 7.0  | 6.8  | 6.2  | 5.9  | 5.4  | 1.4  | 0.4 | 0.0 | 0.0 | 44.8  |
| 1967          | 0.1 | 1.4  | 18.8 | 10.3 | 10.6 | 22.7 | 74.0 | 28.0 | 12.5 | 5.7 | 1.8 | 0.5 | 186.4 |
| 1968          | 0.7 | 0.8  | 1.9  | 2.5  | 5.2  | 5.5  | 4.4  | 3.9  | 1.4  | 0.1 | 0.0 | 0.0 | 26.3  |
| 1969          | 0.2 | 1.2  | 4.5  | 69.5 | 77.9 | 48.0 | 33.1 | 16.1 | 10.5 | 5.3 | 1.4 | 0.8 | 268.4 |
| 1970          | 1.8 | 1.7  | 2.9  | 18.9 | 7.2  | 19.0 | 6.8  | 6.2  | 3.7  | 0.9 | 0.0 | 0.1 | 69.2  |
| 1971          | 0.3 | 1.8  | 7.0  | 7.2  | 4.4  | 6.6  | 6.3  | 7.0  | 4.7  | 0.7 | 0.0 | 0.0 | 46.0  |
| 1972          | 0.1 | 1.1  | 3.9  | 3.0  | 4.5  | 4.8  | 4.4  | 3.5  | 1.5  | 0.1 | 0.0 | 0.0 | 26.8  |
| 1973          | 0.2 | 1.3  | 2.6  | 8.9  | 35.7 | 32.0 | 17.1 | 10.4 | 4.4  | 0.7 | 0.2 | 0.0 | 113.7 |
| 1974          | 0.7 | 2.5  | 5.0  | 12.9 | 5.0  | 17.7 | 21.7 | 8.5  | 3.9  | 1.0 | 0.1 | 0.0 | 78.8  |
| 1975          | 0.1 | 1.2  | 2.3  | 3.1  | 11.5 | 20.9 | 17.3 | 13.5 | 7.6  | 2.2 | 0.3 | 0.0 | 80.1  |

<sup>1</sup>Monthly inflows for water years 1912-1941 based on a correlation with gaged flow records for Fresno R near Knowles and Chowchilla R at Buchanan Dam site.

TABLE 4-8  
HISTORICAL UNREGULATED <sup>1</sup>  
MONTHLY INFLOWS  
TO HIDDEN DAM - HENSLEY LAKE PROJECT  
(1,000 ACRE-FEET)

| WATER<br>YEAR | OCT | NOV  | DEC  | JAN   | FEB  | MAR   | APR  | MAY  | JUN  | JUL | AUG | SEP | TOTAL |
|---------------|-----|------|------|-------|------|-------|------|------|------|-----|-----|-----|-------|
| 1976          | 0.0 | 0.7  | 0.7  | 1.2   | 2.7  | 3.8   | 2.9  | 2.3  | 0.8  | 0.7 | 0.1 | 0.1 | 16.0  |
| 1977          | 0.3 | 0.5  | 0.5  | 0.8   | 0.6  | 0.6   | 0.7  | 1.1  | 0.6  | 0.2 | 0.0 | 0.0 | 5.8   |
| 1978          | 0.0 | 0.3  | 4.1  | 26.4  | 48.9 | 53.9  | 45.4 | 19.9 | 9.0  | 3.2 | 0.6 | 0.7 | 212.4 |
| 1979          | 0.3 | 1.6  | 1.7  | 11.7  | 19.1 | 27.3  | 12.7 | 9.2  | 4.5  | 1.7 | 0.4 | 0.1 | 90.3  |
| 1980          | 0.6 | 1.3  | 1.6  | 23.9  | 34.5 | 34.8  | 15.6 | 11.0 | 6.4  | 2.6 | 0.4 | 0.3 | 132.9 |
| 1981          | 0.5 | 1.0  | 1.4  | 3.4   | 3.5  | 7.1   | 5.3  | 2.9  | 0.9  | 0.5 | 0.3 | 0.2 | 26.9  |
| 1982          | 0.5 | 2.0  | 2.7  | 19.3  | 23.0 | 43.4  | 59.7 | 12.2 | 6.5  | 3.7 | 1.4 | 1.3 | 175.5 |
| 1983          | 2.5 | 10.6 | 31.7 | 50.6  | 68.6 | 108.8 | 39.1 | 25.6 | 8.9  | 4.6 | 2.7 | 1.7 | 355.4 |
| 1984          | 1.7 | 10.5 | 25.4 | 12.5  | 11.5 | 10.8  | 7.3  | 4.7  | 2.0  | 0.6 | 0.5 | 0.3 | 87.9  |
| 1985          | 0.7 | 2.3  | 2.4  | 2.4   | 4.7  | 7.7   | 6.3  | 3.1  | 1.2  | 0.1 | 0.3 | 0.2 | 31.4  |
| 1986          | 0.5 | 1.5  | 3.5  | 4.7   | 66.2 | 49.8  | 12.6 | 7.7  | 4.0  | 0.8 | 0.4 | 0.3 | 152.0 |
| 1987          | 0.8 | 0.9  | 1.1  | 1.5   | 3.5  | 5.5   | 2.6  | 1.5  | 1.3  | 1.1 | 0.4 | 0.2 | 20.3  |
| 1988          | 0.4 | 0.7  | 1.1  | 2.7   | 1.6  | 2.9   | 3.3  | 2.0  | 0.7  | 0.4 | 0.2 | 0.1 | 16.1  |
| 1989          | 0.2 | 0.4  | 0.9  | 0.9   | 1.7  | 6.2   | 3.1  | 1.6  | 0.5  | 0.3 | 0.5 | 0.2 | 16.4  |
| 1990          | 0.2 | 0.5  | 0.5  | 1.1   | 1.3  | 2.7   | 2.3  | 1.4  | 0.7  | 0.9 | 0.3 | 0.1 | 12.2  |
| 1991          | 0.1 | 0.1  | 0.2  | 0.4   | 0.4  | 17.7  | 6.2  | 3.7  | 1.8  | 1.0 | 0.9 | 0.3 | 32.8  |
| 1992          | 0.2 | 0.4  | 0.6  | 0.9   | 8.5  | 6.1   | 4.4  | 1.7  | 0.4  | 0.3 | 0.2 | 0.2 | 23.7  |
| 1993          | 0.3 | 0.4  | 1.9  | 42.6  | 26.7 | 24.9  | 14.7 | 9.9  | 7.6  | 4.2 | 1.3 | 0.3 | 134.8 |
| 1994          | 2.0 | 1.4  | 1.5  | 1.2   | 3.3  | 2.5   | 3.0  | 3.2  | 1.2  | 0.5 | 0.7 | 0.1 | 20.8  |
| 1995          | 0.2 | 0.8  | 1.3  | 36.8  | 15.6 | 80.3  | 20.5 | 19.7 | 6.2  | 2.1 | 1.0 | 1.0 | 185.3 |
| 1996          | 0.9 | 0.5  | 2.9  | 6.0   | 27.0 | 23.5  | 13.9 | 8.1  | 3.6  | 1.5 | 1.3 | 1.4 | 90.5  |
| 1997          | 1.1 | 9.1  | 48.0 | 115.8 | 23.6 | 12.4  | 8.3  | 5.3  | 3.3  | 2.1 | 1.4 | 0.9 | 231.3 |
| 1998          | 0.7 | 1.1  | 1.8  | 16.1  | 56.3 | 35.1  | 39.3 | 23.8 | 15.5 | 4.5 | 1.0 | 1.2 | 196.5 |
| 1999          | 0.6 | 2.0  | 3.5  | 6.7   | 11.7 | 7.8   | 11.2 | 6.0  | 2.7  | 0.2 | 0.5 | 1.6 | 54.6  |
| 2000          | 1.4 | 0.8  | 0.8  | 6.3   | 35.1 | 23.7  | 10.9 | 6.4  | 2.8  | 0.1 | 0.3 | 0.7 | 89.4  |
| 2001          | 1.9 | 0.9  | 1.3  | 2.5   | 5.7  | 10.1  | 7.1  | 3.9  | 0.7  | 0.5 | 0.7 | 0.2 | 83.9  |
| 2002          | 0.1 | 0.8  | 5.0  | 6.1   | 3.6  | 8.3   | 3.5  | 3.1  | 0.5  | 0.2 | 0.3 | 0.3 | 84.4  |
| 2003          | 0.1 | 1.7  | 2.9  | 3.3   | 3.2  | 4.2   | 5.1  | 6.3  | 2.9  | 2.2 | 0.6 | 1.2 | 85.2  |
| 2004          | 0.1 | 0.3  | 2.1  | 2.8   | 5.4  | 5.3   | 2.3  | 1.8  | 0.5  | 0.2 | 0.1 | 0.1 | 84.5  |
| MEAN          | 0.5 | 1.6  | 5.0  | 11.0  | 16.6 | 18.4  | 13.7 | 8.5  | 4.3  | 1.4 | 0.4 | 0.3 | 81.6  |

<sup>1</sup>Monthly inflows for water years 1912-1941 based on a correlation with gaged flow records for Fresno R near Knowles and Chowchilla R at Buchanan Dam site.

TABLE 8-1  
ANNUAL MAXIMUM RAINFLOOD FLOWS  
FRESNO RIVER AT HIDDEN DAM <sup>1</sup>  
UNREGULATED CONDITION  
(Flows in cfs)

| WATER<br>YEAR | PEAK   |       | 1-DAY  |       | 3-DAY  |      | 7-DAY  |      | 15-DAY |      | 30-DAY |      |
|---------------|--------|-------|--------|-------|--------|------|--------|------|--------|------|--------|------|
|               | DATE   | FLOW  | DATE   | FLOW  | DATE   | FLOW | DATE   | FLOW | DATE   | FLOW | DATE   | FLOW |
| 1942          | 29 DEC | 2580  | 29 DEC | 1680  | 29 DEC | 1362 | 28 DEC | 872  | 28 DEC | 505  | 25 JAN | 373  |
| 1943          | 22 JAN | 3620  | 10 MAR | 2300  | 09 MAR | 1683 | 09 MAR | 1129 | 06 MAR | 923  | 05 MAR | 689  |
| 1944          | 04 MAR | 2670  | 22 FEB | 1190  | 04 MAR | 688  | 29 FEB | 594  | 22 FEB | 469  | 21 FEB | 329  |
| 1945          | 02 FEB | 8090  | 02 FEB | 4610  | 01 FEB | 3020 | 01 FEB | 1663 | 01 FEB | 915  | 15 MAR | 613  |
| 1946          | 30 MAR | 2460  | 30 MAR | 1840  | 30 MAR | 901  | 29 MAR | 505  | 29 MAR | 326  | 29 MAR | 245  |
| 1947          | 27 DEC | 1600  | 27 DEC | 794   | 26 DEC | 473  | 26 DEC | 283  | 25 DEC | 160  | 06 DEC | 109  |
| 1948          | 10 APR | 2470  | 10 APR | 1450  | 10 APR | 859  | 06 APR | 505  | 04 APR | 330  | 25 MAR | 220  |
| 1949          | 04 MAR | 1510  | 04 MAR | 942   | 04 MAR | 514  | 03 MAR | 298  | 03 MAR | 227  | 03 MAR | 177  |
| 1950          | 06 FEB | 1180  | 06 FEB | 807   | 05 FEB | 685  | 05 FEB | 395  | 05 FEB | 234  | 17 JAN | 155  |
| 1951          | 19 NOV | 10700 | 19 NOV | 5130  | 19 NOV | 2016 | 03 DEC | 1075 | 03 DEC | 646  | 18 NOV | 563  |
| 1952          | 25 JAN | 5020  | 25 JAN | 3760  | 15 MAR | 2493 | 15 MAR | 1931 | 15 MAR | 1270 | 13 MAR | 861  |
| 1953          | 31 DEC | 1200  | 14 JAN | 819   | 14 JAN | 525  | 13 JAN | 351  | 08 JAN | 284  | 30 DEC | 224  |
| 1954          | 25 JAN | 723   | 14 FEB | 455   | 24 MAR | 313  | 21 MAR | 284  | 20 MAR | 258  | 10 MAR | 204  |
| 1955          | 08 MAY | 333   | 08 MAY | 312   | 08 MAY | 248  | 07 MAY | 200  | 01 MAY | 164  | 22 APR | 147  |
| 1956          | 23 DEC | 17500 | 23 DEC | 10400 | 23 DEC | 6867 | 22 DEC | 3825 | 22 DEC | 2081 | 22 DEC | 1223 |
| 1957          | 19 MAY | 1360  | 19 MAY | 672   | 19 MAY | 441  | 19 MAY | 305  | 19 MAY | 214  | 06 MAY | 159  |
| 1958          | 03 APR | 10400 | 03 APR | 6700  | 01 APR | 4003 | 01 APR | 3086 | 30 MAR | 1941 | 15 MAR | 1535 |
| 1959          | 16 FEB | 1180  | 17 FEB | 630   | 16 FEB | 453  | 16 FEB | 317  | 11 FEB | 219  | 11 FEB | 161  |
| 1960          | 09 FEB | 616   | 09 FEB | 430   | 09 FEB | 354  | 09 FEB | 204  | 02 FEB | 132  | 24 APR | 97   |
| 1961          | 02 DEC | 257   | 02 DEC | 122   | 02 DEC | 89   | 02 DEC | 55   | 25 MAR | 50   | 22 MAR | 48   |
| 1962          | 11 FEB | 5340  | 11 FEB | 4430  | 10 FEB | 3373 | 10 FEB | 2255 | 09 FEB | 1408 | 09 FEB | 912  |
| 1963          | 01 FEB | 6290  | 01 FEB | 3540  | 31 JAN | 2109 | 31 JAN | 1009 | 31 JAN | 625  | 31 JAN | 384  |
| 1964          | 21 NOV | 278   | 21 NOV | 200   | 01 APR | 153  | 28 MAR | 120  | 23 MAR | 107  | 24 MAR | 100  |
| 1965          | 23 DEC | 3460  | 07 JAN | 1970  | 06 JAN | 1546 | 04 JAN | 995  | 24 DEC | 799  | 23 DEC | 613  |
| 1966          | 30 DEC | 882   | 30 DEC | 625   | 30 DEC | 565  | 29 DEC | 370  | 29 DEC | 237  | 25 DEC | 154  |
| 1967          | 18 APR | 5590  | 06 DEC | 4030  | 19 APR | 2440 | 18 APR | 2237 | 15 APR | 1593 | 05 APR | 1257 |
| 1968          | 21 FEB | 273   | 21 FEB | 233   | 20 FEB | 181  | 18 FEB | 157  | 17 FEB | 120  | 18 FEB | 109  |
| 1969          | 24 FEB | 17300 | 24 FEB | 7250  | 24 FEB | 5100 | 21 JAN | 3190 | 19 JAN | 2201 | 19 JAN | 1510 |
| 1970          | 16 JAN | 4420  | 16 JAN | 2330  | 16 JAN | 1555 | 15 JAN | 872  | 15 JAN | 539  | 10 JAN | 334  |
| 1971          | 02 DEC | 461   | 27 MAR | 252   | 27 MAR | 203  | 26 MAR | 163  | 12 JAN | 143  | 21 DEC | 129  |
| 1972          | 26 DEC | 367   | 26 DEC | 300   | 26 DEC | 243  | 23 DEC | 180  | 22 DEC | 118  | 06 FEB | 84   |
| 1973          | 11 FEB | 11200 | 11 FEB | 4500  | 10 FEB | 2567 | 10 FEB | 1563 | 07 FEB | 951  | 10 FEB | 698  |
| 1974          | 02 APR | 8620  | 02 APR | 3240  | 01 APR | 1512 | 01 APR | 881  | 28 MAR | 576  | 28 MAR | 386  |
| 1975          | 26 MAR | 877   | 26 MAR | 740   | 25 MAR | 558  | 22 MAR | 483  | 14 MAR | 395  | 06 MAR | 363  |

<sup>1</sup>Monthly inflows for water years 1912-1941 based on correlation with gaged flow records for Fresno R near Knowles and Chowchilla R at Buchanan Dam site.

TABLE 8-1  
ANNUAL MAXIMUM RAINFLOOD FLOWS  
FRESNO RIVER AT HIDDEN DAM <sup>1</sup>  
UNREGULATED CONDITION  
(Flows in cfs)

| WATER<br>YEAR | PEAK   |       | 1-DAY  |      | 3-DAY  |      | 7-DAY  |      | 15-DAY |      | 30-DAY |      |
|---------------|--------|-------|--------|------|--------|------|--------|------|--------|------|--------|------|
|               | DATE   | FLOW  | DATE   | FLOW | DATE   | FLOW | DATE   | FLOW | DATE   | FLOW | DATE   | FLOW |
| 1976          | 01 MAR | 319   | 01 MAR | 176  | 01 MAR | 138  | 01 MAR | 100  | 29 FEB | 74   | 06 FEB | 63   |
| 1977          | 03 JAN | 76    | 03 JAN | 43   | 02 JAN | 27   | 30 DEC | 24   | 26 DEC | 17   | 30 DEC | 14   |
| 1978          | 04 MAR | 6342  | 04 MAR | 4403 | 09 FEB | 3056 | 09 FEB | 2434 | 06 FEB | 1417 | 07 FEB | 1239 |
| 1979          | 28 MAR | 5000  | 28 MAR | 2104 | 21 FEB | 1193 | 21 FEB | 786  | 20 FEB | 658  | 19 FEB | 478  |
| 1980          | 14 JAN | 7700  | 14 JAN | 3524 | 19 FEB | 2566 | 17 FEB | 1752 | 15 FEB | 1064 | 15 FEB | 954  |
| 1981          | 20 MAR | 609   | 20 MAR | 473  | 19 MAR | 320  | 19 MAR | 228  | 19 MAR | 179  | 18 MAR | 130  |
| 1982          | 11 APR | 7800  | 11 APR | 5698 | 11 APR | 3256 | 10 APR | 1903 | 31 MAR | 1532 | 14 MAR | 1235 |
| 1983          | 27 JAN | 11700 | 27 JAN | 5665 | 01 MAR | 4218 | 01 MAR | 2760 | 01 MAR | 2029 | 27 FEB | 1806 |
| 1984          | 25 DEC | 2900  | 27 DEC | 1910 | 25 DEC | 1814 | 25 DEC | 1152 | 25 DEC | 687  | 10 DEC | 448  |
| 1985          | 28 MAR | 740   | 28 MAR | 519  | 27 MAR | 379  | 27 MAR | 261  | 27 MAR | 193  | 11 MAR | 149  |
| 1986          | 18 FEB | 9800  | 18 FEB | 5817 | 17 FEB | 5261 | 15 FEB | 3776 | 13 FEB | 2127 | 15 FEB | 1565 |
| 1987          | 13 FEB | 800   | 13 FEB | 343  | 13 FEB | 272  | 12 FEB | 158  | 05 MAR | 117  | 04 MAR | 93   |
| 1988          | 20 APR | 412   | 20 APR | 203  | 20 APR | 144  | 19 APR | 112  | 15 APR | 84   | 13 APR | 63   |
| 1989          | 03 MAR | 489   | 03 MAR | 353  | 02 MAR | 219  | 25 MAR | 142  | 02 MAR | 110  | 02 MAR | 103  |
| 1990          | 14 JAN | 179   | 14 JAN | 78   | 14 JAN | 54   | 22 MAR | 52   | 20 MAR | 47   | 03 MAR | 45   |
| 1991          | 19 MAR | 1783  | 19 MAR | 1161 | 25 MAR | 885  | 19 MAR | 562  | 18 MAR | 503  | 17 MAR | 313  |
| 1992          | 15 FEB | 1115  | 13 FEB | 647  | 13 FEB | 525  | 12 FEB | 401  | 11 FEB | 254  | 11 FEB | 169  |
| 1993          | 14 JAN | 19372 | 14 JAN | 7203 | 14 JAN | 3330 | 13 JAN | 1940 | 08 JAN | 1182 | 07 JAN | 728  |
| 1994          | 19 FEB | 726   | 18 FEB | 170  | 18 FEB | 166  | 17 FEB | 120  | 17 FEB | 83   | 21 APR | 66   |
| 1995          | 10 MAR | 21517 | 11 MAR | 8611 | 10 MAR | 6124 | 09 MAR | 3071 | 10 MAR | 2187 | 09 MAR | 1359 |
| 1996          | 20 FEB | 3293  | 20 FEB | 1888 | 20 FEB | 1555 | 20 FEB | 980  | 20 FEB | 686  | 19 FEB | 580  |
| 1997          | 02 JAN | 14203 | 02 JAN | 7718 | 01 JAN | 5476 | 30 DEC | 3577 | 22 DEC | 2151 | 30 DEC | 2023 |
| 1998          | 03 FEB | 6918  | 25 MAR | 3327 | 02 FEB | 1807 | 03 FEB | 1439 | 03 FEB | 1115 | 02 FEB | 985  |
| 1999          | 09 FEB | 2166  | 09 FEB | 722  | 08 FEB | 615  | 08 FEB | 386  | 08 FEB | 280  | 20 JAN | 223  |
| 2000          | 14 FEB | 5021  | 14 FEB | 2922 | 13 FEB | 1643 | 23 FEB | 1185 | 14 FEB | 964  | 13 FEB | 809  |
| 2001          | 05 MAR | 1585  | 05 MAR | 974  | 05 MAR | 596  | 04 MAR | 354  | 24 FEB | 244  | 20 FEB | 182  |
| 2002          | 29 DEC | 1609  | 07 MAR | 734  | 29 DEC | 461  | 29 DEC | 375  | 29 DEC | 231  | 29 DEC | 140  |
| 2003          | 16 MAR | 557   | 16 MAR | 323  | 16 MAR | 188  | 21 MAR | 127  | 27 MAR | 93   | 14 JAN | 74   |
| 2004          | 26 FEB | 811   | 26 FEB | 507  | 28 FEB | 374  | 03 MAR | 258  | 08 MAR | 174  | 18 MAR | 129  |

<sup>1</sup>Monthly inflows for water years 1912-1941 based on correlation with gaged flow records for Fresno R near Knowles and Chowchilla R at Buchanan Dam site.

TABLE 8-1  
ANNUAL MAXIMUM RAINFLOOD FLOWS  
FRESNO RIVER AT HIDDEN DAM <sup>1</sup>  
UNREGULATED CONDITION  
(Flows in cfs)

| WATER<br>YEAR | PEAK |      | 1-DAY |      | 3-DAY |      | 7-DAY |      | 15-DAY |      | 30-DAY |      |
|---------------|------|------|-------|------|-------|------|-------|------|--------|------|--------|------|
|               | DATE | FLOW | DATE  | FLOW | DATE  | FLOW | DATE  | FLOW | DATE   | FLOW | DATE   | FLOW |

COMPUTED STATISTICS

|              |       |  |       |  |       |  |       |  |       |  |       |  |
|--------------|-------|--|-------|--|-------|--|-------|--|-------|--|-------|--|
| YEARS        | 88    |  | 89    |  | 89    |  | 89    |  | 89    |  | 89    |  |
| LOG MEAN     | 3.275 |  | 3.072 |  | 2.908 |  | 2.741 |  | 2.597 |  | 2.484 |  |
| STANDARD DEV | 0.585 |  | 0.561 |  | 0.539 |  | 0.513 |  | 0.485 |  | 0.470 |  |
| SKEW COEFF   | -0.2  |  | -0.4  |  | -0.4  |  | -0.3  |  | -0.3  |  | -0.2  |  |

ADOPTED STATISTICS

|              |       |  |       |  |       |  |       |  |       |  |       |  |
|--------------|-------|--|-------|--|-------|--|-------|--|-------|--|-------|--|
| YEARS        | 88    |  | 89    |  | 89    |  | 89    |  | 89    |  | 89    |  |
| LOG MEAN     | 3.275 |  | 3.072 |  | 2.908 |  | 2.741 |  | 2.597 |  | 2.484 |  |
| STANDARD DEV | 0.589 |  | 0.559 |  | 0.535 |  | 0.510 |  | 0.489 |  | 0.472 |  |
| SKEW COEFF   | -0.3  |  | -0.3  |  | -0.3  |  | -0.3  |  | -0.3  |  | -0.3  |  |

<sup>1</sup>Monthly inflows for water years 1912-1941 based on correlation with gaged flow records for Fresno R near Knowles and Chowchilla R at Buchanan Dam site.

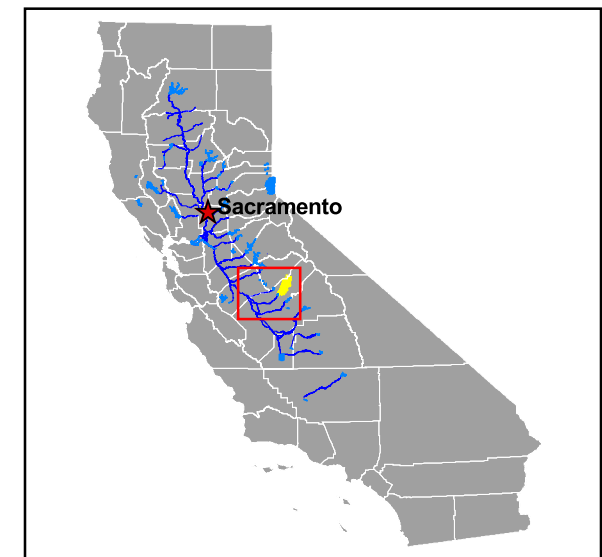
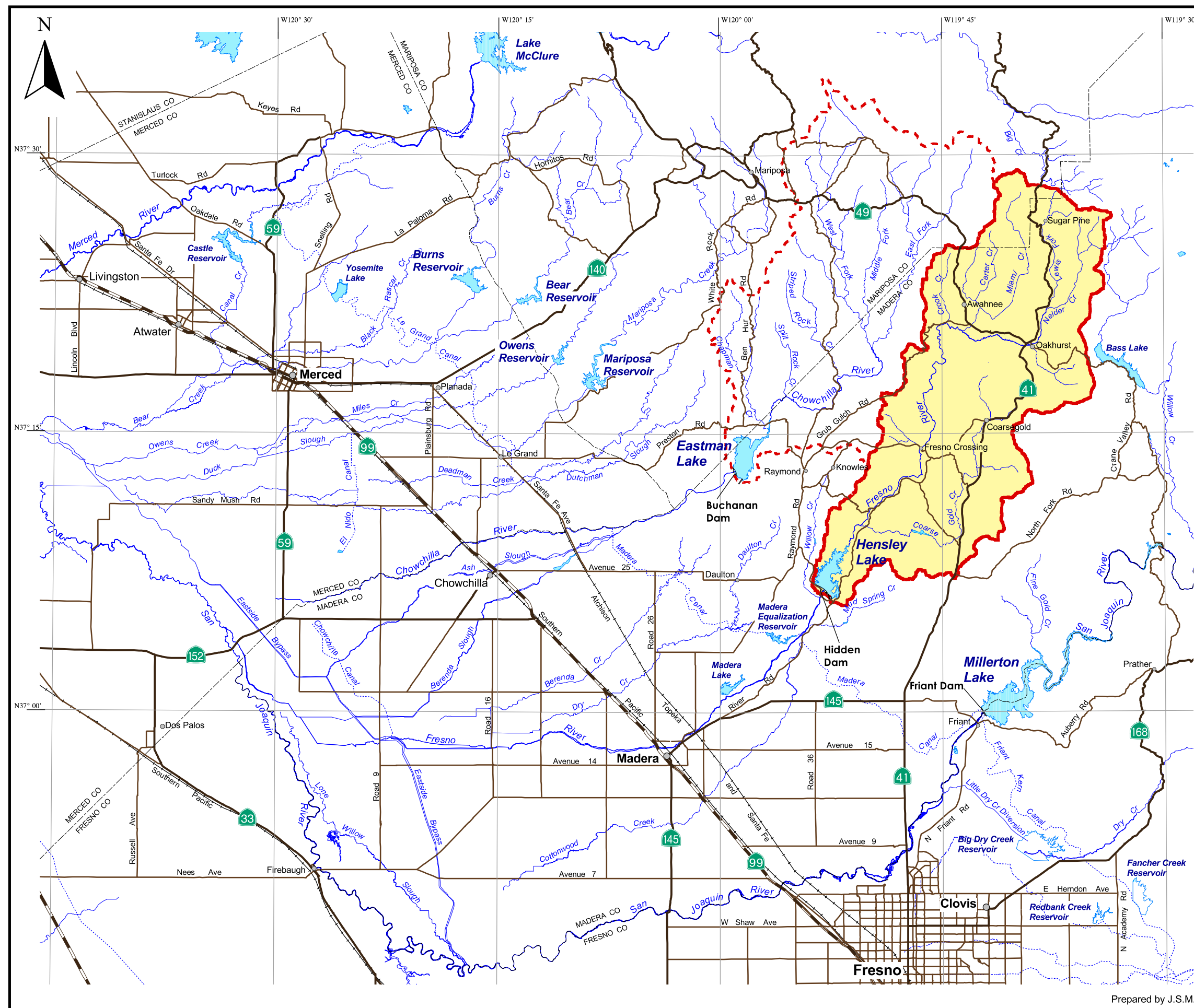
HIDDEN DAM AND HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

U.S. Army Corps of Engineers  
Sacramento District  
Revised October 2004

LIST OF PLATES

| <u>Plate No.</u> | <u>Title</u>                                                                    |
|------------------|---------------------------------------------------------------------------------|
| 2-1              | General Map                                                                     |
| 2-2              | Area Map                                                                        |
| 2-3              | General Plan, Profile, and Sections                                             |
| 2-4              | Typical Sections                                                                |
| 2-5              | Outlet Works Plan, Sections, and Details                                        |
| 2-6              | Spillway Plan, Profile, and Sections                                            |
| 2-7              | Channel Improvements                                                            |
| 2-8              | Real Estate and Recreational Facilities                                         |
| 4-1              | Topography and Stream Gaging Stations                                           |
| 4-2              | Stream Profiles                                                                 |
| 4-3              | Area-Elevation Curve Fresno River Basin                                         |
| 4-4              | Normal Annual Precipitation and Climatological Stations                         |
| 4-5              | Historical Operation                                                            |
| 4-6              | Flood Control Requirements                                                      |
| 5-1              | Inundation Area below Hidden Dam                                                |
| 6-1              | Rainflood Forecast Criteria                                                     |
| 8-1              | Spillway Design Flood Routing                                                   |
| 8-2              | Probable Maximum Flood Routing                                                  |
| 8-3              | Reservoir Design Flood Routing                                                  |
| 8-4              | Standard Project Flood Routing                                                  |
| 8-5              | Hypothetical Routings of Historical Floods                                      |
| 8-6              | Rainflood Frequency Curves (Unregulated Conditions)                             |
| 8-7              | Rainflood Frequency Curves (Regulated Conditions) Fresno River below Hidden Dam |
| 8-8              | Pool Elevation-Duration Curves                                                  |
| 8-9              | Pool Elevation-Frequency Curve                                                  |
| 8-10             | Seasonal Variation of Storage Frequency                                         |

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### MAP LEGEND

- Project Watershed
- Related Watershed
- Lake or Reservoir
- Controlled Inundation
- Major River
- Stream
- Canal
- Interstate or Highway
- State Route
- County Road
- Railroad
- County Boundary
- City

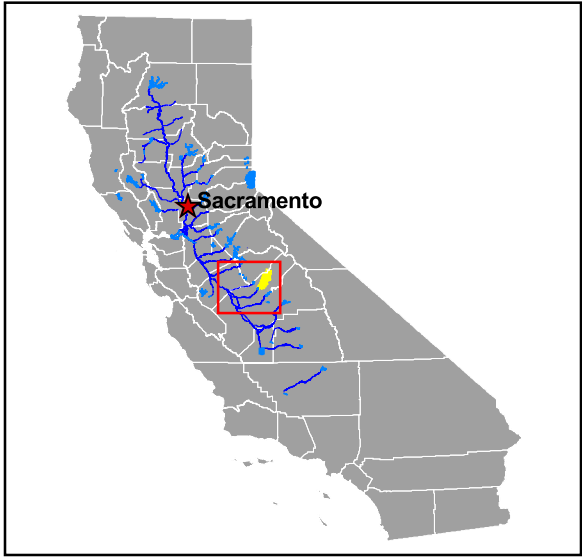
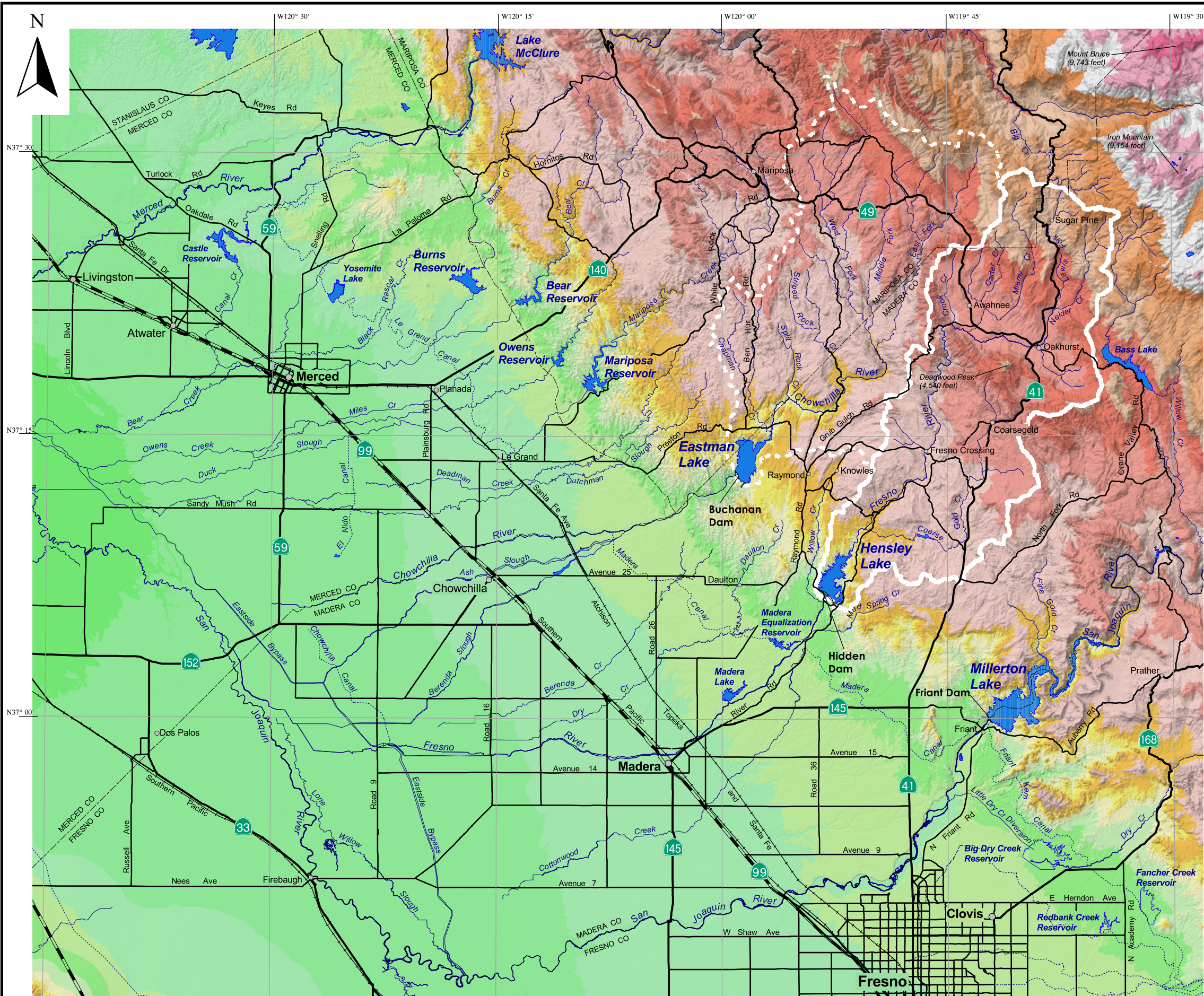


HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

### GENERAL MAP

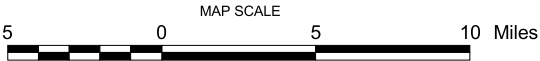
U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

Prepared by J.S.M.



**MAP LEGEND**

- Project Watershed
- Related Watershed
- Lake or Reservoir
- Controlled Inundation
- Major River
- Stream
- Canal
- Interstate or Highway
- State Route
- County Road
- Railroad
- County Boundary
- City

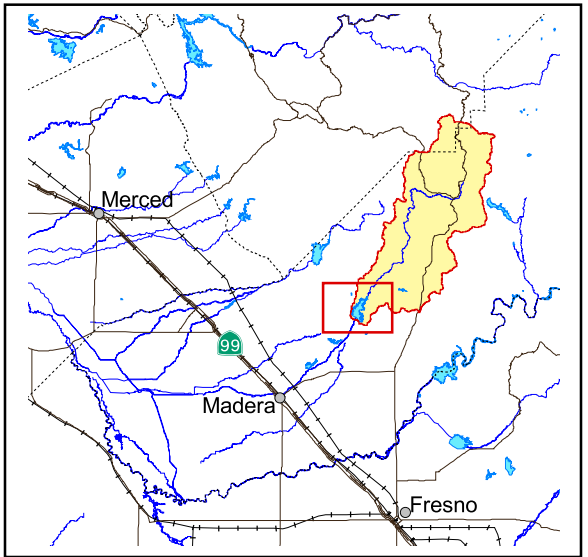
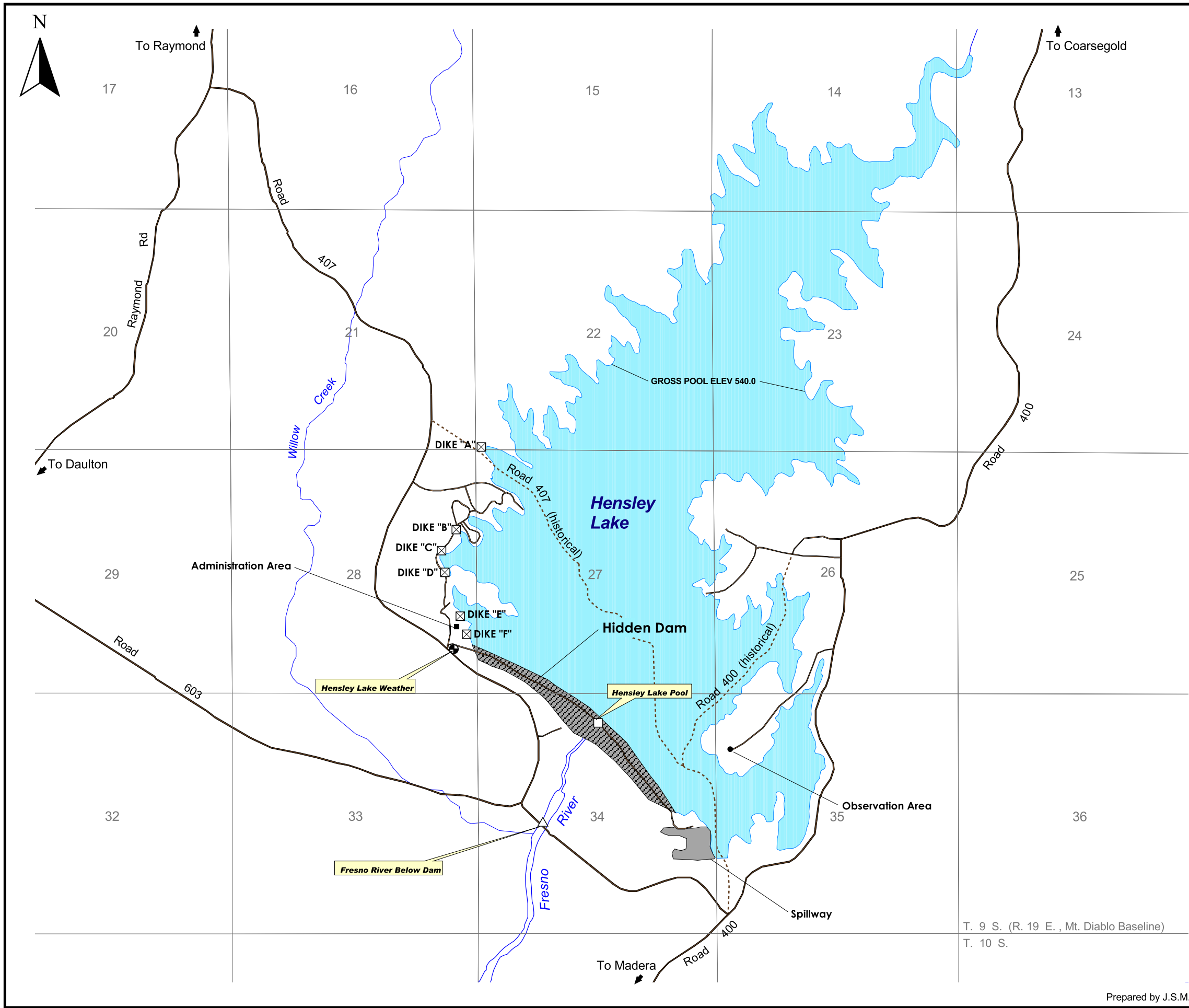


HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

**GENERAL MAP  
(TOPOGRAPHIC RELIEF)**

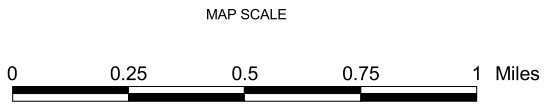
U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

Prepared by J.S.M.



**MAP LEGEND**

- Reservoir
- River or Stream
- County Road
- Project Road
- Historical Road
- PLSS - Section/Township/Range
- Stream Flow Gauge
- Pool Gauge
- Weather Gauge

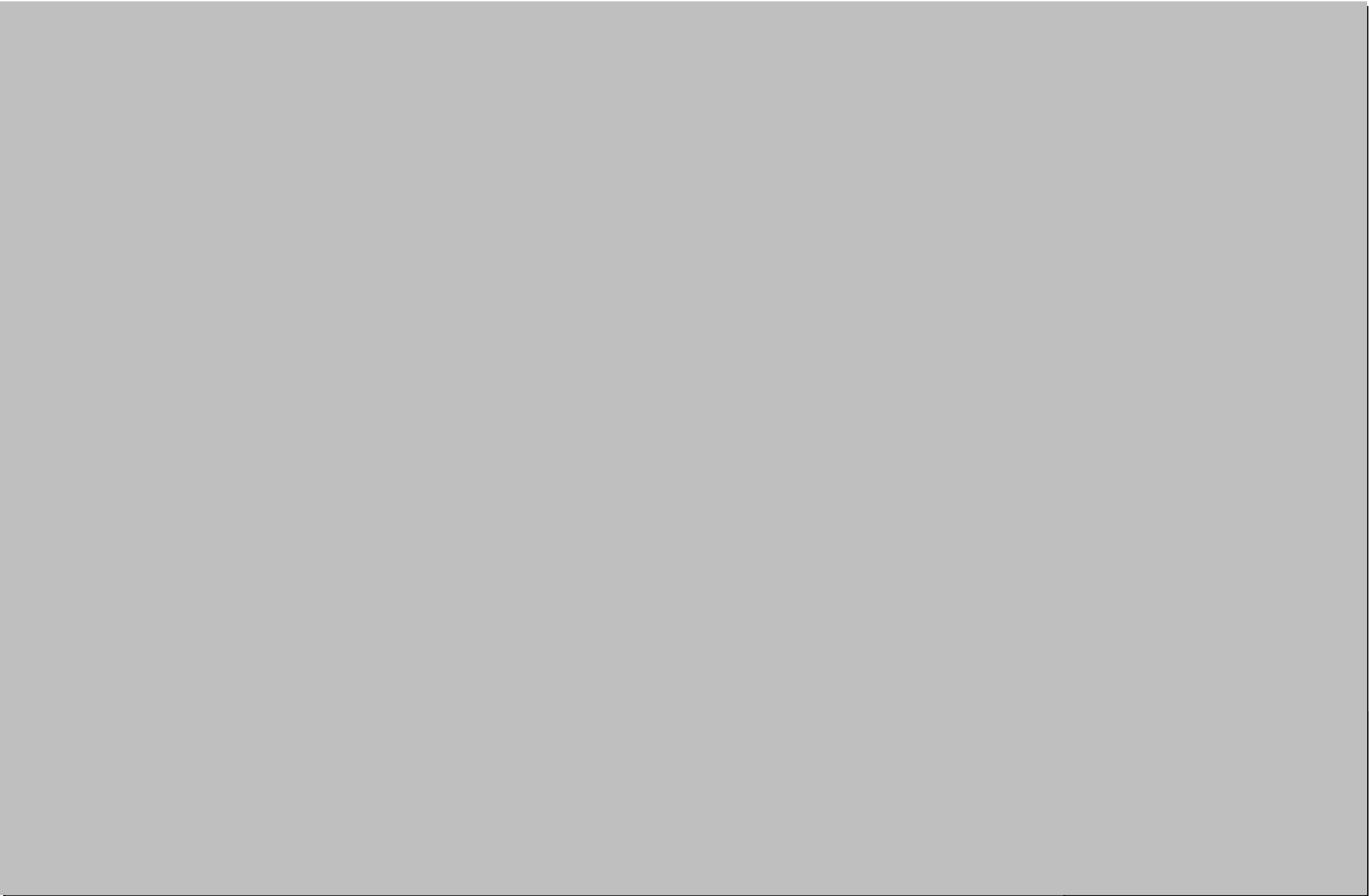


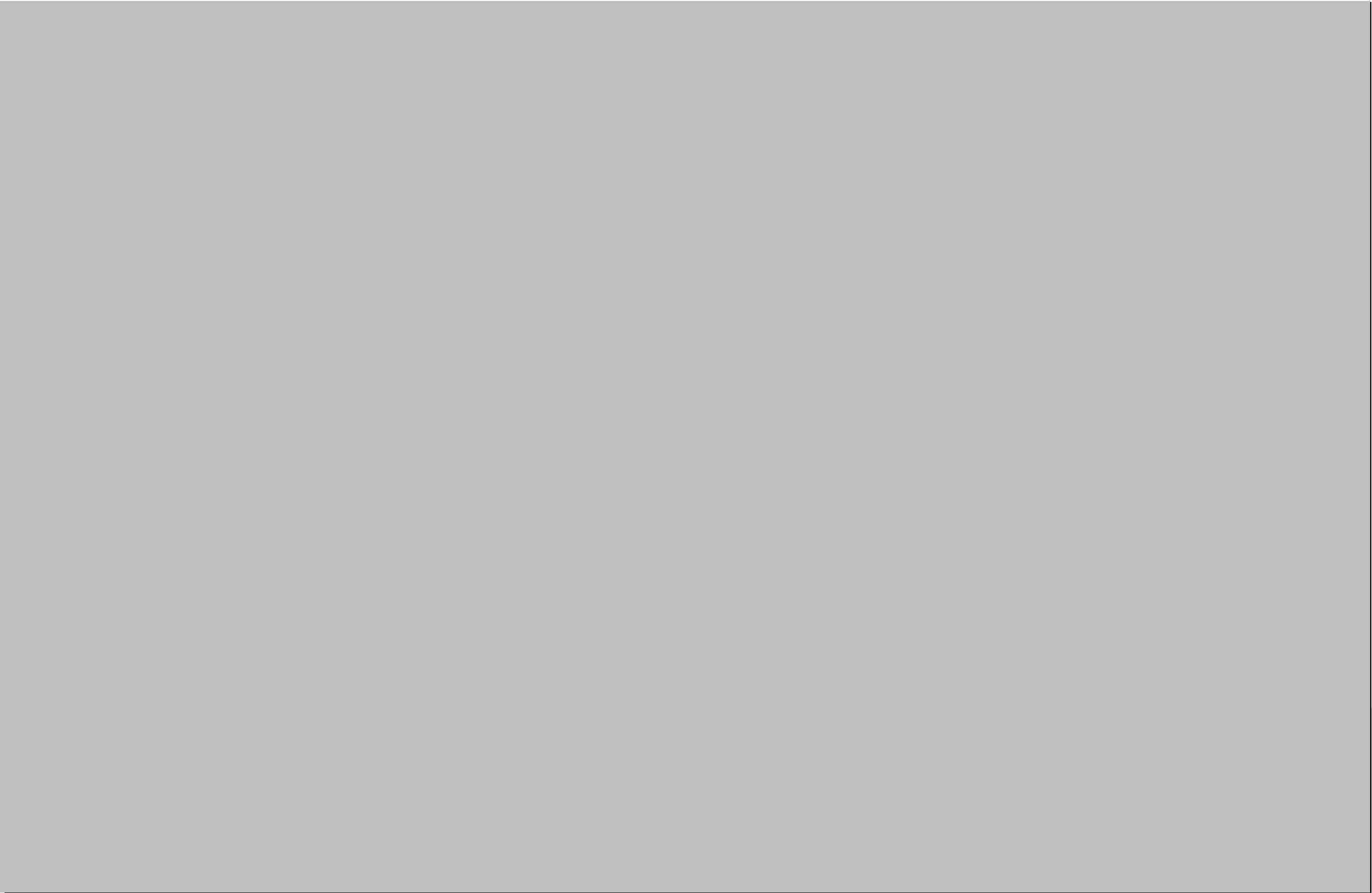
HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

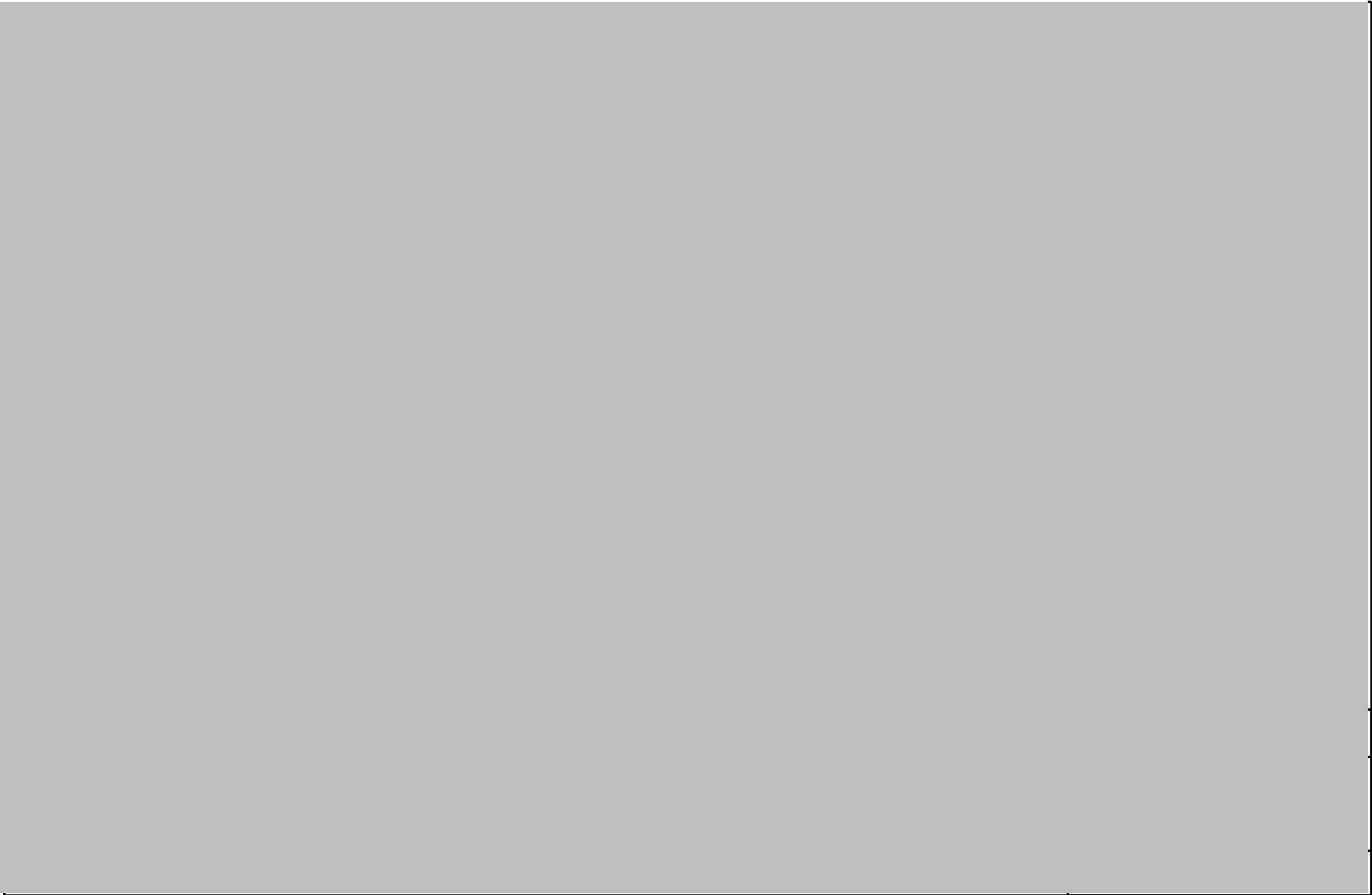
**AREA MAP**

U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

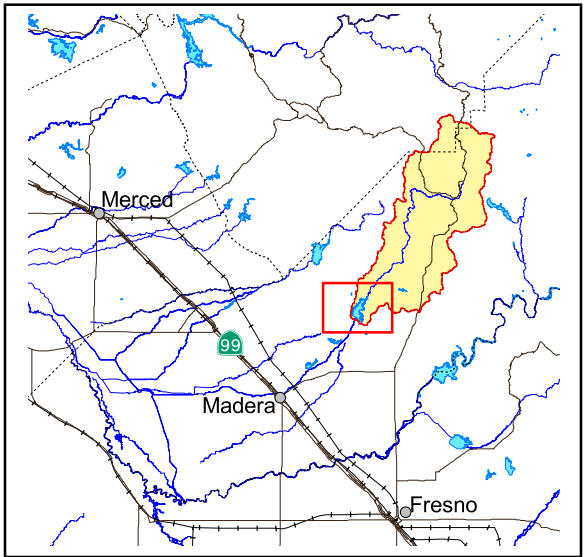
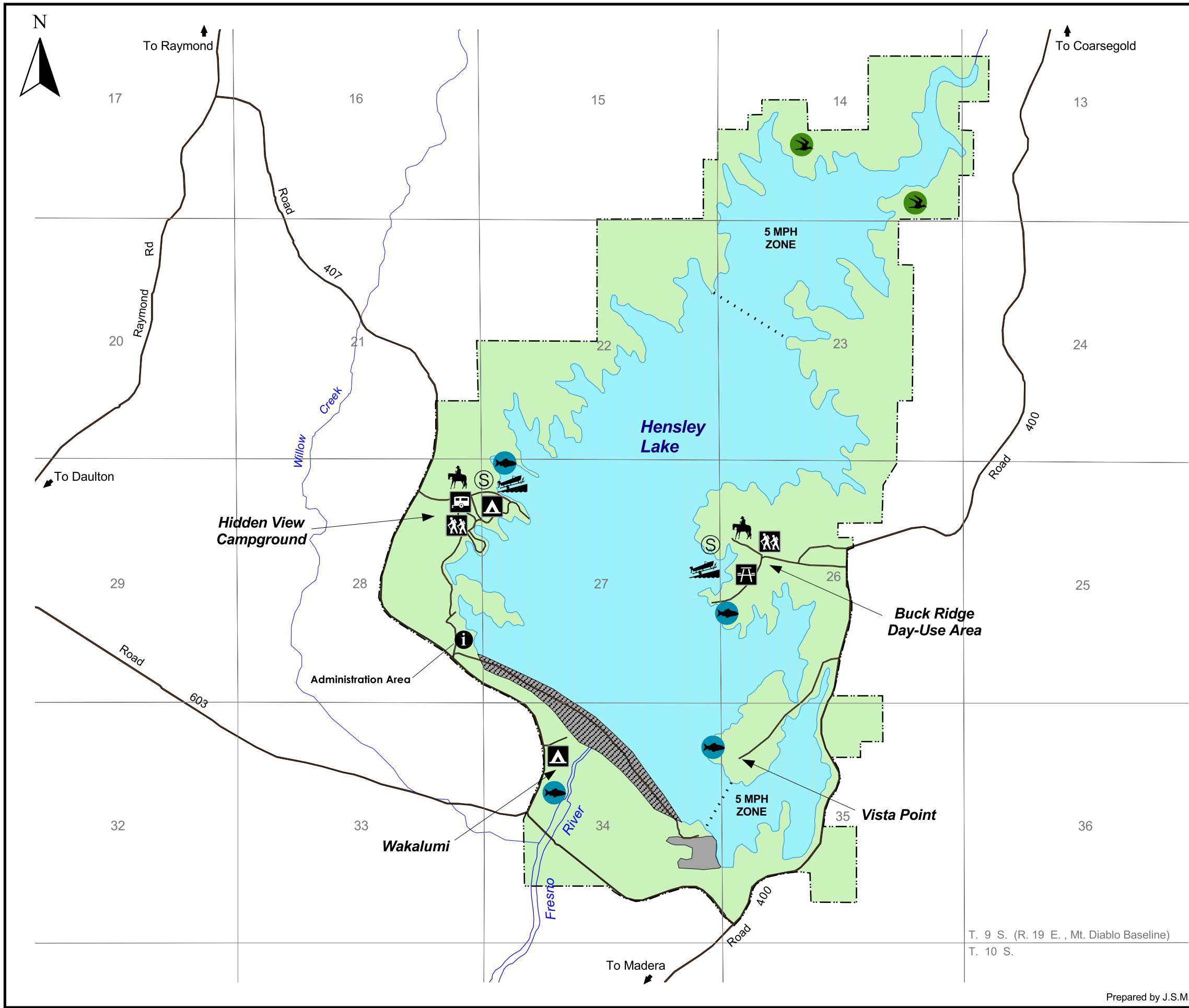










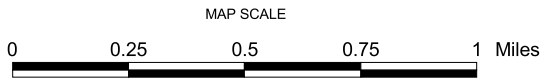


MAP LEGEND

- Project Boundary
- Reservoir
- River or Stream
- County Road
- Project Road
- Buoy Line
- PLSS - Section/Township/Range

Recreation Symbols:

- |                    |                  |
|--------------------|------------------|
| Camping            | Boat Launch      |
| Tent Camping       | Horseback Riding |
| Picnic Area        | Swimming Beach   |
| Hiking             | Fishing Access   |
| Information Center | Wildlife Area    |



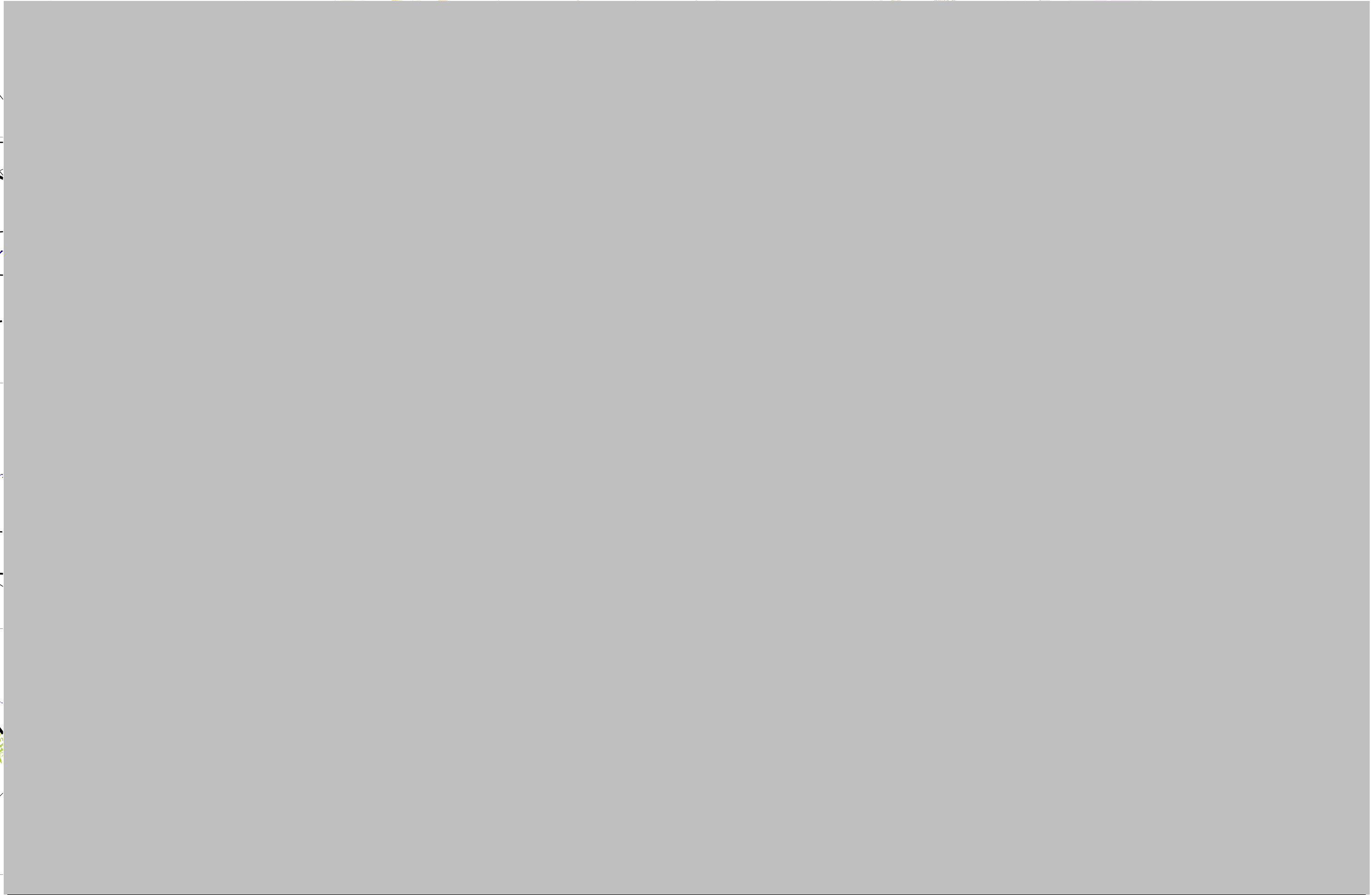
HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

REAL ESTATE AND  
RECREATIONAL FACILITIES

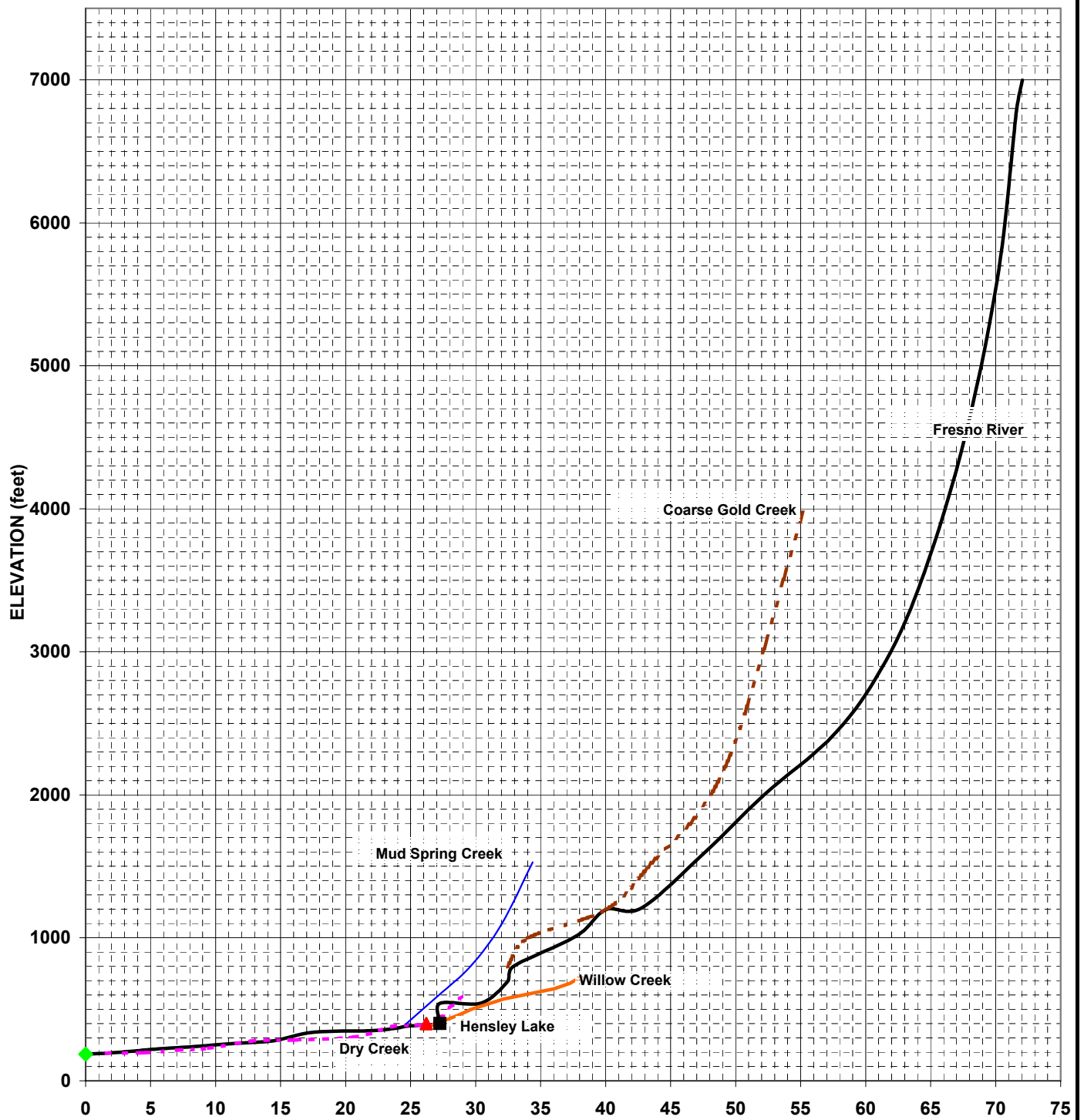
U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

T. 9 S. (R. 19 E., Mt. Diablo Baseline)  
T. 10 S.

Prepared by J.S.M.







- Fresno River at Hidden Dam
- ▲ Gage, Fresno R below Hidden Dam
- ◆ Fresno River at Eastside Bypass

DISTANCE FROM EASTSIDE BYPASS (miles)

HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

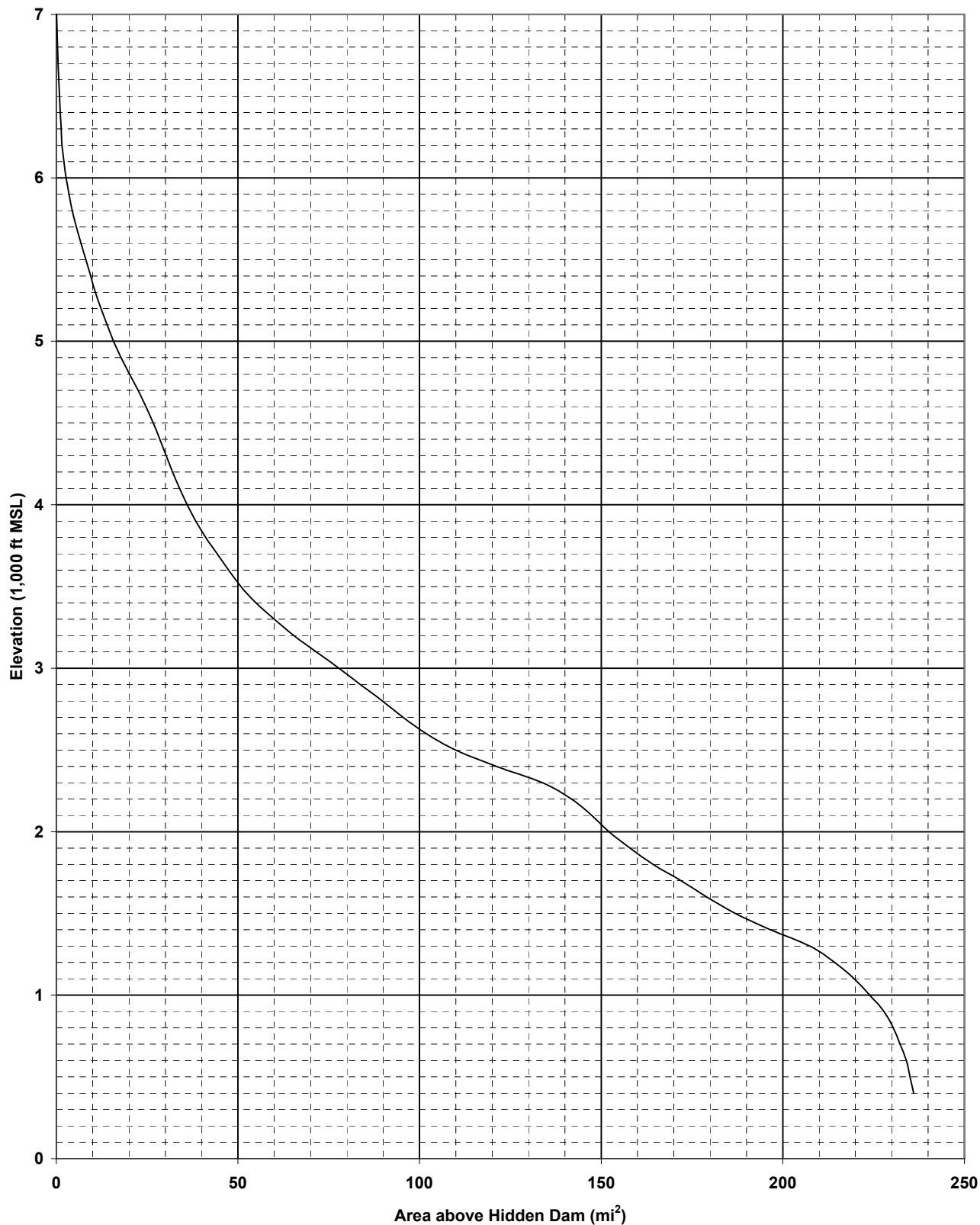
## STREAM PROFILES

U.S ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

Developed and prepared by JLB

Revised Oct 2004

PLATE 4-2



HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

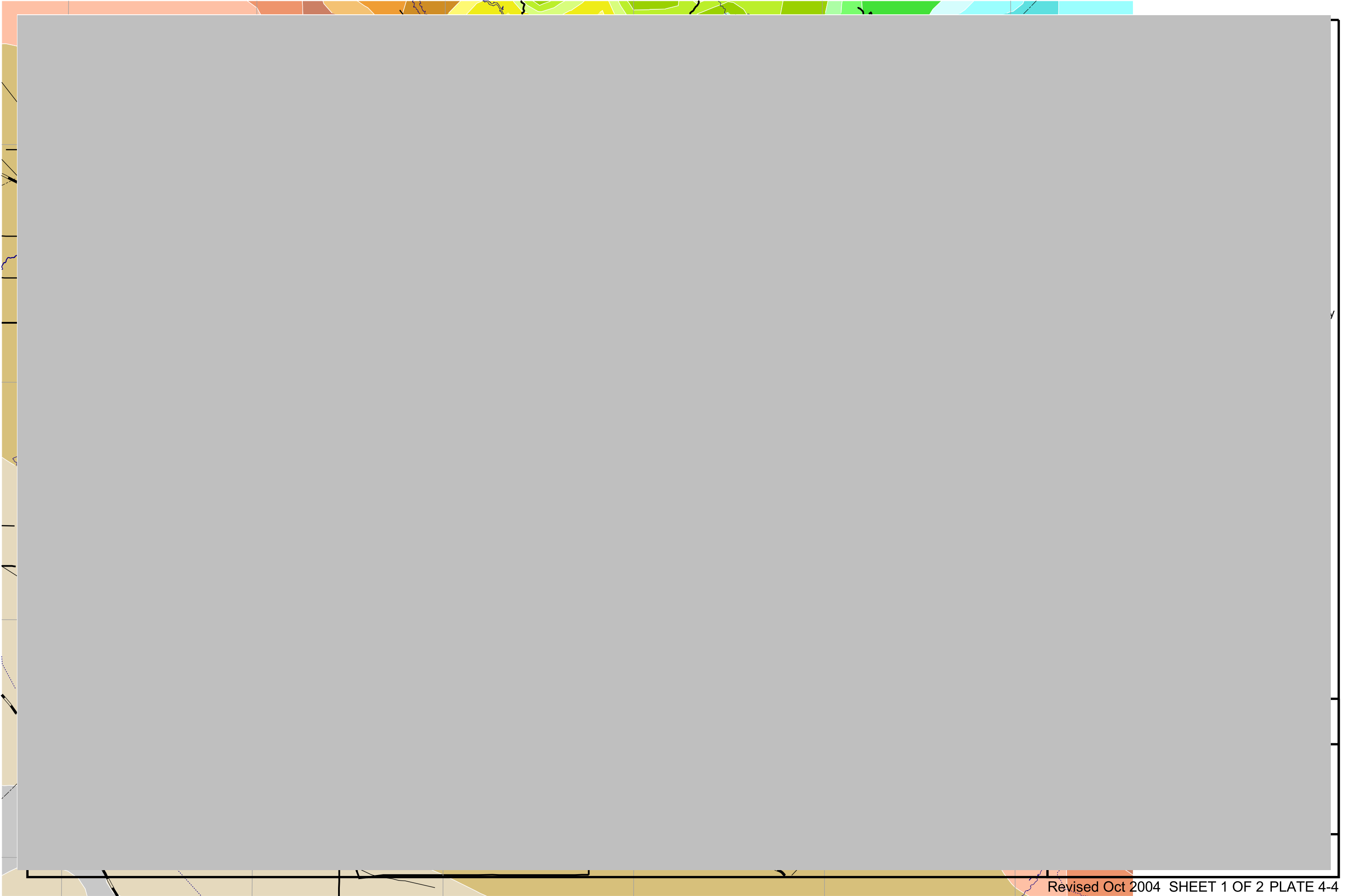
**AREA-ELEVATION CURVE  
FRESNO RIVER BASIN**

U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

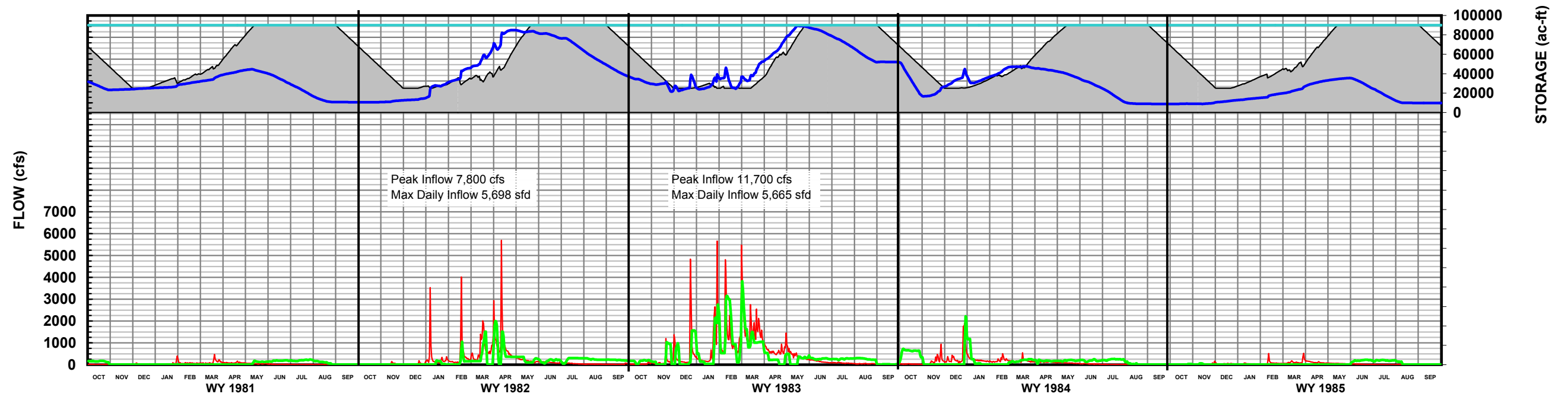
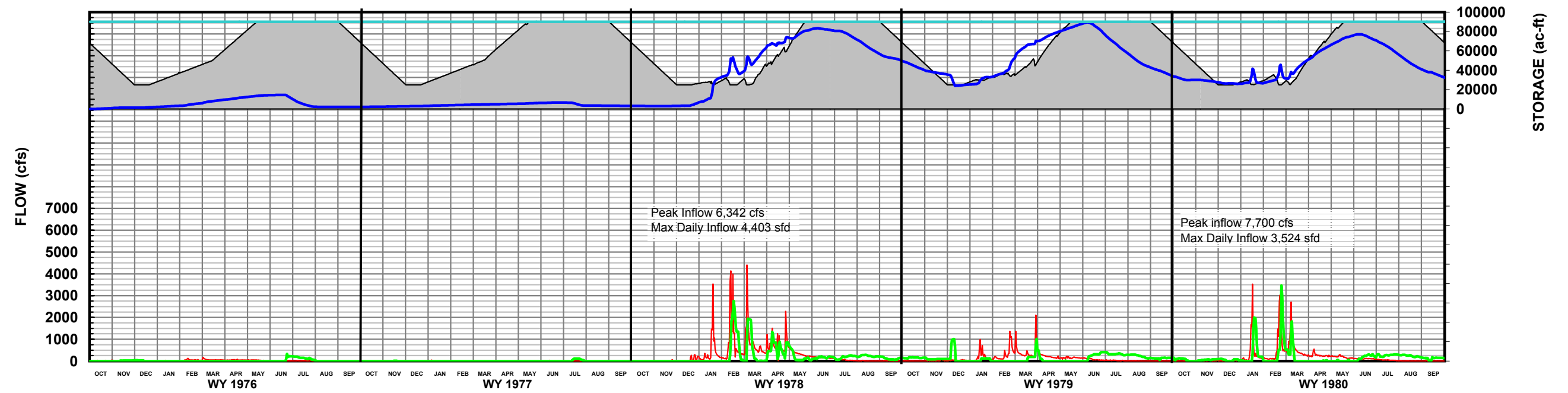
Developed by JSM and prepared by JLB

Revised Oct 2004

PLATE 4-3







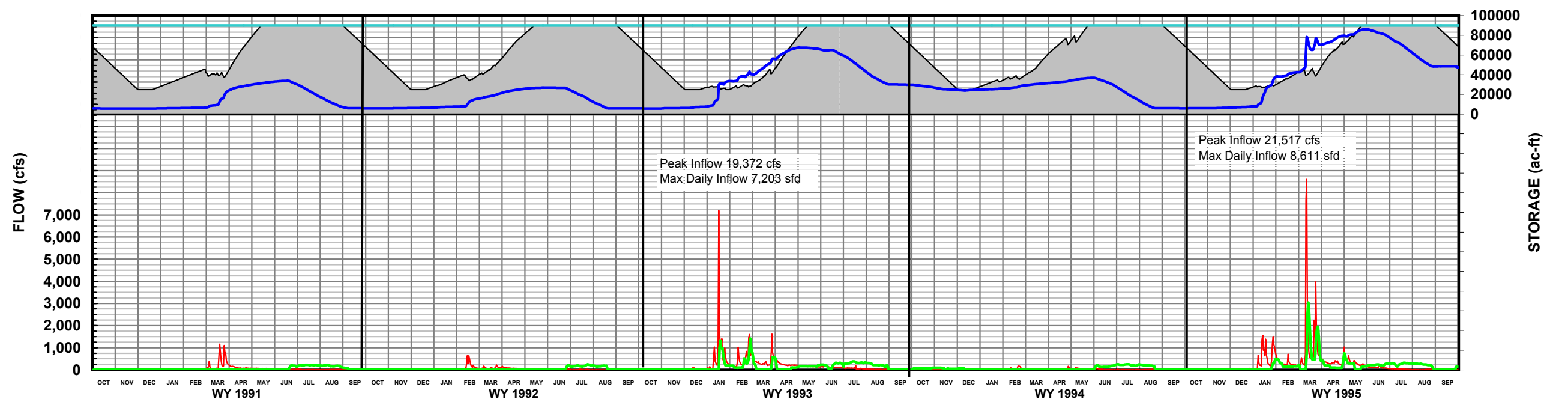
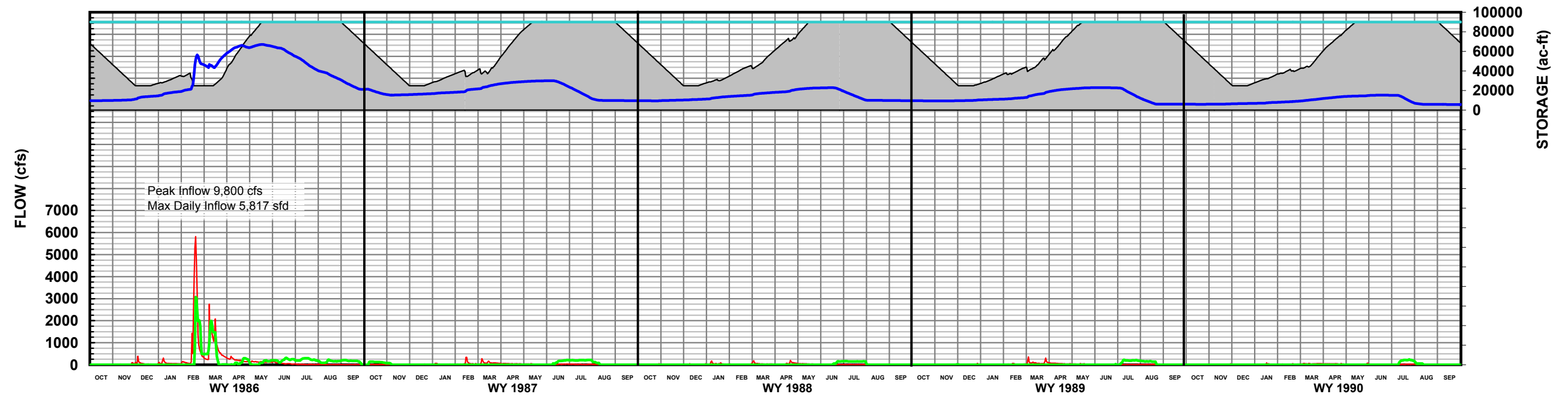
Top of Conservation Space  
 Outflow  
 Gross Pool  
 Inflow  
 Storage

HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

HISTORICAL OPERATION

U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

Developed and prepared by JLB



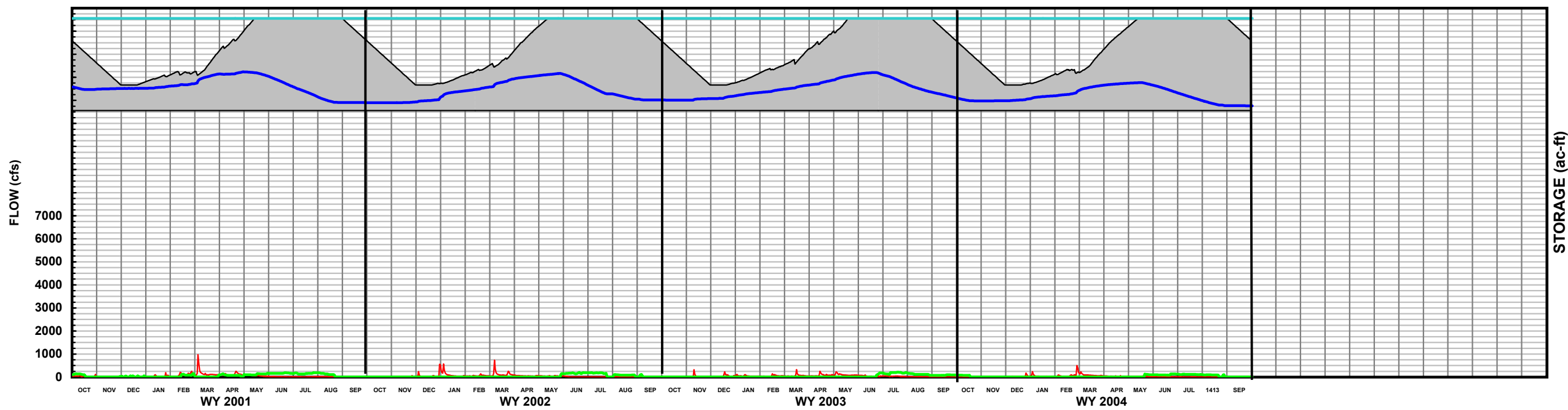
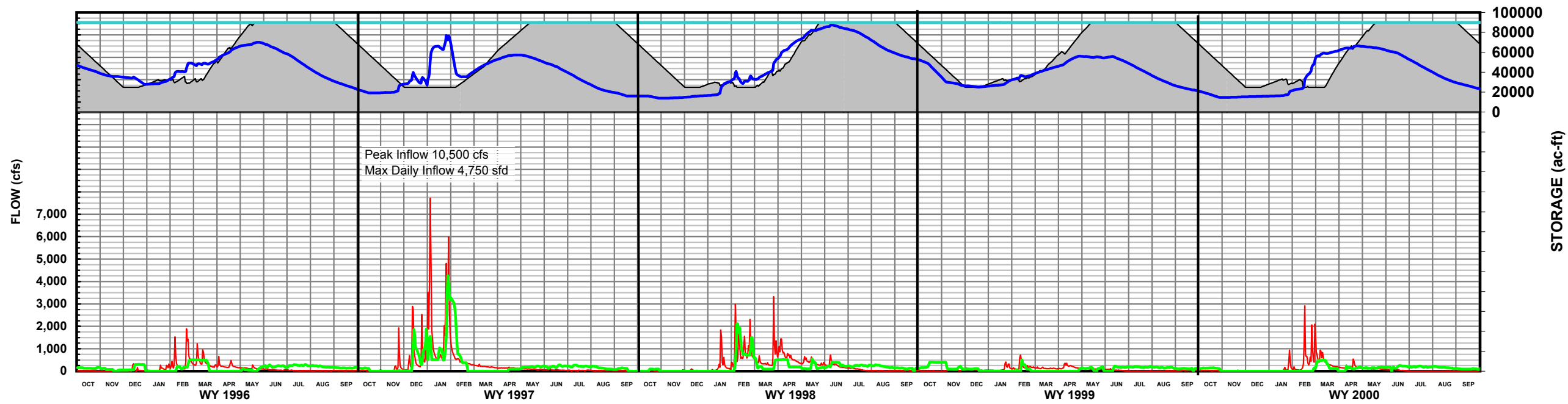
Top of Conservation Space  
 Outflow  
 Gross Pool  
 Inflow  
 Storage

HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

HISTORICAL OPERATION

U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

Developed and prepared by JLB



Top of Conservation Space  
 Inflow  
 Outflow  
 Storage  
 Gross Pool

HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

HISTORICAL OPERATION

U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

Developed and prepared by JLB

Revised Oct 2004 SHEET 3 OF 3 PLATE 4-5

**Plate 4-6**  
**FLOOD CONTROL REQUIREMENTS**  
**HENSLEY LAKE**

Allowable Storage at End of Month (1,000 ac-ft)

| YEAR                                                     | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP  | OCT  | NOV  | DEC  |
|----------------------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| <b>Hypothetical Flood Control Requirements 1922-1974</b> |      |      |      |      |      |      |      |      |      |      |      |      |
| 1922                                                     | 30.3 | 30.0 | 45.8 | 78.0 | 90.0 | 90.0 | 90.0 | 90.0 | 68.6 | 46.4 | 25.0 | 27.1 |
| 1923                                                     | 30.9 | 42.3 | 61.3 | 74.6 |      |      |      |      |      |      |      | 28.2 |
| 1924                                                     | 37.0 | 45.9 | 55.5 | 81.1 |      |      |      |      |      |      |      | 27.6 |
| 1925                                                     | 36.6 | 37.6 | 51.3 | 79.6 |      |      |      |      |      |      |      | 28.2 |
| 1926                                                     | 35.3 | 39.4 | 61.1 | 77.3 |      |      |      |      |      |      |      | 27.7 |
| 1927                                                     | 34.8 | 34.5 | 55.6 | 79.1 |      |      |      |      |      |      |      | 27.4 |
| 1928                                                     | 36.5 | 44.9 | 48.1 | 77.9 |      |      |      |      |      |      |      | 28.1 |
| 1929                                                     | 36.0 | 45.3 | 59.1 | 78.9 |      |      |      |      |      |      |      | 28.2 |
| 1930                                                     | 36.5 | 39.8 | 57.4 | 80.0 |      |      |      |      |      |      |      | 28.2 |
| 1931                                                     | 36.3 | 44.2 | 61.3 | 81.2 |      |      |      |      |      |      |      | 25.0 |
| 1932                                                     | 28.6 | 35.8 | 57.9 | 81.2 |      |      |      |      |      |      |      | 28.2 |
| 1933                                                     | 29.6 | 41.5 | 55.9 | 81.2 |      |      |      |      |      |      |      | 27.6 |
| 1934                                                     | 37.0 | 38.0 | 60.8 | 81.2 |      |      |      |      |      |      |      | 27.2 |
| 1935                                                     | 31.3 | 39.8 | 51.8 | 68.4 |      |      |      |      |      |      |      | 28.2 |
| 1936                                                     | 35.3 | 25.0 | 44.5 | 75.7 |      |      |      |      |      |      |      | 26.4 |
| 1937                                                     | 31.0 | 28.6 | 43.7 | 75.6 |      |      |      |      |      |      |      | 27.4 |
| 1938                                                     | 32.1 | 28.5 | 36.5 | 68.2 |      |      |      |      |      |      |      | 28.2 |
| 1939                                                     | 34.8 | 42.2 | 54.7 | 81.2 |      |      |      |      |      |      |      | 28.2 |
| 1940                                                     | 28.0 | 25.6 | 45.7 | 75.3 |      |      |      |      |      |      |      | 25.2 |
| 1941                                                     | 29.4 | 28.1 | 49.7 | 70.6 |      |      |      |      |      |      |      | 25.4 |
| 1942                                                     | 30.2 | 38.0 | 56.2 | 74.8 |      |      |      |      |      |      |      | 27.8 |
| 1943                                                     | 28.1 | 35.6 | 44.0 | 73.9 |      |      |      |      |      |      |      | 28.0 |
| 1944                                                     | 34.8 | 34.0 | 56.7 | 76.9 |      |      |      |      |      |      |      | 27.5 |
| 1945                                                     | 37.2 | 37.5 | 47.1 | 78.1 |      |      |      |      |      |      |      | 26.4 |
| 1946                                                     | 35.7 | 42.2 | 49.7 | 80.0 |      |      |      |      |      |      |      | 26.9 |
| 1947                                                     | 36.2 | 44.1 | 59.3 | 81.2 |      |      |      |      |      |      |      | 28.2 |
| 1948                                                     | 37.4 | 45.5 | 48.1 | 66.2 |      |      |      |      |      |      |      | 27.7 |
| 1949                                                     | 36.5 | 42.8 | 52.2 | 81.0 |      |      |      |      |      |      |      | 28.1 |
| 1950                                                     | 32.9 | 40.7 | 56.8 | 79.2 |      |      |      |      |      |      |      | 26.5 |
| 1951                                                     | 32.4 | 41.2 | 61.1 | 78.6 |      |      |      |      |      |      |      | 26.1 |
| 1952                                                     | 26.7 | 38.4 | 49.2 | 74.7 |      |      |      |      |      |      |      | 26.9 |
| 1953                                                     | 33.9 | 45.9 | 61.2 | 77.9 |      |      |      |      |      |      |      | 28.2 |
| 1954                                                     | 34.1 | 38.6 | 49.1 | 74.4 |      |      |      |      |      |      |      | 28.0 |
| 1955                                                     | 34.4 | 41.3 | 61.3 | 76.4 |      |      |      |      |      |      |      | 25.0 |
| 1956                                                     | 25.0 | 35.1 | 60.0 | 75.2 |      |      |      |      |      |      |      | 28.2 |
| 1957                                                     | 36.0 | 39.6 | 57.3 | 78.8 |      |      |      |      |      |      |      | 27.6 |
| 1958                                                     | 32.6 | 31.7 | 36.3 | 65.7 |      |      |      |      |      |      |      | 28.2 |
| 1959                                                     | 36.1 | 35.4 | 59.3 | 80.0 |      |      |      |      |      |      |      | 28.2 |
| 1960                                                     | 35.6 | 39.2 | 54.6 | 74.5 |      |      |      |      |      |      |      | 28.2 |
| 1961                                                     | 36.2 | 45.8 | 59.1 | 81.2 |      |      |      |      |      |      |      | 28.2 |
| 1962                                                     | 35.7 | 25.5 | 49.3 | 79.2 |      |      |      |      |      |      |      | 28.2 |
| 1963                                                     | 28.3 | 35.7 | 50.5 | 67.2 |      |      |      |      |      |      |      | 28.2 |
| 1964                                                     | 36.3 | 45.9 | 59.8 | 81.2 |      |      |      |      |      |      |      | 25.0 |
| 1965                                                     | 29.5 | 41.0 | 57.7 | 75.8 |      |      |      |      |      |      |      | 26.5 |
| 1966                                                     | 35.0 | 43.9 | 61.3 | 81.2 |      |      |      |      |      |      |      | 26.9 |
| 1967                                                     | 28.8 | 41.0 | 46.6 | 58.4 |      |      |      |      |      |      |      | 27.9 |
| 1968                                                     | 35.7 | 43.6 | 59.4 | 81.2 |      |      |      |      |      |      |      | 26.6 |
| 1969                                                     | 25.0 | 25.0 | 44.9 | 72.6 | 90.0 | 90.0 | 90.0 | 90.0 | 68.6 | 46.4 | 25.0 | 27.7 |
| 1970                                                     | 29.6 | 39.4 | 57.2 | 80.7 | 90.0 | 90.0 | 90.0 | 90.0 | 68.6 | 46.4 | 25.0 | 28.2 |

Revised Oct 2004

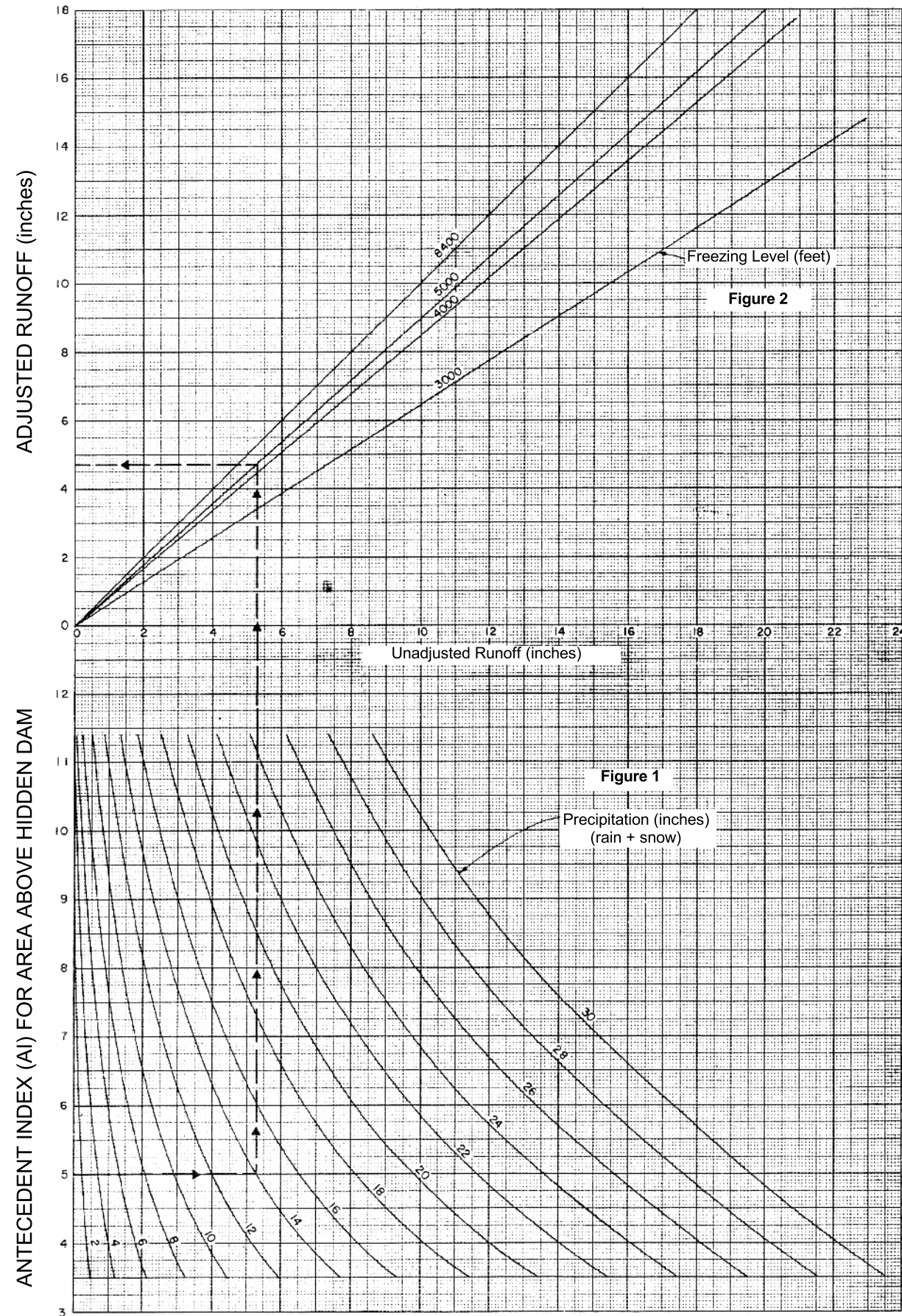
Note: The allowable storages shown above are hypothetical and reprinted from the 1975 Water Control Manual. Data 1975-2004 reflects actual operation.

SHEET 1 OF 2 PLATE 4-6

**Plate 4-6**  
**FLOOD CONTROL REQUIREMENTS**  
**HENSLEY LAKE**  
Allowable Storage at End of Month (1,000 ac-ft)

| YEAR                                         | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP  | OCT  | NOV  | DEC  |
|----------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1971                                         | 37.1 | 45.5 | 61.3 | 81.3 | 90.0 | 90.0 | 90.0 | 90.0 | 68.6 | 46.4 | 25.0 | 26.5 |
| 1972                                         | 36.9 | 46.1 | 61.6 | 81.5 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 28.0 |
| 1973                                         | 33.1 | 32.5 | 49.7 | 80.1 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 27.5 |
| 1974                                         | 34.1 | 46.1 | 51.6 | 80.0 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 27.6 |
|                                              |      |      |      |      | 90.0 | 90.0 | 90.0 | 90.0 | 68.6 | 46.4 | 25.0 |      |
| <b>Historical Flood Control Requirements</b> |      |      |      |      |      |      |      |      |      |      |      |      |
| 1975                                         | 37.2 | 37.9 | 49.7 | 72.6 | 90.0 | 90.0 | 90.0 | 90.0 | 68.6 | 46.4 | 25.0 | 28.3 |
| 1976                                         | 37.4 | 45.9 | 61.3 | 81.3 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 28.3 |
| 1977                                         | 37.5 | 45.8 | 61.3 | 81.2 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 26.5 |
| 1978                                         | 29.9 | 30.8 | 43.9 | 63.8 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 28.1 |
| 1979                                         | 32.8 | 36.5 | 48.0 | 78.0 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 27.8 |
| 1980                                         | 29.6 | 28.8 | 52.1 | 76.8 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 28.2 |
| 1981                                         | 30.6 | 39.8 | 53.9 | 78.4 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 27.0 |
| 1982                                         | 30.0 | 35.4 | 36.6 | 67.0 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 25.8 |
| 1983                                         | 25.0 | 25.0 | 36.3 | 59.0 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 25.6 |
| 1984                                         | 35.0 | 42.4 | 58.7 | 81.2 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 27.7 |
| 1985                                         | 37.5 | 44.7 | 51.0 | 74.6 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 27.4 |
| 1986                                         | 34.5 | 25.0 | 40.8 | 74.6 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 28.3 |
| 1987                                         | 37.5 | 40.4 | 53.6 | 81.3 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 27.9 |
| 1988                                         | 35.1 | 44.2 | 61.3 | 76.9 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 27.5 |
| 1989                                         | 37.5 | 44.0 | 57.1 | 80.2 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 28.3 |
| 1990                                         | 37.1 | 42.3 | 60.7 | 81.3 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 28.3 |
| 1991                                         | 37.5 | 45.6 | 43.8 | 77.3 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 28.1 |
| 1992                                         | 37.4 | 40.2 | 56.7 | 81.3 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 27.4 |
| 1993                                         | 25.8 | 29.6 | 46.6 | 78.1 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 28.3 |
| 1994                                         | 35.2 | 39.6 | 61.6 | 74.3 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 27.9 |
| 1995                                         | 30.6 | 42.7 | 48.1 | 71.0 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 27.8 |
| 1996                                         | 31.8 | 31.7 | 51.6 | 75.9 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 25.0 |
| 1997                                         | 25.0 | 38.0 | 61.1 | 81.3 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 28.2 |
| 1998                                         | 29.8 | 25.0 | 40.9 | 69.4 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 28.3 |
| 1999                                         | 32.6 | 37.1 | 56.9 | 78.8 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 28.2 |
| 2000                                         | 28.9 | 25.0 | 49.4 | 75.4 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 28.3 |
| 2001                                         | 35.2 | 37.4 | 57.5 | 76.6 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 26.5 |
| 2002                                         | 35.1 | 43.4 | 57.3 | 81.3 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 27.1 |
| 2003                                         | 36.9 | 43.9 | 59.7 | 76.1 | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | ↓    | 27.9 |

Note: The allowable storages shown above are hypothetical and reprinted from the 1975 Water Control Manual. Data 1975-2004 reflects actual operation.



#### NOTES:

1. The Antecedent Moisture Index (AI) is an index of the loss potential of the basin, or an index of the relationship between rainfall and surface runoff for a storm period. The value of the AI indicates the approximate number of inches of rain that would be required to produce one inch of surface runoff. The AI values and freezing levels will be supplied by the State-Federal River Forecast Center.
2. The basin-mean precipitation should be based on the records of precipitation at the dam and from the two radio-reporting stations located in the upper areas of the basin.
3. Data shown in Figure 1 have been supplied by the State-Federal River Forecast Center.

#### EXAMPLE OF CRITERIA APPLICATION

1. For an assumed AI of 5.00 inches for the storm period and an assumed basin-mean precipitation of 14.00 inches recorded to date, read the total potential runoff (unadjusted) of 5.30 inches.
2. With 5.30 inches of unadjusted runoff and an assumed average freezing level of 5,000 feet (averaged for the desired period), read the adjusted runoff of 4.70 inches.
3. Basin area = 236 sq. mi. Volumetric conversion from sq. mi. inches to feet = 53.333.  
 $236 \times 53.333 \times 4.70 = 59,200$  acre-feet of runoff.

#### UNIT HYDROGRAPH AT HIDDEN DAM SITE

| Time (hours) | Flow (cfs) |
|--------------|------------|
| 0            |            |
| 2            | 880        |
| 4            | 4,350      |
| 6            | 13,790     |
| 8            | 18,800     |
| 10           | 13,300     |
| 12           | 8,800      |
| 14           | 6,000      |
| 16           | 3,800      |
| 18           | 2,500      |
| 20           | 1,500      |
| 22           | 1,100      |
| 24           | 600        |
| 26           | 300        |
| 28           | 100        |
| 30           | 50         |

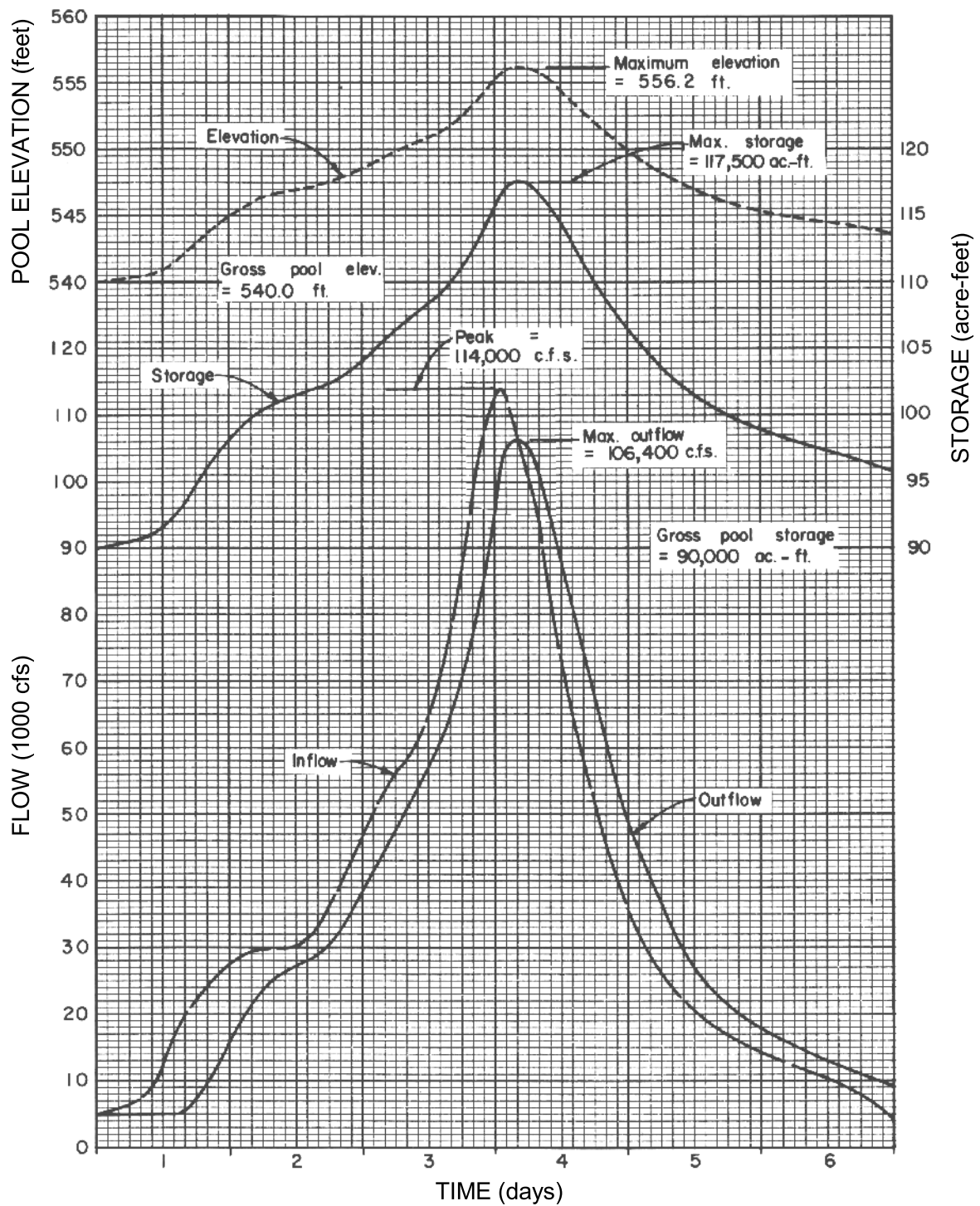
Prepared: CDM 1973  
 Drawn: LHC 1973  
 Provided by the River Forecast Center (RFC), 1973

*This product no longer provided or supported by the RFC and is included in the Buchanan Water Control Manual for historical reference.*

HIDDEN DAM-HENSLEY LAKE  
 FRESNO RIVER, CALIFORNIA

#### RAINFLOOD FORECAST CRITERIA

U.S. ARMY CORPS OF ENGINEERS  
 SACRAMENTO DISTRICT



NOTE: At the beginning of the Spillway Design Flood routing, it is assumed that the lake was at gross pool level, elevation 540 ft MSL

HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

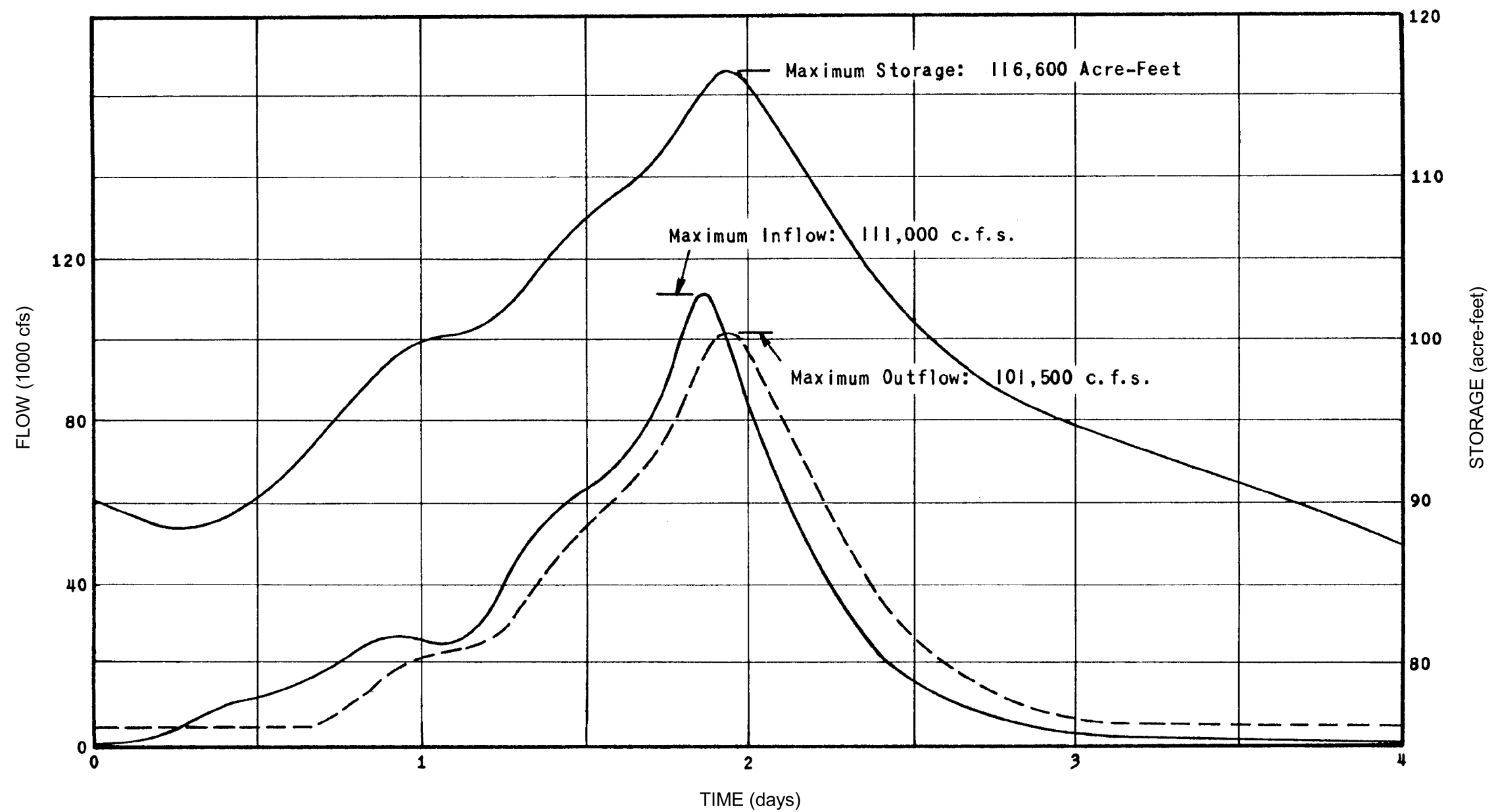
## SPILLWAY DESIGN FLOOD ROUTING

U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

Prepared by D.D.D., January 1973

Drawn by T.G.K., January 1973

From the Hidden-Hensley Lake Water Control Manual (1975)



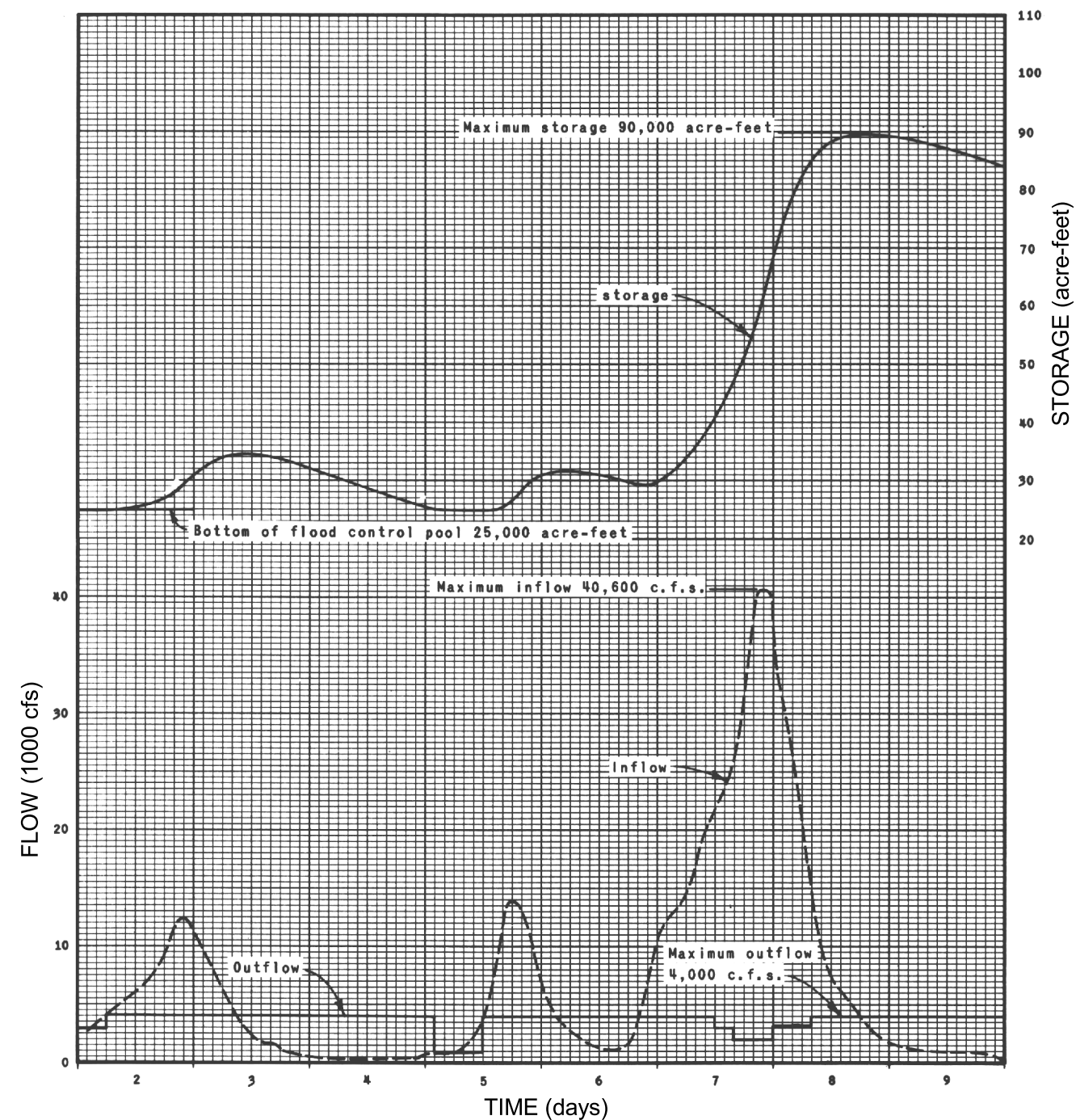
HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

### PROBABLE MAXIMUM FLOOD ROUTING

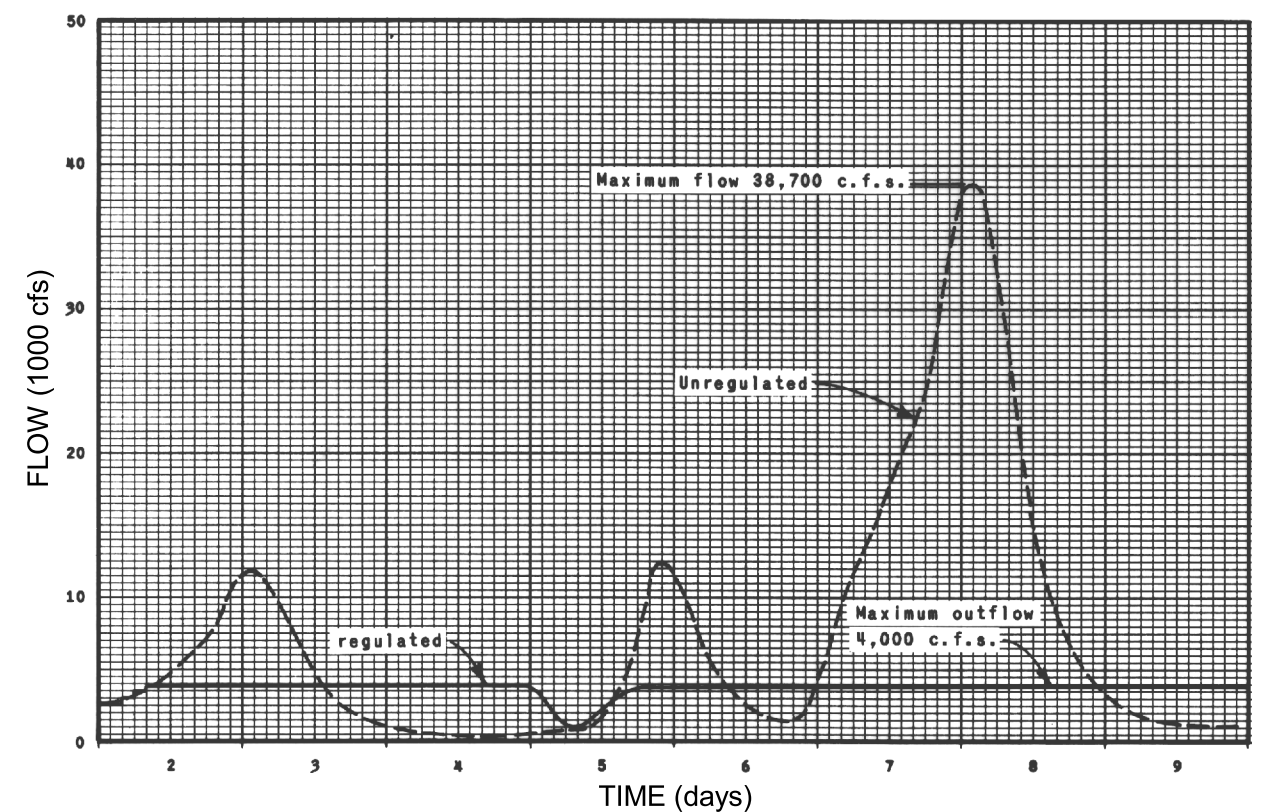
U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

Prepared by L.L.W., March 1982  
Drawn by C.A.P., March 1982

From Spillway Adequacy Studies, Hydrology Office Report, Hensley Lake-Hidden Dam (1982)



FRESNO RIVER THROUGH HIDDEN LAKE



FRESNO RIVER AT MADERA

NOTE: Routing through Hidden Lake (Hensley Lake) is made using maximum objective flow rate in Fresno River at Madera Canal of 5,000 cfs. Allowance for operational contingencies include: (1) assumption that releases to this objective flow rate will be impaired through portions of the period, with the result that maximum accomplishment will average 80 percent or 4,000 cfs (as long as flood control space is available), and (2) that the error of forecasting local flow will average 25 percent.

HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

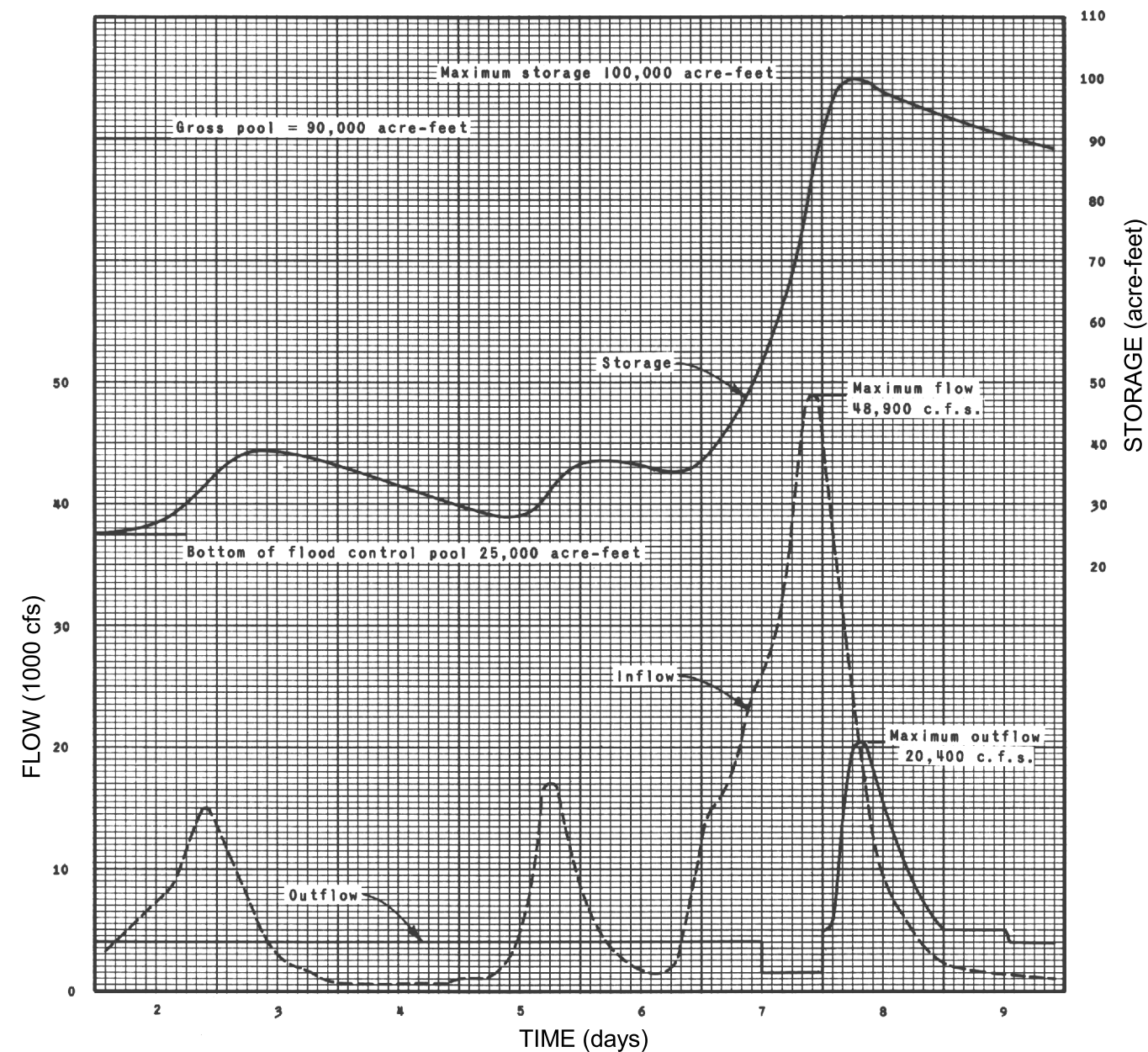
## RESERVOIR DESIGN FLOOD ROUTING

U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

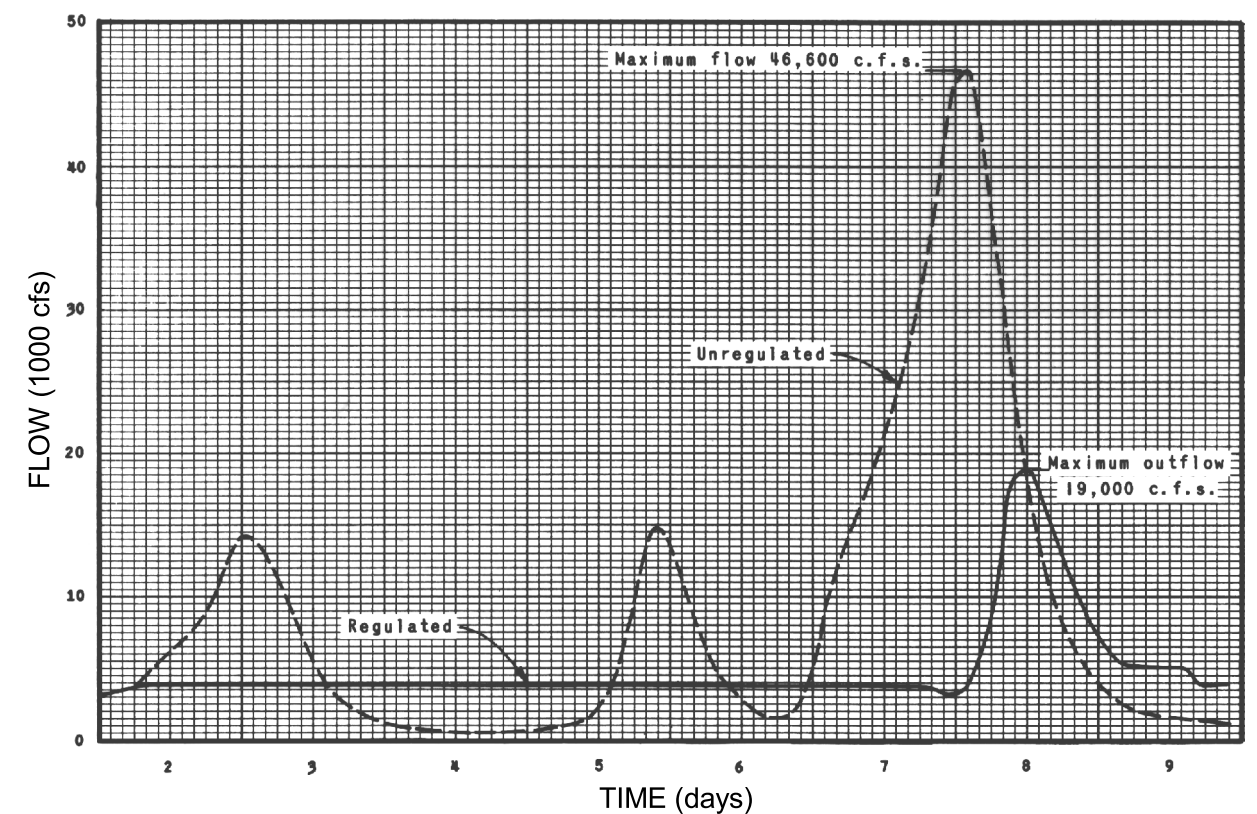
Prepared by J.J.S., December 1974

Drawn by L.H.C., December 1974

From the Hidden-Hensley Lake Water Control Manual (1975)



FRESNO RIVER THROUGH HIDDEN LAKE



FRESNO RIVER AT MADERA

NOTE: Routing through Hidden Lake (Hensley Lake) is made using maximum objective flow rate in Fresno River at Madera Canal of 5,000 cfs. Allowance for operational contingencies include: (1) assumption that releases to this objective flow rate will be impaired through portions of the period with the result that maximum accomplishment will average 80 percent or 4,000 cfs (as long as flood control space is available), and (2) that the error of forecasting local flow will average 25 percent.

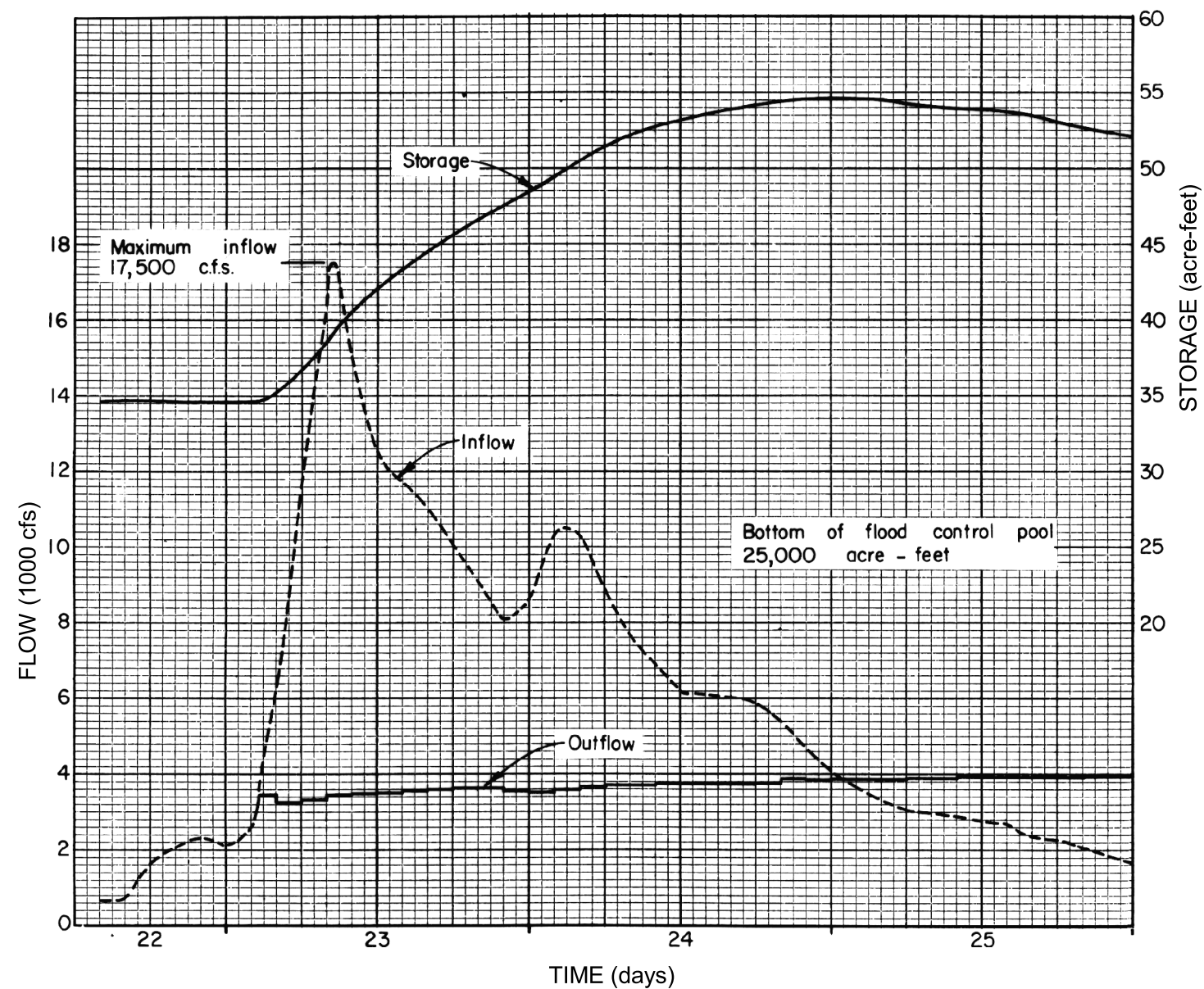
Prepared by J.J.S., December 1974  
 Drawn by L.H.C., December 1974

From the Hidden-Hensley Lake Water Control Manual (1975)

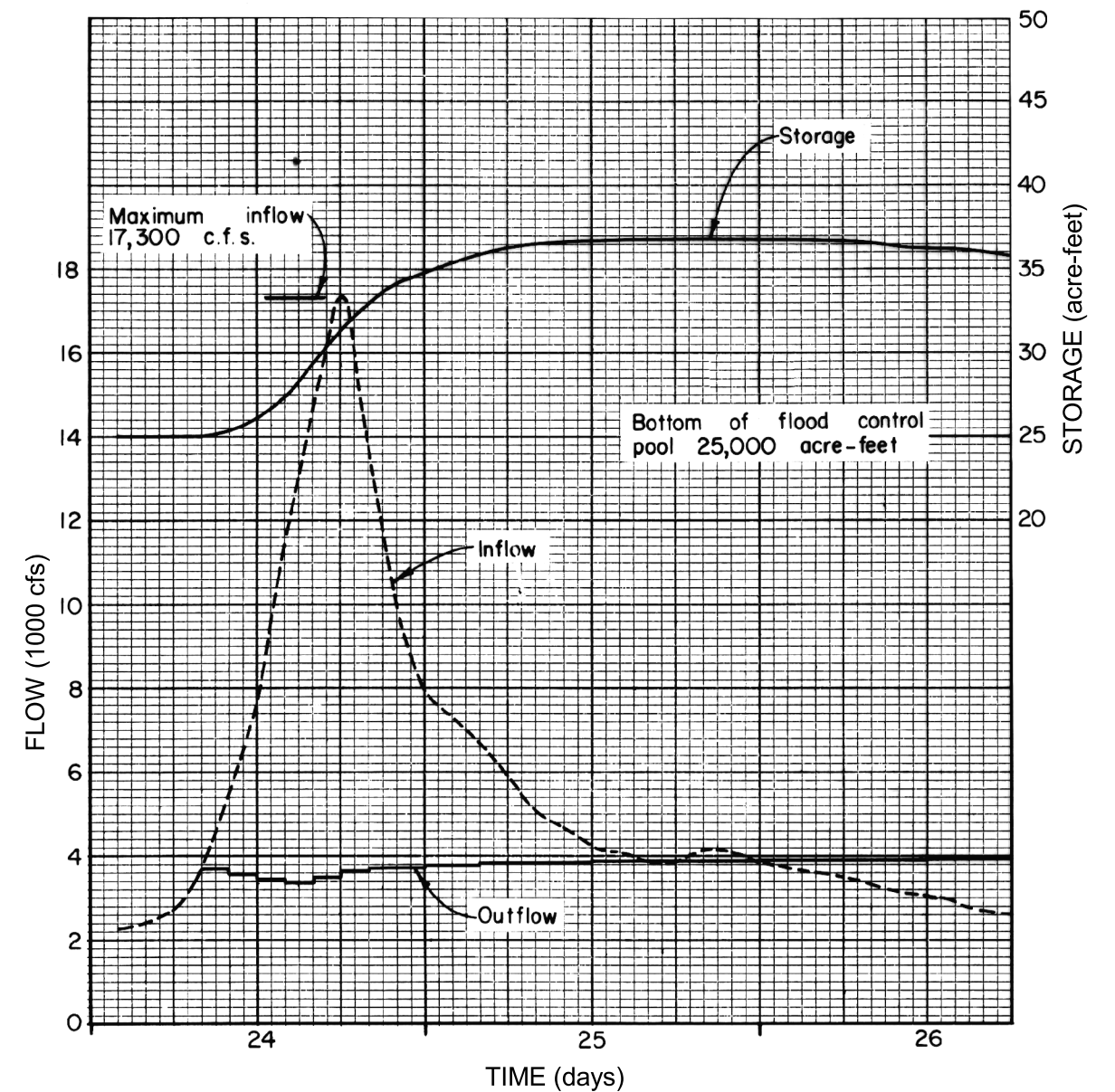
HIDDEN DAM-HENSLEY LAKE  
 FRESNO RIVER, CALIFORNIA

## STANDARD PROJECT FLOOD ROUTING

U.S. ARMY CORPS OF ENGINEERS  
 SACRAMENTO DISTRICT



DECEMBER 1955 FLOOD



FEBRUARY 1969 FLOOD

NOTE: Routings show hypothetical operation of Hensley Lake during two important historical flood events. Both routings conform to requirements of the Water Control Diagram, insofar as possible. It was assumed for both routings that only the required amount of empty space, as determined by the Water Control Diagram, was available at the beginning of each flood. It was further assumed that the maximum accomplishment of objective flow rate in Fresno River above Chowchilla Canal Bypass (Eastside Bypass - 5,000 cfs, insofar as possible) would average 80%, and that the error of forecasting local inflow would average 25%.

HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

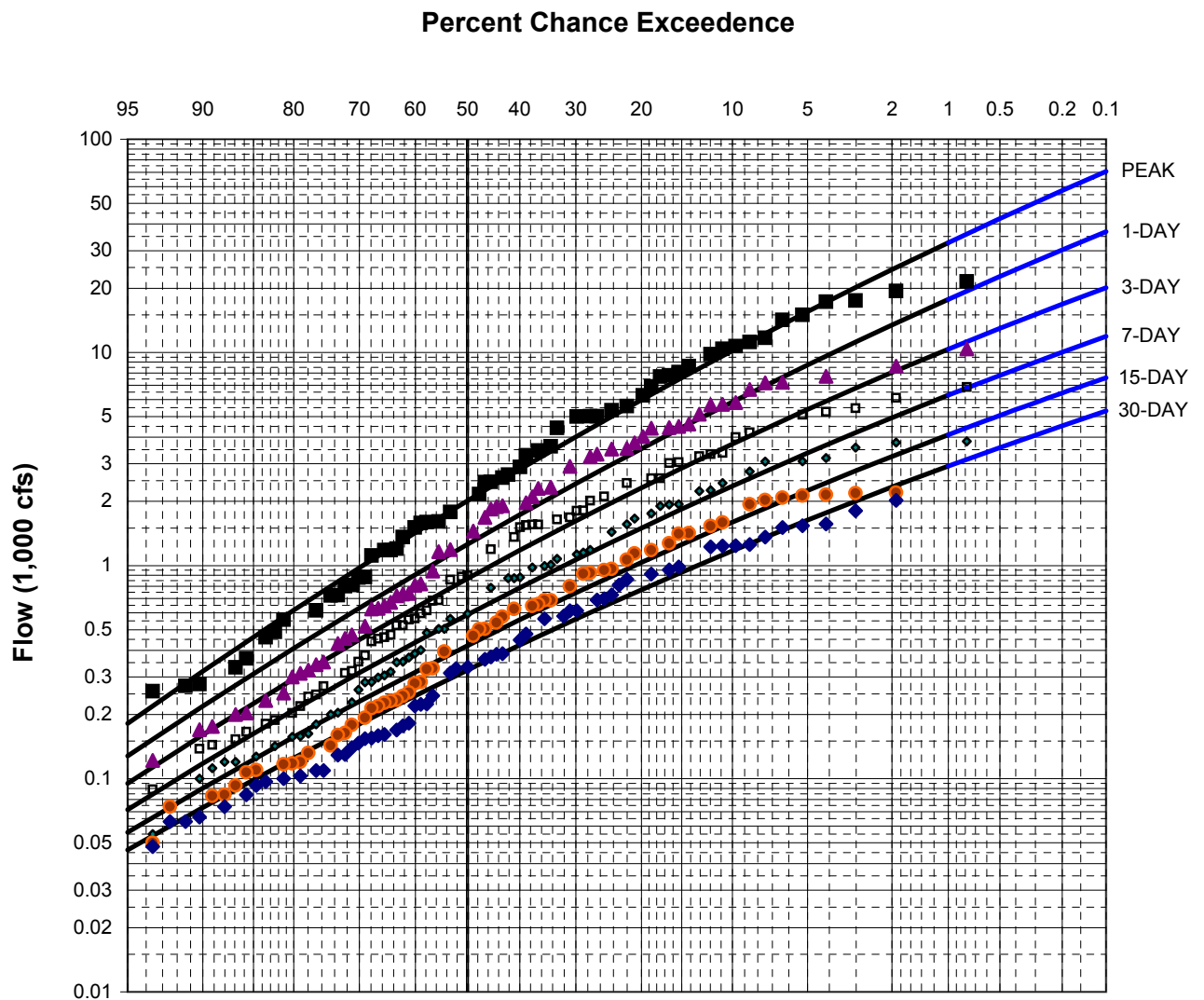
### HYPOTHETICAL ROUTINGS OF HISTORICAL FLOODS

U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

Prepared by D.D.D., January 1973

Drawn by T.G.K., January 1973

From the Hidden-Hensley Lake Water Control Manual (1975)



**ADOPTED STATISTICS:**

|        | <u>Mean</u> | <u>Std.Dev.</u> | <u>Skew</u> |
|--------|-------------|-----------------|-------------|
| Peak   | 3.275       | 0.589           | -0.3        |
| 1-day  | 3.072       | 0.559           | -0.3        |
| 3-day  | 2.908       | 0.535           | -0.3        |
| 7-day  | 2.741       | 0.510           | -0.3        |
| 15-day | 2.597       | 0.489           | -0.3        |
| 30-day | 2.484       | 0.472           | -0.3        |

**NOTES:**

1. Statistics adjusted based on correlation with Fresno R near Knowles and Chowchilla R (1912-1941).
2. Median plotting positions.
3. Drainage area: 236 sq. mi.
4. Period of record: 1942-2004

Developed and prepared by JLB

HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

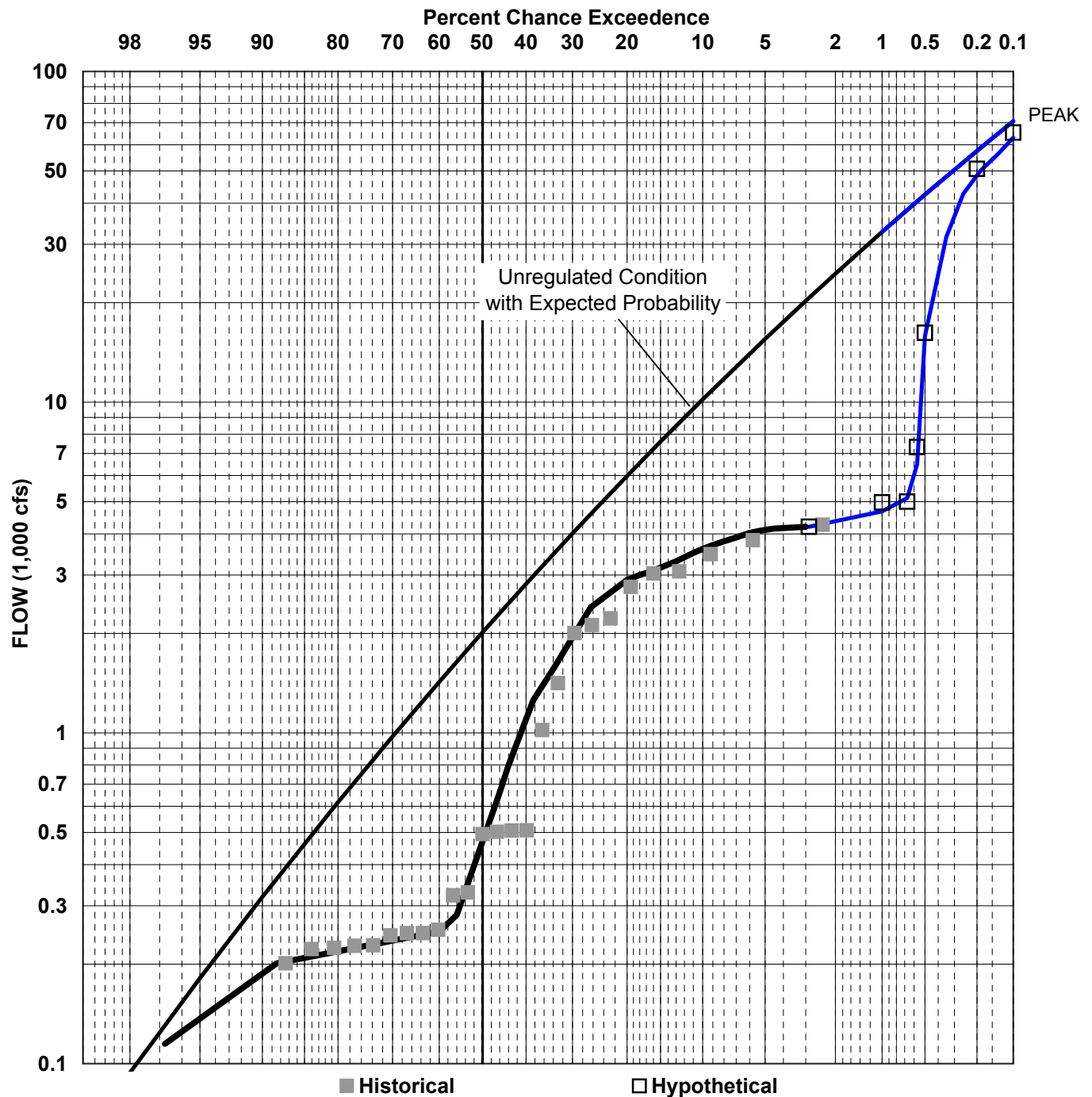
**RAINFLOOD FREQUENCY CURVES**

**UNREGULATED CONDITIONS**

U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

Revised Oct 2004

PLATE 8-6



**NOTES:**

1. Curve represents operation for water years 1976-2004.
2. Median plotting positions and expected probability applied based on historic operation 1976-2004 and based on the water year (October-September).

Developed and prepared by JLB

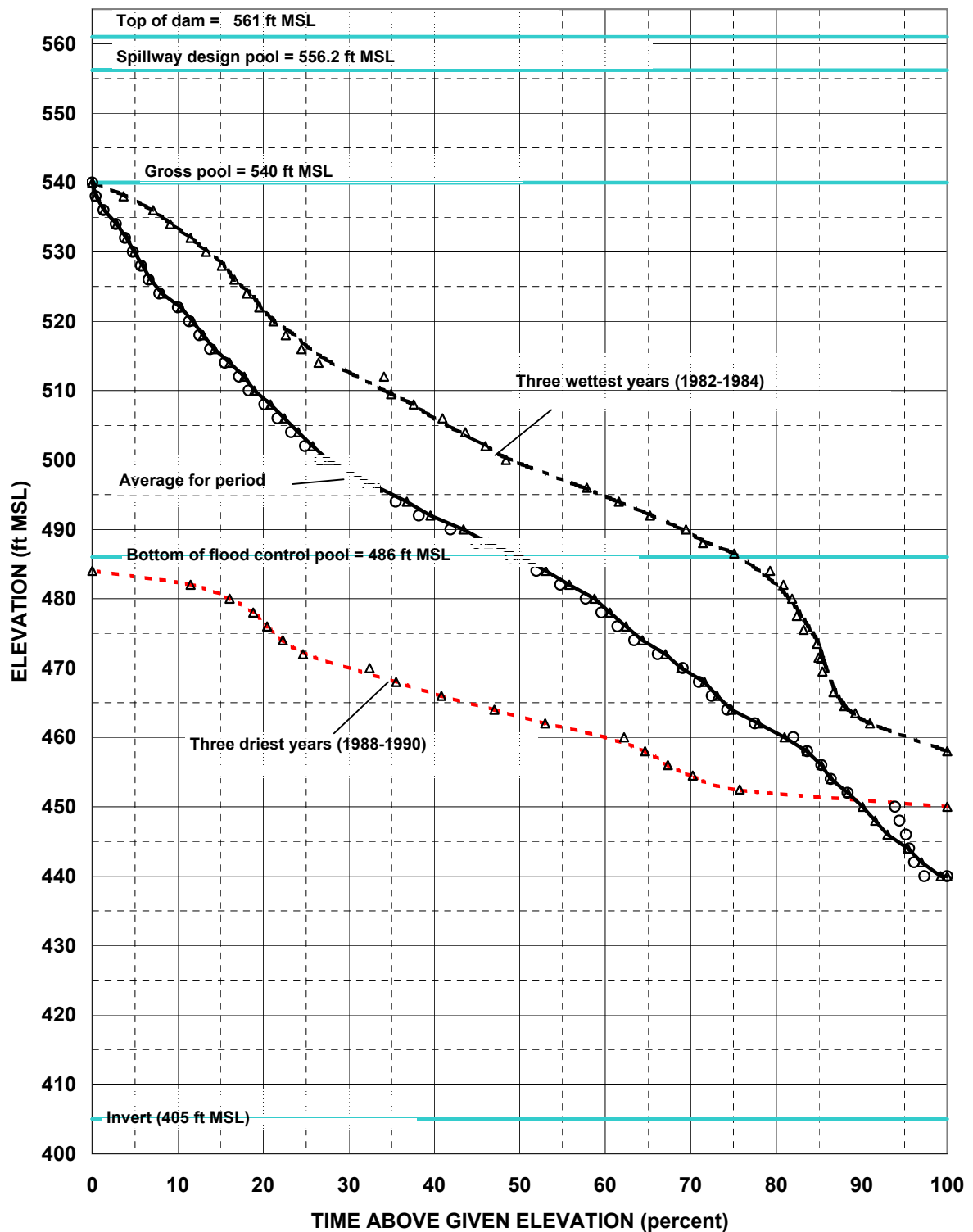
HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

**RAINFLOOD FREQUENCY CURVES  
REGULATED CONDITIONS  
FRESNO RIVER BELOW HIDDEN DAM**

U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

Revised Oct 2004

PLATE 8-7



Note:

1. Drainage area 236 mi<sup>2</sup>
2. Period of record: 1976-2004
3. Declaration of water years as either wettest or driest is based on the accumulated runoff into Hensley Lake in acre-feet for a three-year period. The average for the period is based on the accumulated runoff (ac-ft) for the period of record.

Developed and prepared by JLB

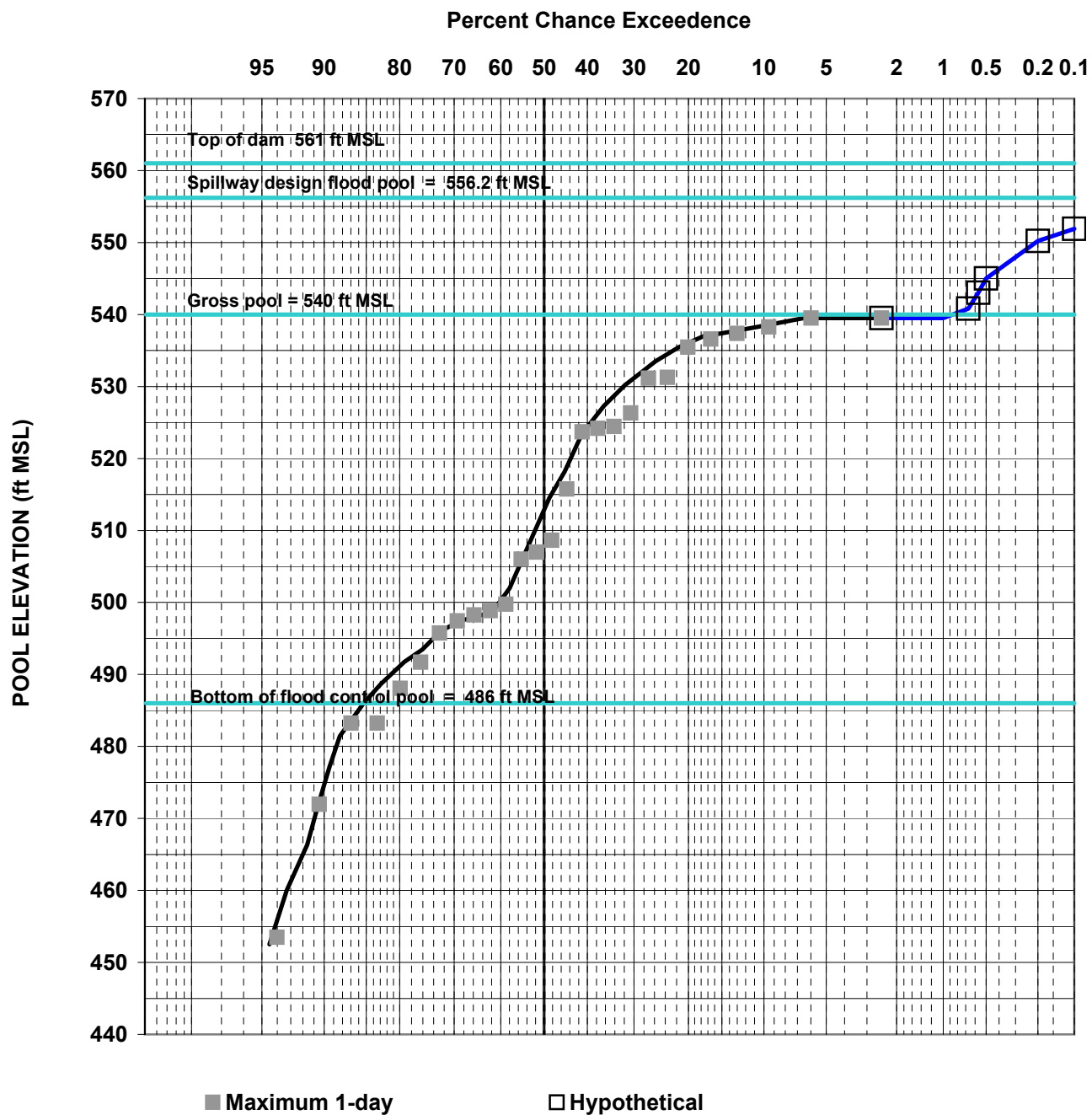
HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

## POOL ELEVATION-DURATION CURVES

U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

Revised Oct 2004

PLATE 8-8



**NOTES:**

1. Drainage area 236 mi<sup>2</sup>
2. Period of record: 1976-2004

Developed and prepared by JLB

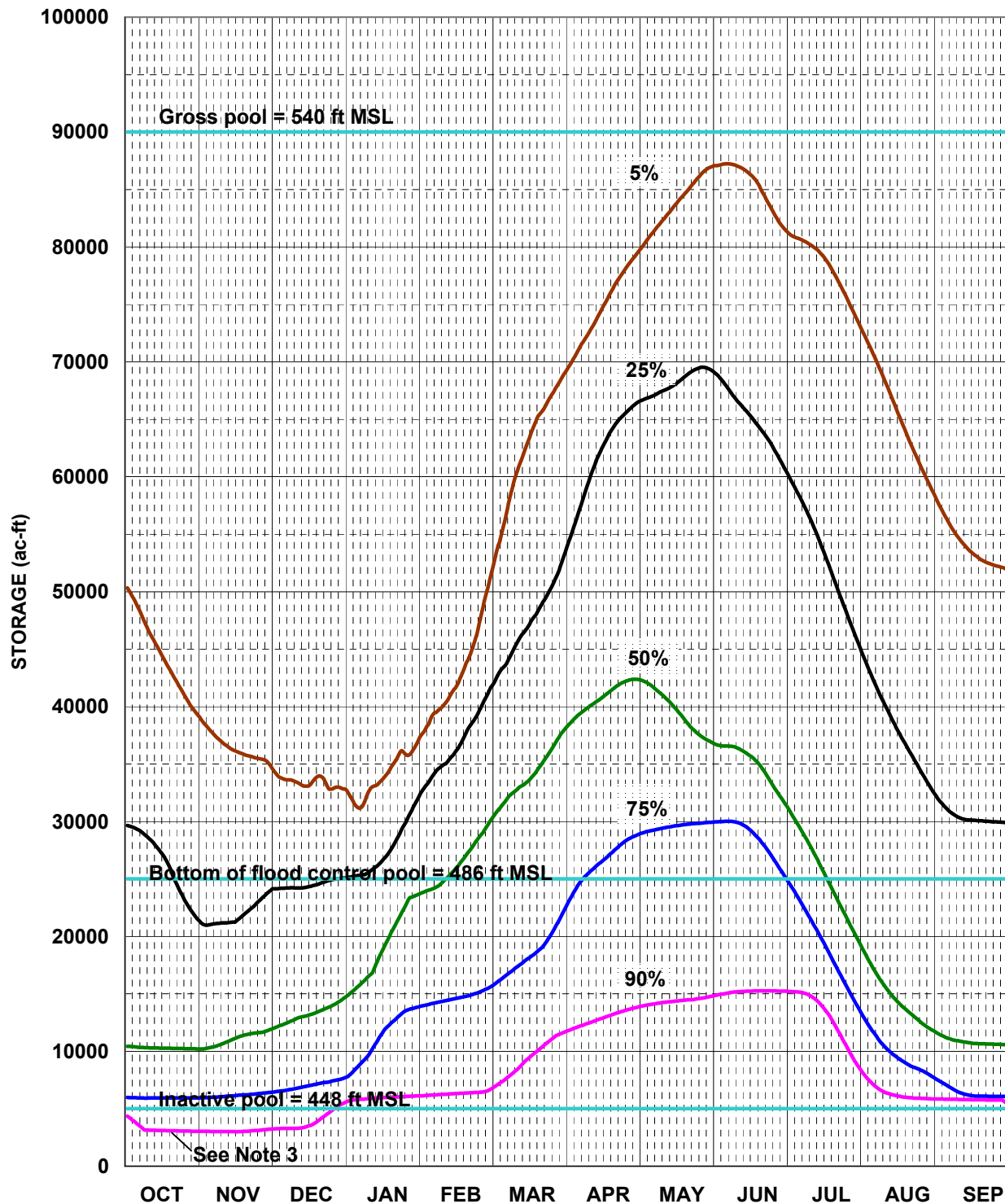
HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

**POOL ELEVATION-FREQUENCY CURVE**

U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

Revised Oct 2004

PLATE 8-9



**Notes:**

1. Curve parameters indicate exceedence probability.
2. Lines represent percent of time storage is exceeded on a given date.
3. Storage below inactive pool was during filling.
4. Curves are based on project operation 1976-2004.

\*Storage capacity information will be adjusted as information concerning sediment deposition in the lake becomes available. Between sediment surveys, it will be assumed that the sediment deposition in the project space will be 5,300 ac-ft over a 100-year period, or 53 ac-ft per year.

Developed and prepared by JLB

**HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA**

**SEASONAL VARIATION  
OF  
STORAGE\* FREQUENCY**

**U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT**

Revised Oct 2004

PLATE 8-10

WATER CONTROL MANUAL  
HIDDEN DAM AND HENSLEY LAKE

Fresno River  
California

EXHIBIT A  
STANDING INSTRUCTIONS TO PROJECT OPERATORS  
FOR  
HIDDEN DAM AND HENSLEY LAKE

U.S. Army Corps of Engineers  
Sacramento District  
Sacramento, California

Revised October 2004  
A-1

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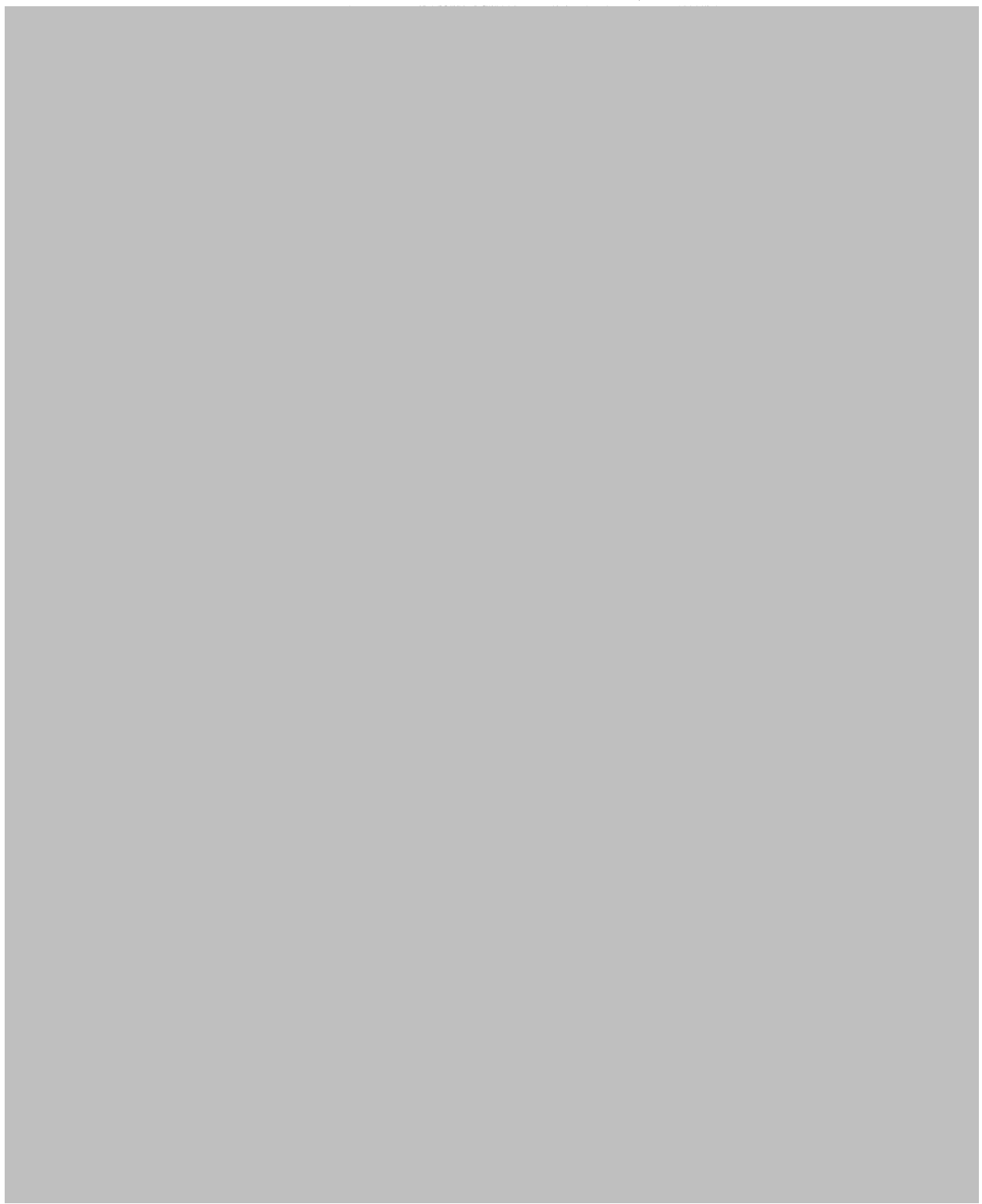
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| DISTRICT<br>PHASE<br>SPK SUP<br>A to<br>ER 500-1-1<br>Chapter 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | OPERATIONAL DATA REQUIREMENTS<br>HIDDEN DAM-HENSLEY LAKE, FRESNO RIVER, CALIFORNIA |                                                                                                                       |                                                                                                               |                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | PROJECT<br>PHASE                                                                   | PROJECT<br>STATUS<br>CRITERIA                                                                                         | PROJECT<br>BASIN<br>CONDITION                                                                                 | HYDRO-<br>METEOROLOGICAL<br>DATA<br>REQUIREMENTS*                                                 |
| NORMAL<br>OPERATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | IV                                                                                 | Daily inflow less than 500 sfd                                                                                        | No flood threat                                                                                               | Daily data obtained from WCDS at 2400 hrs seven days a week                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                    | Daily inflow greater than or equal to 500 sfd and less than 1,500 sfd                                                 | Forecast storms with potential flood control space encroachment                                               | Daily data obtained from WCDS at 2400 hrs seven days a week                                       |
| EMERGENCY<br>WATCH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | III                                                                                | Daily inflow greater than OR equal to 500 sfd and less than 1,500 sfd OR flood control encroachment of 25% or greater | Forecast storms with flood control space encroachment                                                         | Daily data same as for II plus short period data from WCDS at 0600, 1200, 1800, & 2400 hrs        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                    | Inflow greater than OR equal to 1,500 cfs AND/OR flood control encroachment of 25% or greater                         | Storm in progress with flood control space encroachment, flood control releases are being made from reservoir | Daily data same as for II plus short period data from WCDS every 2 hours at 0200, 0400, 0600 etc. |
| PARTIAL<br>ACTIVATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | II                                                                                 | Declared emergency                                                                                                    | Severe flood threat, flood flows occurring, emergency declared                                                | Daily data same as for II plus short period data from WCDS every 2 hours at 0200, 0400, 0600 etc. |
| EMERGENCY<br>ACTIVATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | I                                                                                  | Declared emergency                                                                                                    | Emergency declared by District Engineer                                                                       | Data checked hourly.                                                                              |
| <p>*OPERATION DATA:</p> <p>(1) All data to be obtained from the Water Control Data System (WCDS) or any of its components if primary systems are not operational.</p> <p>(2) If the WCDS is inoperative, project personnel are to obtain and furnish data from whatever sources are available as outlined in the Water Control Manual.</p> <p>(3) Project Phases I, II, and III assume project staff on normal duty hours and provide data to Water Management no later than 0800 hours daily.</p> <p>(4) Project Phases IV, V, and VI assume project staff on duty 24 hrs/7 days per week and provide data to Water Management within 30 minutes of collection/reporting times.</p> <p style="text-align: right;">Revised January 2016</p> |                                                                                    |                                                                                                                       |                                                                                                               |                                                                                                   |

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## A-01. Background and Responsibilities

### a. General Information

(1) “Standing Instructions to Project Operators for Water Control” are essential to ensure efficient and safe operations of the project at all times. These instructions apply to Project Operators, Resource Managers, and other operators in a similar position. Any physical operating constraints should be within design limitations and clearly outlined to ensure that water control features are operated in a safe manner during all phases of the project’s life.

This exhibit to the "Hidden Dam and Hensley Lake, Fresno River, California, Water Control Manual" is prepared in accordance with instructions contained in EM 1110-2-3600, Paragraph 9-2 (Standing Instructions to Project Operators) and ER 1110-2-240 Engineering and Design Management. All elevations in this manual are based on the National Geodetic Vertical Datum of 1929 (NGVD29). As directed by EM 1110-1-1004, Engineering and Design – Geodetic and Control Surveying, the datum has been changed to the North American Vertical Datum of 1988 (NAVD88). However, the elevations in this manual do not reflect NAVD88.

This exhibit pertains to duties and responsibilities of the project operator in connection with the safe and functional operation of Hidden Dam and Hensley Lake, and the reporting of required hydrometeorological data. A copy of these Standing Instructions must be kept on hand at the project site at all times, and any deviation from the Standing Instructions will require the approval of the Division Commander or designee.

Operational instructions to the Project Operator are briefly outlined with specific emphasis on the Project Operator’s duties and responsibilities during extreme flood emergencies when communication facilities between the project and Water Management Section have been disrupted. It is designed to be used independently as a water control regulation guide, or as published, in conjunction with the Water Control Manual. To facilitate independent use of this exhibit, all plates required for water control operation of Hidden Dam-Hensley Lake, Plate A-1 through Plate A-11, are included herein.

(2) Hidden Dam-Hensley Lake will be operated for flood control in accordance with the Water Control Diagram, Plate A-11, which defines the requirements for water control operation of Hidden Dam. Hidden Dam is operated to restrict flood releases and flows to non-damaging levels to the Fresno River downstream from the dam, insofar as possible, without endangering the safety of the structure. The control objectives in terms of storage limitations and release limitations are as follows:

(a) Provide the maximum practical amount of storage for conservation of irrigation water, without impairment of the flood control functions of the reservoir. No flood control reservation shall be required during the months of July and August.

(b) Restrict flows in the downstream reaches of the Fresno River to non-

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damaging rates (5,000 cfs), specifically at Madera Canal.

(c) Ensure that flood control releases shall not be changed more than 500 cfs per hour.

(d) Maintain a minimum pool of at least 5,000 acre-feet for recreation.

(3) The primary responsibility for operating Hidden Dam-Hensley Lake is delegated to units of the Engineering Division and Construction-Operations Division of the Sacramento District, Corps of Engineers.



(4) The Hidden Dam-Hensley Lake Project is located in the southern half of the Central Valley in Madera County, California. The project is on the Fresno River, approximately 48 miles from its confluence with the San Joaquin River, via the Eastside Bypass. The city of Madera, approximately 15 miles southwest, is the largest nearby community (population 46,400). The location of the project is shown on Plate 2-1.

(5) The criteria for operation of Hidden Dam and Hensley Lake are summarized on the Water Control Diagram shown on Plate A-11. The drawdown of the lake for flood control was established from zero space reservation on 1 September to a maximum of 65,000 acre-feet on 1 December. The impact of sedimentation in Hensley Lake is projected to be 5,300 acre-feet ( $6.5 \text{ hm}^3$ ) over 100 years, or 53 acre-feet ( $0.1 \text{ hm}^3$ ) per year. There has not been a soil survey since the Hidden Dam-Hensley Lake project was completed, so all storage capacities discussed within this Water Control Manual are based on original storage capacity data. Beginning with this seasonal drawdown, the required flood control reservation is shown on the Water Control Diagram as a function of the ground wetness index. The ground wetness index equation and calculation parameters shown on Plate A-11 reflect the flood potential of the basin above the project. Strict compliance with the indicated flood control requirements is necessary to assure fulfilling the flood control objectives of Hidden Dam-Hensley Lake Project, while simultaneously allowing the use of conservation storage that must be filled with winter rainfall. No flood control reservation is required during the months of July and August.

b. Role of the U.S. Army Corps of Engineers. The primary responsibility for operating Hidden Dam-Hensley Lake is delegated to units of the Engineering Division and Construction-Operations Division of the Sacramento District, Corps of Engineers, as outlined below. The Sacramento District's Public Affairs Office (PAO) coordinates with local press regarding floods and other aspects of the project operation. Names, addresses, and telephone numbers of those individuals whose responsibilities are outlined in the following paragraphs are listed in the front of this manual and Exhibit A.

(1) Water Management Section (Engineering Division). The Water Management Section responsibilities are as follows:

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(a) Obtaining current hydrometeorological data and weather forecasts for the region.

(b) Analyzing current reservoir information, hydrometeorologic data, and weather forecasts for the region, determining the condition under which the reservoir shall be operated, and issuing appropriate operating instructions (except for routine day-to-day conservation operation) to the designated damtender.

(c) Providing project operator training in the water control plan, operations procedures, and instrumentation to Hidden Dam-Hensley Lake personnel.

(d) Providing maintenance for hydrometeorological instrumentation and gage control equipment at the project, and supervising its operation.

(e) Preparing monthly operation reports and other reports relative to the operation of the project as requested by the Office, Chief of Engineers, and as needed for operational purposes.

(f) Making revisions to this Water Control Manual and distributing them.

(g) Advising the District Engineer whenever there has been a departure from the operating instructions, or when there is a need for making a temporary modification to these instructions.

(h) Staying informed at all times of downstream channel conditions and making periodic field inspections.

(i) Arranging with local interests for collection of flow and diversion data.

(j) Obtaining from local interests each month a summary of requested flows and maintaining a record of the instructions issued, data transmitted to other agencies, and requests received from other agencies.

(k) Keeping the Madera Irrigation District and other local interests continuously advised of the operation of the reservoir.

(2) The Hidden Dam-Hensley Lake Park Manager (Construction-Operations Division) has the following responsibilities:

(a) Keeping well informed of the operating rules contained in this Water Control Manual and bringing to the attention of the Water Management Section any feature of the manual that may require clarification or revision.

(b) Keeping familiar with the operation of all recording and communication equipment.

(c) Accomplishing the physical operation of the dam in accordance with instructions contained in the Water Control Manual or those issued by the Water Management Section. During storms, this may require 24-hour attendance at the dam.

(d) Calculating and maintaining a continuous record of inflow, outflows, storage, pre-project inflow, weather data, and other data specified by the Water Management Section.

(e) Reporting by radio, telephone, or e-mail to the Water Management Section the data outlined in Exhibit A, Section A-02.

(f) Reporting any unusual conditions of the dam embankment, the reservoir, the downstream channel of the Fresno River, Cottonwood Creek Distributary Channel, or the Eastside Bypass that might interfere with the planned operation of the Project.

(g) Maintaining a log of gate operation containing any change in gate position, date, time, and water surface elevation when such changes were made, and initials of individual making the change.

(h) Immediately after the end of each month, transmitting to the Water Management Section the data specified in Exhibit A Section A-02.

(i) Keeping the outflow gage weir clear of debris in order that the gage functions properly.

(j) Making and recording weekly checks on reservoir outflow and weather gage readings to assure proper operation of all recording equipment.

(k) Assisting with obtaining samples for water quality and sedimentation analysis as required.

(l) Making emergency operation changes when contact with the Water Management Section is broken and a clearly defined change occurs that warrants immediate action.

(m) Maintaining records of instructions received from the Water Management Section and requests from the Madera Irrigation District.

(n) Reading and inspecting bi-weekly the Parshall Flume, gaging weirs, piezometers, and observation wells when pool levels exceed an elevation of 520 feet.

(3) The Operations and Readiness Branch (Construction-Operations Division) is responsible for budgeting project operation and maintenance funds.

(4) All significant inquiries received from citizens, constituents, or interest groups regarding water control procedures or actions must be referred directly to the Water Management Section, Sacramento District. Press inquiries must be directly referred to the Public Affairs Office (PAO), Sacramento District.

c. Other Federal Agencies

(1) The Bureau of Reclamation (BOR) acts as the agent for the United States in the execution of the repayment contract (14-06-200-4020A), wherein water users are repaying a percentage of the capital for the construction of Hidden Dam with annual operational and maintenance costs. BOR is also responsible for the marketing and administration of project water supply.

(2) The National Oceanic and Atmospheric Administration (NOAA) through its National Weather Service (NWS), maintains year-round surveillance of weather conditions. NOAA weather and storm forecasts, pertinent to the area, are furnished to the NWS office in Sacramento for distribution to agencies responsible for flood protection. The NWS furnishes meteorological data and weather forecasts on a 24-hour basis. When the meteorological situation indicates general area precipitation, NWS furnishes Quantitative Precipitation Forecasts (QPF). (See Paragraph 6-01 b.)

(3) Personnel from the NWS office in Sacramento and the California Department of Water Resources are assigned to the Joint Federal-State River Forecast Center (RFC), which monitors weather conditions and river stages on a year-round basis. The RFC forecasts stages and flows on major river systems, including inflow to Hidden Dam-Hensley Lake on the Fresno River.

(4) The Federal-State Flood Operations Center furnishes flood warnings and forecasts of river stages and/or flows to the local news media, law enforcement agencies, and other responsible agencies for their use, and for dissemination to the public. All significant inquiries received from citizens, constituents, or interest groups regarding water control procedures or actions must be referred directly to the Water Management Section, Sacramento District. Press inquiries must be directly referred to the Public Affairs Office (PAO), Sacramento District.

d. State and County Agencies

(1) The California Department of Fish and Game enforces fish and game laws on the lake and within the wildlife area. They also stock the lake with fish.

(2) The California Division of Forestry is responsible for fire fighting on project land.

(3) The County of Madera provides normal law enforcement at the project.

(4) The Madera Irrigation District directs the use of conservation storage in Hensley Lake under contract with the USBR.

## A-02. Data Collection and Reporting

### a. Normal Conditions

(1) During normal operation, a Midnight Reservoir Status Report is produced by the Water Management Section, Sacramento District, and contains the following three elements:

(a) The California Corps (COE) Report, which includes the following information on project operation:

- (i) Pool Elevation (ft MSL)
- (ii) Storage (ac-ft)
- (iii) Storage Change (ac-ft)
- (iv) Outflow (sfd)
- (v) Inflow (sfd)
- (vi) Precipitation (inches)
- (vii) Additional COE Data from Control Points

(b) The California Precipitation and Climate (PPT) Report, generated daily, provides the following hydrologic data for each Corps gage:

- (i) Water Year Total Basin Precipitation (measured and observed)
- (ii) 24-hour Change Precipitation (inches)
- (iii) Air Temperature, Maximum and Minimum (°F)
- (iv) Snow Pillow (inches)
- (v) 24-hour Change Snow Pillow (inches)
- (vi) Wind Accumulated (miles)

(c) The California Corps Flood Control Requirements (FCR) Report, generated daily, provides the following data on project status:

- (i) Gross Pool (ac-ft)
- (ii) Top of Conservation Storage Pool (ac-ft)
- (iii) Actual Reservoir Storage (ac-ft)
- (iv) Percentage of Gross Pool
- (v) Above the Top of Conservation Storage (ac-ft)
- (vi) Flood Control Parameter -Rain (inches)
- (vii) Flood Control Parameter -Snow (ac-ft)

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(2) All data will be obtained from the HADA (Hydrometeorological Automatic Data Acquisition) System (see Operational Data Requirements table on page A-7). If the HADA communication system is inoperative, the reservoir operator shall report the following data, by radio or telephone, to the Water Management Section each workday prior to 0730 hours. This reporting includes:

- (a) Reservoir elevation and storage as of midnight
- (b) Reservoir storage change from midnight to midnight
- (c) Pan evaporation as of 0700 hours
- (d) Mean daily outflow (ending at midnight) of Fresno River below
- (e) Mean daily inflow to the reservoir
- (f) Daily precipitation at the dam as measured at 0700 hours
- (g) [REDACTED]

Hidden Dam

(3) When conditions do not warrant weekend or holiday reports, complete reports for each day the HADA system communication is inoperative shall be made on the first day following the non-reporting period. More frequent reports of the above information, and reports of other Fresno River data, will be made in the same manner when requested by the Water Management Section. A summary of operational data requirements is shown on Page A-7.

(4) Immediately after the end of each month, the Project Operator will send to the Water Management Section all of the following original forms used for observations and computations:

- (a) Daily Reservoir Computations (CESPK Form 153-6), only if completed during HADA communication system outages
- (b) Record of Evaporation and Climatological Observations (CESPK
- (c) Bi-hourly and Mean Daily Flows (CESPK Form 351)
- (d) Log of Gate Operations (CESPK Form 147)
- (e) [REDACTED]

Form 115)

(5) Mean Daily Release from the reservoir is computed as follows:

(a) Tabulate correct gage height readings at even hours, starting with 0200 hours.

(b) Enter current rating table using shifts, as applicable, and determine and list flow at each even hour using the procedure indicated for mean daily flow (step (e) below).

(c) Total the 12 flow readings and divide by 12. This is the mean daily flow.

(d) Mean flow will be listed to the nearest 0.1 cfs for flows up to 10 cfs, and to the nearest 1 cfs for flows above 10 cfs.

(e) When calculating discharge from gage height, you always **add** the shift correction, which could be 0, positive (+), or negative (-).

$$(\text{Observed gage height}) + (\text{Shift correction}) = \text{Adjusted Gage Height} = \text{Discharge}$$

For example:

| Observed<br>Gage Height (ft) | Shift<br>Correction (ft) | Adjusted<br>Gage Height (ft) | Discharge (cfs)<br>Plate A-4 |
|------------------------------|--------------------------|------------------------------|------------------------------|
| 4.86                         | 0.00                     | 4.86                         | 199.7                        |
| 4.86                         | +0.02                    | 4.88                         | 203.4                        |
| 4.86                         | -0.02                    | 4.84                         | 196.1                        |

See Discharge Rating Table Plate A-4

(f) When calculating the gage height for a desired discharge, you always **subtract** the shift correction, which could be 0, positive (+), or negative (-).

$$\text{Desired Discharge} = (\text{Gage height Plate A-4}) - (\text{Shift correction}) = \text{Adjusted gage height}$$

For example, if the Water Management Section requested a flood release of 1,500 cfs, the rating table shows the closest gage height is 7.36 ft:

| Desired<br>Discharge (cfs) | Gage Height (ft)<br>Table A-4 | Shift<br>Correction (ft) | Adjusted<br>Gage Height (ft) |
|----------------------------|-------------------------------|--------------------------|------------------------------|
| 1,500                      | 7.36                          | 0.00                     | 7.36                         |
| 1,500                      | 7.36                          | +0.02                    | 7.34                         |
| 1,500                      | 7.36                          | -0.02                    | 7.38                         |

See Discharge Rating Table Plate A-4

(6) Evaporation from the Reservoir. Lake evaporation in inches is equal to the pan evaporation in inches multiplied by the evaporation coefficient shown on Plate A-9, divided by 12. For this computation, pan evaporation measured at 12:00 midnight is used to compute lake elevation for the previous day:

(a) Gross Evaporation

(i) Calculate Acre-Feet

$$\text{Acre Feet} = (\text{Pan Evaporation in Inches}) * \left[ \frac{\text{Gross Evaporation Coefficient}}{12} \right] * (\text{Avg. Lake Area in Acres})$$

(ii) Round result to nearest acre-foot for next computation

(iii) Calculate mean cfs for 24 hours (sfd):

$$(\text{Acre-feet}) * (0.50417a) = \text{sfd}$$

(b) Lake area used when computing evaporation will be the average area for the day, obtained by averaging the midnight areas at the beginning and ending of the period being computed.

(7) Inflow to the Reservoir. Computed mean inflow to the lake will be taken as the algebraic sum of the mean outflow, change in lake storage, and gross evaporation for the lake water surface, and will represent mean inflow to the lake from all sources including rainfall on the lake surface.

$$\text{Mean Inflow (cfs)} = \text{Mean Daily Outflow (cfs)} + \text{Change in Lake Storage (sfd)} + \text{Gross Evaporation (sfd)}$$

[Mean Daily Outflow (See A-02a.5)]

$$\text{Change in Lake Storage (sfd)} = \text{Storage change from midnight to midnight (ac-ft)} * 0.50417$$

[Gross Evaporation (See Paragraph A-02a.6)]

(8) Basin Mean Precipitation. Basin mean precipitation is computed by dividing Basin Normal Annual Precipitation (BNAP = 28.2") by sum of the Station Normal Annual Precipitation Σ (SNAP = 153.54"), the Basin Conversion Factor for the five Fresno River basin

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<sup>a</sup> The coefficient shown is for a 24-hour day. When changing to or from daylight savings time, the coefficients are as follows: for a 23-hour day (change to D.S.T.) use 0.52609; for a 25-hour day (change from D.S.T.) use 0.48400.

stations shown on Table A-1, and then multiplying by the current day's total precipitation from the same five stations.

$$\text{Basin mean precipitation} = \left[ \frac{(\text{BNAP})}{\Sigma(\text{SNAP})} \right] * \left[ \begin{array}{l} \text{(the sum of today's total precipitation from)} \\ \text{the five gages listed on Table A-1)} \end{array} \right]$$

$$\text{Basin Mean precipitation} = \left[ \frac{28.2}{153.5} \right] = 0.18 * 3.51 = 0.63$$

A sample computation of the Basin Mean Precipitation, which is calculated daily, is included in the Example of Basin Wetness Parameter computation on the following page.

| TABLE A-1<br>BASIN MEAN PRECIPITATION                                                  |                                   |
|----------------------------------------------------------------------------------------|-----------------------------------|
| STATION                                                                                | GAGE MEAN ANNUAL<br>PRECIPITATION |
| Bunning Ranch                                                                          | 26.70                             |
| Magoon                                                                                 | 35.90                             |
| Oakhurst                                                                               | 29.90                             |
| Westfall                                                                               | 46.70                             |
| Hidden Dam                                                                             | 14.30                             |
| SUM                                                                                    | 153.50                            |
| FRESNO RIVER BASIN NAP = 28.2                                                          |                                   |
| BASIN CONVERSION FACTOR = 28.2/153.5 = 0.18                                            |                                   |
| Source: U.S. Army Corps of Engineers, Sacramento District,<br>Water Management Section |                                   |

(9) Basin Wetness Parameter. The basin wetness parameter (PAR) is the basin mean precipitation (BMP) for that given day plus 97 percent of the previous day's wetness parameter (PAR'). The parameter is reset to zero on 1 September. A sample computation of PAR is shown below:

### SAMPLE COMPUTATION OF WETNESS PARAMETER (PAR)

| Precipitation<br>Stations | Station Mean Precipitation<br>(inches) | Daily Station Precipitation<br>(inches) |
|---------------------------|----------------------------------------|-----------------------------------------|
| Bunning Ranch             | 26.7                                   | 0.40                                    |
| Magoon                    | 35.9                                   | 1.20                                    |
| Oakhurst                  | 29.9                                   | 0.70                                    |
| Westfall                  | 46.7                                   | 1.00                                    |
| Hidden Dam                | 14.3                                   | 0.21                                    |
| SUM                       | 153.5                                  | 3.51                                    |

Fresno River Basin Normal Annual Precipitation (BNAP) = 28.2

Fresno Basin Conversion Factor =  $28.2/153.5 = 0.18$

Daily station precipitation recorded 10 Jan = 3.51

Data for BMP, PAR and PAR' for period 09 Jan through 11 Jan

|        | BMP         | .97 PAR'    | PAR         |
|--------|-------------|-------------|-------------|
|        | (in)        | (in)        | (in)        |
| 9-Jan  | 0.04        | 1.03        | 1.07        |
| 10-Jan | 1.24        | 1.04        | 2.28        |
| 11-Jan | <b>0.63</b> | <b>2.21</b> | <b>2.84</b> |

Basin Mean Precipitation (BMP) = Basin conversion factor \* Daily station precipitation

BMP =  $0.18 * 3.51 = \mathbf{0.63}$

PAR' =  $0.97 (PAR) = 0.97 * 2.28 = \mathbf{2.21}$

PAR = BMP + PAR' =  $0.63 + 2.21 = \mathbf{2.84}$

b. Emergency Conditions. During emergencies, the following computations may be made more frequently as directed by the Water Management Section: calculated reservoir inflow, outflow, reservoir storage, and elevation. The maximum design release of 5,000 cfs will not be intentionally exceeded. If flows over the spillway occur, gate releases will be curtailed to maintain a flow of 5,000 cfs or less for as long as possible.

c. Regional Hydrometeorological Conditions. During the flood season (1 October to 1 May), the reservoir operator shall call the Water Management Section whenever any of the following occurs:

(1) One inch or more of rainfall occurs at the project during any 6-hour period, or 2.0 inches of rainfall during any 24-hour period.

(2) An increase in the inflow of 1,000 cfs or more during any 8-hour period.

Any special report based on one of the above criteria should include the latest available data concerning the other item. On non-working days or nights, these special reports should be telephoned directly to the Chief of the Water Management Section or his designated alternate.

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The Project Operator will be informed by the Water Manager of any regional hydrometeorological conditions that could impact the structure.

#### A-03. Water Control Action and Reporting

a. Normal Conditions. Plate A-11 depicts flood control space and flood control requirements. Flood control operation is under the direction of the Water Management Section, Sacramento District, U.S. Army Corps of Engineers. During flood periods, close contact will be maintained between project and District personnel on a 24-hour basis, or as otherwise required.

(1) During non-flood periods, all inflow in excess of the releases requested by the Madera Irrigation District will be stored, depending on conservation space available.

(2) Releases of water stored for irrigation will be in accordance with the requests of the Madera Irrigation District, conforming to the mutual agreements and stipulations of the water users, unless prior release is required for flood control.

(3) During flood periods, inflows in excess of the release permitted by downstream controlling flow rates will be temporarily stored in the flood control space provided. If the reservoir storage is encroached within the flood control reservation, then flood control releases will be made as rapidly as downstream conditions permit. However, flood control releases have the following limitations, also indicated on the Water Control Diagram: (1) releases during normal flood control operations shall not be changed more than 500 cfs per hour, (2) no flood control reservation is required during the months of July and August, and (3) releases shall be limited to such quantities as will not cause flows in the Fresno River at Madera Canal to exceed 5,000 cfs. For detailed information on responsibilities for flood control, refer to Chapter IX. A maximum of 65,000 acre-feet of space is allocated to flood control on a seasonal basis. The Water Control Diagram for Hidden Dam-Hensley Lake includes the original storage capacity computed for gross pool (90,000 ac-ft) as well as the estimated storage with sedimentation of 53 acre-feet per year through 2004 (88,463 ac-ft). The Water Control Diagram will be adjusted as information concerning sediment deposition in the lake becomes available. The seasonal limits of flood control space are shown graphically in the Water Control Diagram on Plate A-11.

When the reservoir pool elevation is below gross pool (540 feet MSL), flood control releases will be made in accordance with the release schedule shown on the Water Control Diagram, Plate A-11. During floods in which the pool level exceeds the spillway crest (540 feet MSL) (164.4 m MSL), the Spillway Rating Curve and Table (shown on Plates A-7 and A-8) should be checked frequently as the spill bypasses the outflow gage. The outlet gates are used to manage small to moderate floods. However, occasionally, during large floods it will be necessary to gradually close the outlet gates as the pool elevation rises above gross pool (540 feet MSL), in order to control total outflow from the spillway and outlets to the objective flow as long as possible. During such floods, the outlet gates will remain closed as long as spillway outflow exceeds 5,000 cfs. Subsequently, as the spillway flow recedes below 5,000 cfs, the gates will be

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gradually re-opened to maintain the maximum objective flow as long as needed to evacuate the flood space, in accordance with the Water Control Diagram, Plate A-11.

(4) Outlet Gate Operation. Desired releases will be obtained by manipulating the gates until either the desired release based on the two-gate operation tabulated on Plate A-6 (1) or one-gate operation tabulated on Plate A-6 (2) provide the necessary flow, or until the appropriate stages are obtained, as indicated by the current rating curve and shift for Fresno River below Hidden Dam shown on Plate A-3 and tabulated on Plate A-4. (NOTE: The releases shown on the rating curve tabulations Plate A-6 (1 or 2) have been found to be slightly higher than releases observed during actual operation.) Both sets of rating curves represent discharge when either one gate or two gates are partially open at different pool elevations and will be used as a guide in estimating gate openings for river outlet releases. The previous Water Control Manual included a rating curve for a 10" x 12" low-flow gate. This gate has been sealed and is no longer operable, but this rating curve is included as Plate A-5 Sheet 3 and tabulated on Plate A-6 (3) for historic purposes.



b. Emergency Conditions. During flood and other emergencies, the official regulations are subject to temporary modifications by the District Engineer or designee, Sacramento District, Corps of Engineers. The U.S. Army Corps of Engineers, Water Management Section, may direct that releases be increased or decreased from those required by the water management plan depending on conditions prevailing at the time. Permanent revisions of the water management criteria are subject to prior approval of the Chief of Engineers or designee.

For serious emergencies, when large spillway releases or dam failures are imminent, an Emergency Action Plan is maintained at the Hidden Dam-Hensley Lake Project Office.

The Park Manager is responsible for implementing the Emergency Action Plan; however, such notification should be coordinated with the Water Management Section.

c. Inquiries. All significant inquiries received from citizens, constituents, or interest groups regarding water control procedures or actions must be referred directly to the Water Management Section, Sacramento District. Press inquiries must be directly referred to the Public Affairs Office (PAO), Sacramento District.

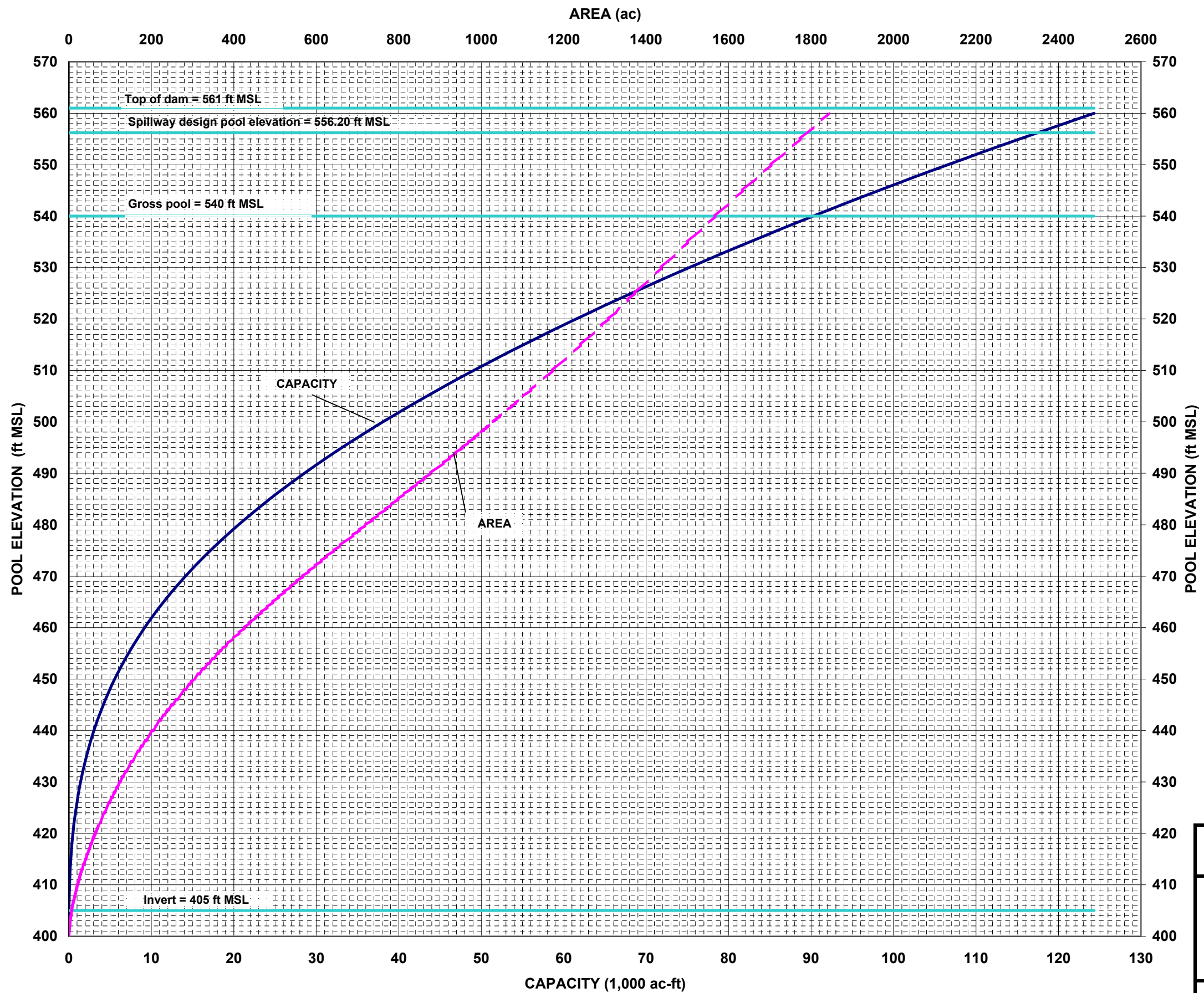
d. Water Control Problems. The Chief, Water Management Section, or the Water Manager must be contacted immediately by the most rapid means available in the event that an operational malfunction, erosion or an incident occurs that could impact project integrity or water control capability, in particular.

e. Communication Outage. During a flood emergency, if communication is broken between the operating personnel and the Water Management staff, continue releases in accordance with the last instructions received from the Water Management staff. However, every attempt should be made to reestablish communications. If communications cannot be reestablished, make releases in accordance with the Water Control Plan in this manual and the Water Control Diagram on Plate A-11.

A.04. Deviation from Normal Regulation. Deviations from approved Water Control Plans occur because every possible circumstance cannot be accounted for in a Water Control Plan. Because of the often competing goals and complex interactions of interested groups/agencies, even seemingly inconsequential deviations from an approved plan can lead to unforeseen environmental and legal complications. The CESP D regulation, CESP D R 1110-2-8 dated 12 September 2002, serves to assist CESP K in preparing their deviation requests. It outlines a minimum set of considerations that need to be addressed when making a recommendation to deviate from an approved Water Control Plan.

Deviations from approved Water Control Plans are intended, therefore, to address unforeseen and unique circumstances. They are not intended as a means for identifying or initiating new opportunities to re-operate or reallocate storage in response to new and changing public needs.

Deviations are discussed in Exhibit B.



**Note:** The storage capacity information (ac-ft) on this plate will be adjusted as information concerning sediment deposition in the lake becomes available. Between sediment surveys, it will be assumed that the sediment deposition in the project space will be 5,300 acre-feet over a 100-year period, or 53 acre-feet per year, beginning in 1975 (1,537 acre-feet through 2004).

|                                                     |
|-----------------------------------------------------|
| HIDDEN DAM-HENSLEY LAKE<br>FRESNO RIVER, CALIFORNIA |
| <b>AREA AND CAPACITY CURVES</b>                     |
| U.S. ARMY CORPS OF ENGINEERS<br>SACRAMENTO DISTRICT |

Prepared by JLB

Hidden Dam and Hensley Lake, Fresno River, California

\*Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 400.5 | 0<br>0             | 0<br>0             | 0<br>0             | 0<br>0             | 0<br>0             | 0<br>0             | 0<br>0             | 0<br>0             | 0<br>0             | 0<br>1             |
| 400.6 | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             |
| 400.7 | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             |
| 400.8 | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             |
| 400.9 | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 0<br>1             | 1<br>1             | 1<br>1             |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 401.0 | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             |
| 401.1 | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             |
| 401.2 | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             |
| 401.3 | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             |
| 401.4 | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 401.5 | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             |
| 401.6 | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             | 1<br>1             |
| 401.7 | 1<br>1             | 1<br>1             | 1<br>2             | 1<br>2             | 1<br>2             | 1<br>2             | 1<br>2             | 1<br>2             | 1<br>2             | 1<br>2             |
| 401.8 | 1<br>2             | 1<br>2             | 1<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             |
| 401.9 | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 402.0 | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             |
| 402.1 | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             |
| 402.2 | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             | 2<br>2             |

Manual Revised October 2004

SHEET 1 OF 84 PLATE A-2

\*The storage capacity information (ac-ft) in this table will be adjusted as information concerning sediment deposition in the lake becomes available. Between sediment surveys, it will be assumed that the sediment deposition in the project space will be 5,300 acre-feet over a 100-year period, or 53 acre-feet per year beginning in 1975 (1,537 acre-feet through 2004).

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 402.3 | 2                  | 2                  | 2                  | 2                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  |
|       | 2                  | 2                  | 2                  | 2                  | 2                  | 2                  | 2                  | 2                  | 2                  | 2                  |
| 402.4 | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  |
|       | 2                  | 2                  | 2                  | 2                  | 2                  | 2                  | 2                  | 2                  | 2                  | 2                  |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 402.5 | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  |
|       | 2                  | 2                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  |
| 402.6 | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  |
|       | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  |
| 402.7 | 3                  | 3                  | 3                  | 3                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  |
|       | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  |
| 402.8 | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  |
|       | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  |
| 402.9 | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  |
|       | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 403.0 | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 5                  | 5                  | 5                  |
|       | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  |
| 403.1 | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  |
|       | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 3                  | 4                  |
| 403.2 | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  |
|       | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  |
| 403.3 | 5                  | 5                  | 5                  | 5                  | 5                  | 6                  | 6                  | 6                  | 6                  | 6                  |
|       | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  |
| 403.4 | 6                  | 6                  | 6                  | 6                  | 6                  | 6                  | 6                  | 6                  | 6                  | 6                  |
|       | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 403.5 | 6                  | 6                  | 6                  | 6                  | 6                  | 6                  | 6                  | 6                  | 6                  | 6                  |
|       | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  |
| 403.6 | 7                  | 7                  | 7                  | 7                  | 7                  | 7                  | 7                  | 7                  | 7                  | 7                  |
|       | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  |
| 403.7 | 7                  | 7                  | 7                  | 7                  | 7                  | 7                  | 7                  | 7                  | 7                  | 7                  |
|       | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 4                  | 5                  | 5                  | 5                  |
| 403.8 | 7                  | 7                  | 7                  | 8                  | 8                  | 8                  | 8                  | 8                  | 8                  | 8                  |
|       | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  |
| 403.9 | 8                  | 8                  | 8                  | 8                  | 8                  | 8                  | 8                  | 8                  | 8                  | 8                  |
|       | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 404.0 | 8                  | 8                  | 8                  | 8                  | 9                  | 9                  | 9                  | 9                  | 9                  | 9                  |
|       | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  |
| 404.1 | 9                  | 9                  | 9                  | 9                  | 9                  | 9                  | 9                  | 9                  | 9                  | 9                  |
|       | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  | 5                  |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 404.2 | 9<br>5             | 9<br>5             | 9<br>5             | 10<br>5            | 10<br>5            | 10<br>5            | 10<br>5            | 10<br>5            | 10<br>5            | 10<br>5            |
| 404.3 | 10<br>6            | 10<br>6            | 10<br>6            | 10<br>6            | 10<br>6            | 10<br>6            | 10<br>6            | 10<br>6            | 10<br>6            | 10<br>6            |
| 404.4 | 10<br>6            | 11<br>6            | 11<br>6            | 11<br>6            | 11<br>6            | 11<br>6            | 11<br>6            | 11<br>6            | 11<br>6            | 11<br>6            |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 404.5 | 11<br>6            | 11<br>6            | 11<br>6            | 11<br>6            | 11<br>6            | 11<br>6            | 11<br>6            | 11<br>6            | 12<br>6            | 12<br>6            |
| 404.6 | 12<br>6            | 12<br>6            | 12<br>6            | 12<br>6            | 12<br>6            | 12<br>6            | 12<br>6            | 12<br>6            | 12<br>6            | 12<br>6            |
| 404.7 | 12<br>6            | 12<br>6            | 12<br>6            | 12<br>6            | 13<br>6            | 13<br>6            | 13<br>6            | 13<br>6            | 13<br>6            | 13<br>7            |
| 404.8 | 13<br>7            | 13<br>7            | 13<br>7            | 13<br>7            | 13<br>7            | 13<br>7            | 13<br>7            | 13<br>7            | 13<br>7            | 14<br>7            |
| 404.9 | 14<br>7            | 14<br>7            | 14<br>7            | 14<br>7            | 14<br>7            | 14<br>7            | 14<br>7            | 14<br>7            | 14<br>7            | 14<br>7            |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 405.0 | 14<br>7            | 14<br>7            | 14<br>7            | 14<br>7            | 15<br>7            | 15<br>7            | 15<br>7            | 15<br>7            | 15<br>7            | 15<br>7            |
| 405.1 | 15<br>7            | 15<br>7            | 15<br>7            | 15<br>7            | 15<br>7            | 15<br>7            | 15<br>7            | 15<br>7            | 16<br>7            | 16<br>7            |
| 405.2 | 16<br>7            | 16<br>7            | 16<br>7            | 16<br>7            | 16<br>7            | 16<br>8            | 16<br>8            | 16<br>8            | 16<br>8            | 16<br>8            |
| 405.3 | 16<br>8            | 17<br>8            | 17<br>8            | 17<br>8            | 17<br>8            | 17<br>8            | 17<br>8            | 17<br>8            | 17<br>8            | 17<br>8            |
| 405.4 | 17<br>8            | 17<br>8            | 17<br>8            | 17<br>8            | 18<br>8            | 18<br>8            | 18<br>8            | 18<br>8            | 18<br>8            | 18<br>8            |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 405.5 | 18<br>8            | 18<br>8            | 18<br>8            | 18<br>8            | 18<br>8            | 18<br>8            | 19<br>8            | 19<br>8            | 19<br>8            | 19<br>8            |
| 405.6 | 19<br>8            | 19<br>8            | 19<br>8            | 19<br>8            | 19<br>8            | 19<br>8            | 19<br>8            | 19<br>8            | 20<br>9            | 20<br>9            |
| 405.7 | 20<br>9            | 20<br>9            | 20<br>9            | 20<br>9            | 20<br>9            | 20<br>9            | 20<br>9            | 20<br>9            | 20<br>9            | 20<br>9            |
| 405.8 | 21<br>9            | 21<br>9            | 21<br>9            | 21<br>9            | 21<br>9            | 21<br>9            | 21<br>9            | 21<br>9            | 21<br>9            | 21<br>9            |
| 405.9 | 21<br>9            | 22<br>9            | 22<br>9            | 22<br>9            | 22<br>9            | 22<br>9            | 22<br>9            | 22<br>9            | 22<br>9            | 22<br>9            |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 406.0 | 22<br>9            | 22<br>9            | 23<br>9            | 23<br>9            | 23<br>9            | 23<br>9            | 23<br>9            | 23<br>9            | 23<br>9            | 23<br>10           |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 406.1 | 23<br>10           | 23<br>10           | 23<br>10           | 24<br>10           | 24<br>10           | 24<br>10           | 24<br>10           | 24<br>10           | 24<br>10           | 24<br>10           |
| 406.2 | 24<br>10           | 24<br>10           | 24<br>10           | 25<br>10           | 25<br>10           | 25<br>10           | 25<br>10           | 25<br>10           | 25<br>10           | 25<br>10           |
| 406.3 | 25<br>10           | 25<br>10           | 25<br>10           | 26<br>10           | 26<br>10           | 26<br>10           | 26<br>10           | 26<br>10           | 26<br>10           | 26<br>10           |
| 406.4 | 26<br>10           | 26<br>10           | 26<br>10           | 27<br>10           | 27<br>10           | 27<br>10           | 27<br>10           | 27<br>10           | 27<br>10           | 27<br>11           |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 406.5 | 27<br>11           | 27<br>11           | 28<br>11           | 28<br>11           | 28<br>11           | 28<br>11           | 28<br>11           | 28<br>11           | 28<br>11           | 28<br>11           |
| 406.6 | 28<br>11           | 28<br>11           | 29<br>11           | 29<br>11           | 29<br>11           | 29<br>11           | 29<br>11           | 29<br>11           | 29<br>11           | 29<br>11           |
| 406.7 | 29<br>11           | 30<br>11           | 30<br>11           | 30<br>11           | 30<br>11           | 30<br>11           | 30<br>11           | 30<br>11           | 30<br>11           | 30<br>11           |
| 406.8 | 31<br>11           | 31<br>11           | 31<br>11           | 31<br>11           | 31<br>11           | 31<br>11           | 31<br>11           | 31<br>12           | 32<br>12           | 32<br>12           |
| 406.9 | 32<br>12           | 32<br>12           | 32<br>12           | 32<br>12           | 32<br>12           | 32<br>12           | 32<br>12           | 33<br>12           | 33<br>12           | 33<br>12           |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 407.0 | 33<br>12           | 33<br>12           | 33<br>12           | 33<br>12           | 33<br>12           | 34<br>12           | 34<br>12           | 34<br>12           | 34<br>12           | 34<br>12           |
| 407.1 | 34<br>12           | 34<br>12           | 34<br>12           | 34<br>12           | 35<br>12           | 35<br>12           | 35<br>12           | 35<br>12           | 35<br>12           | 35<br>12           |
| 407.2 | 35<br>12           | 35<br>12           | 36<br>12           | 36<br>13           | 36<br>13           | 36<br>13           | 36<br>13           | 36<br>13           | 36<br>13           | 36<br>13           |
| 407.3 | 37<br>13           | 37<br>13           | 37<br>13           | 37<br>13           | 37<br>13           | 37<br>13           | 37<br>13           | 37<br>13           | 38<br>13           | 38<br>13           |
| 407.4 | 38<br>13           | 38<br>13           | 38<br>13           | 38<br>13           | 38<br>13           | 39<br>13           | 39<br>13           | 39<br>13           | 39<br>13           | 39<br>13           |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 407.5 | 39<br>13           | 39<br>13           | 39<br>13           | 40<br>13           | 40<br>13           | 40<br>13           | 40<br>13           | 40<br>13           | 40<br>13           | 40<br>14           |
| 407.6 | 41<br>14           | 41<br>14           | 41<br>14           | 41<br>14           | 41<br>14           | 41<br>14           | 41<br>14           | 41<br>14           | 42<br>14           | 42<br>14           |
| 407.7 | 42<br>14           | 42<br>14           | 42<br>14           | 42<br>14           | 42<br>14           | 43<br>14           | 43<br>14           | 43<br>14           | 43<br>14           | 43<br>14           |
| 407.8 | 43<br>14           | 43<br>14           | 44<br>14           | 44<br>14           | 44<br>14           | 44<br>14           | 44<br>14           | 44<br>14           | 44<br>14           | 45<br>14           |
| 407.9 | 45<br>14           | 45<br>14           | 45<br>14           | 45<br>15           | 45<br>15           | 45<br>15           | 46<br>15           | 46<br>15           | 46<br>15           | 46<br>15           |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 408.0 | 46<br>15           | 46<br>15           | 46<br>15           | 47<br>15           | 47<br>15           | 47<br>15           | 47<br>15           | 47<br>15           | 47<br>15           | 48<br>15           |
| 408.1 | 48<br>15           | 48<br>15           | 48<br>15           | 48<br>15           | 48<br>15           | 48<br>15           | 49<br>15           | 49<br>15           | 49<br>15           | 49<br>15           |
| 408.2 | 49<br>15           | 49<br>15           | 49<br>15           | 50<br>15           | 50<br>15           | 50<br>15           | 50<br>15           | 50<br>16           | 50<br>16           | 51<br>16           |
| 408.3 | 51<br>16           | 51<br>16           | 51<br>16           | 51<br>16           | 51<br>16           | 52<br>16           | 52<br>16           | 52<br>16           | 52<br>16           | 52<br>16           |
| 408.4 | 52<br>16           | 52<br>16           | 53<br>16           | 53<br>16           | 53<br>16           | 53<br>16           | 53<br>16           | 53<br>16           | 54<br>16           | 54<br>16           |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 408.5 | 54<br>16           | 54<br>16           | 54<br>16           | 54<br>16           | 55<br>16           | 55<br>16           | 55<br>16           | 55<br>16           | 55<br>16           | 55<br>17           |
| 408.6 | 56<br>17           | 56<br>17           | 56<br>17           | 56<br>17           | 56<br>17           | 56<br>17           | 57<br>17           | 57<br>17           | 57<br>17           | 57<br>17           |
| 408.7 | 57<br>17           | 57<br>17           | 58<br>17           | 58<br>17           | 58<br>17           | 58<br>17           | 58<br>17           | 58<br>17           | 59<br>17           | 59<br>17           |
| 408.8 | 59<br>17           | 59<br>17           | 59<br>17           | 59<br>17           | 60<br>17           | 60<br>17           | 60<br>17           | 60<br>17           | 60<br>17           | 60<br>17           |
| 408.9 | 61<br>17           | 61<br>18           | 61<br>18           | 61<br>18           | 61<br>18           | 62<br>18           | 62<br>18           | 62<br>18           | 62<br>18           | 62<br>18           |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 409.0 | 62<br>18           | 63<br>18           | 63<br>18           | 63<br>18           | 63<br>18           | 63<br>18           | 63<br>18           | 64<br>18           | 64<br>18           | 64<br>18           |
| 409.1 | 64<br>18           | 64<br>18           | 65<br>18           | 65<br>18           | 65<br>18           | 65<br>18           | 65<br>18           | 65<br>18           | 66<br>18           | 66<br>18           |
| 409.2 | 66<br>18           | 66<br>18           | 66<br>19           | 67<br>19           | 67<br>19           | 67<br>19           | 67<br>19           | 67<br>19           | 68<br>19           | 68<br>19           |
| 409.3 | 68<br>19           | 68<br>19           | 68<br>19           | 68<br>19           | 69<br>19           | 69<br>19           | 69<br>19           | 69<br>19           | 69<br>19           | 70<br>19           |
| 409.4 | 70<br>19           | 70<br>19           | 70<br>19           | 70<br>19           | 71<br>19           | 71<br>19           | 71<br>19           | 71<br>19           | 71<br>19           | 72<br>19           |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 409.5 | 72<br>19           | 72<br>19           | 72<br>19           | 72<br>20           | 72<br>20           | 73<br>20           | 73<br>20           | 73<br>20           | 73<br>20           | 73<br>20           |
| 409.6 | 74<br>20           | 74<br>20           | 74<br>20           | 74<br>20           | 74<br>20           | 75<br>20           | 75<br>20           | 75<br>20           | 75<br>20           | 75<br>20           |
| 409.7 | 76<br>20           | 76<br>20           | 76<br>20           | 76<br>20           | 76<br>20           | 77<br>20           | 77<br>20           | 77<br>20           | 77<br>20           | 77<br>20           |
| 409.8 | 78<br>20           | 78<br>20           | 78<br>20           | 78<br>21           | 79<br>21           | 79<br>21           | 79<br>21           | 79<br>21           | 79<br>21           | 80<br>21           |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 409.9 | 80<br>21           | 80<br>21           | 80<br>21           | 80<br>21           | 81<br>21           | 81<br>21           | 81<br>21           | 81<br>21           | 81<br>21           | 82<br>21           |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 410.0 | 82<br>21           | 82<br>21           | 82<br>21           | 82<br>21           | 83<br>21           | 83<br>21           | 83<br>21           | 83<br>21           | 84<br>21           | 84<br>21           |
| 410.1 | 84<br>21           | 84<br>21           | 84<br>22           | 85<br>22           | 85<br>22           | 85<br>22           | 85<br>22           | 85<br>22           | 86<br>22           | 86<br>22           |
| 410.2 | 86<br>22           | 86<br>22           | 87<br>22           | 87<br>22           | 87<br>22           | 87<br>22           | 87<br>22           | 88<br>22           | 88<br>22           | 88<br>22           |
| 410.3 | 88<br>22           | 88<br>22           | 89<br>22           | 89<br>22           | 89<br>22           | 89<br>22           | 90<br>22           | 90<br>22           | 90<br>22           | 90<br>22           |
| 410.4 | 91<br>22           | 91<br>23           | 91<br>23           | 91<br>23           | 91<br>23           | 92<br>23           | 92<br>23           | 92<br>23           | 92<br>23           | 93<br>23           |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 410.5 | 93<br>23           | 93<br>23           | 93<br>23           | 94<br>23           | 94<br>23           | 94<br>23           | 94<br>23           | 94<br>23           | 95<br>23           | 95<br>23           |
| 410.6 | 95<br>23           | 95<br>23           | 96<br>23           | 96<br>23           | 96<br>23           | 96<br>23           | 97<br>23           | 97<br>23           | 97<br>23           | 97<br>23           |
| 410.7 | 97<br>24           | 98<br>24           | 98<br>24           | 98<br>24           | 98<br>24           | 99<br>24           | 99<br>24           | 99<br>24           | 99<br>24           | 100<br>24          |
| 410.8 | 100<br>24          | 100<br>24          | 100<br>24          | 101<br>24          | 101<br>24          | 101<br>24          | 101<br>24          | 102<br>24          | 102<br>24          | 102<br>24          |
| 410.9 | 102<br>24          | 102<br>24          | 103<br>24          | 103<br>24          | 103<br>24          | 103<br>24          | 104<br>24          | 104<br>24          | 104<br>25          | 104<br>25          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 411.0 | 105<br>25          | 105<br>25          | 105<br>25          | 105<br>25          | 106<br>25          | 106<br>25          | 106<br>25          | 106<br>25          | 107<br>25          | 107<br>25          |
| 411.1 | 107<br>25          | 107<br>25          | 108<br>25          | 108<br>25          | 108<br>25          | 108<br>25          | 109<br>25          | 109<br>25          | 109<br>25          | 109<br>25          |
| 411.2 | 110<br>25          | 110<br>25          | 110<br>25          | 110<br>25          | 111<br>25          | 111<br>26          | 111<br>26          | 111<br>26          | 112<br>26          | 112<br>26          |
| 411.3 | 112<br>26          | 112<br>26          | 113<br>26          | 113<br>26          | 113<br>26          | 114<br>26          | 114<br>26          | 114<br>26          | 114<br>26          | 115<br>26          |
| 411.4 | 115<br>26          | 115<br>26          | 115<br>26          | 116<br>26          | 116<br>26          | 116<br>26          | 116<br>26          | 117<br>26          | 117<br>26          | 117<br>26          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 411.5 | 117<br>26          | 118<br>26          | 118<br>27          | 118<br>27          | 118<br>27          | 119<br>27          | 119<br>27          | 119<br>27          | 120<br>27          | 120<br>27          |
| 411.6 | 120<br>27          | 120<br>27          | 121<br>27          | 121<br>27          | 121<br>27          | 121<br>27          | 122<br>27          | 122<br>27          | 122<br>27          | 123<br>27          |
| 411.7 | 123<br>27          | 123<br>27          | 123<br>27          | 124<br>27          | 124<br>27          | 124<br>27          | 124<br>27          | 125<br>27          | 125<br>27          | 125<br>28          |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 411.8 | 126<br>28          | 126<br>28          | 126<br>28          | 126<br>28          | 127<br>28          | 127<br>28          | 127<br>28          | 127<br>28          | 128<br>28          | 128<br>28          |
| 411.9 | 128<br>28          | 129<br>28          | 129<br>28          | 129<br>28          | 129<br>28          | 130<br>28          | 130<br>28          | 130<br>28          | 131<br>28          | 131<br>28          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 412.0 | 131<br>28          | 131<br>28          | 132<br>28          | 132<br>28          | 132<br>28          | 133<br>28          | 133<br>29          | 133<br>29          | 133<br>29          | 134<br>29          |
| 412.1 | 134<br>29          | 134<br>29          | 135<br>29          | 135<br>29          | 135<br>29          | 135<br>29          | 136<br>29          | 136<br>29          | 136<br>29          | 137<br>29          |
| 412.2 | 137<br>29          | 137<br>29          | 137<br>29          | 138<br>29          | 138<br>29          | 138<br>29          | 139<br>29          | 139<br>29          | 139<br>29          | 139<br>29          |
| 412.3 | 140<br>29          | 140<br>29          | 140<br>30          | 141<br>30          | 141<br>30          | 141<br>30          | 142<br>30          | 142<br>30          | 142<br>30          | 142<br>30          |
| 412.4 | 143<br>30          | 143<br>30          | 143<br>30          | 144<br>30          | 144<br>30          | 144<br>30          | 145<br>30          | 145<br>30          | 145<br>30          | 145<br>30          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 412.5 | 146<br>30          | 146<br>30          | 146<br>30          | 147<br>30          | 147<br>30          | 147<br>30          | 148<br>30          | 148<br>31          | 148<br>31          | 148<br>31          |
| 412.6 | 149<br>31          | 149<br>31          | 149<br>31          | 150<br>31          | 150<br>31          | 150<br>31          | 151<br>31          | 151<br>31          | 151<br>31          | 152<br>31          |
| 412.7 | 152<br>31          | 152<br>31          | 152<br>31          | 153<br>31          | 153<br>31          | 153<br>31          | 154<br>31          | 154<br>31          | 154<br>31          | 155<br>31          |
| 412.8 | 155<br>31          | 155<br>31          | 156<br>31          | 156<br>32          | 156<br>32          | 157<br>32          | 157<br>32          | 157<br>32          | 158<br>32          | 158<br>32          |
| 412.9 | 158<br>32          | 158<br>32          | 159<br>32          | 159<br>32          | 159<br>32          | 160<br>32          | 160<br>32          | 160<br>32          | 161<br>32          | 161<br>32          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 413.0 | 161<br>32          | 162<br>32          | 162<br>32          | 162<br>32          | 163<br>32          | 163<br>32          | 163<br>32          | 164<br>32          | 164<br>33          | 164<br>33          |
| 413.1 | 165<br>33          | 165<br>33          | 165<br>33          | 166<br>33          | 166<br>33          | 166<br>33          | 167<br>33          | 167<br>33          | 167<br>33          | 168<br>33          |
| 413.2 | 168<br>33          | 168<br>33          | 169<br>33          | 169<br>33          | 169<br>33          | 170<br>33          | 170<br>33          | 170<br>33          | 171<br>33          | 171<br>33          |
| 413.3 | 171<br>33          | 172<br>33          | 172<br>33          | 172<br>34          | 173<br>34          | 173<br>34          | 173<br>34          | 174<br>34          | 174<br>34          | 174<br>34          |
| 413.4 | 175<br>34          | 175<br>34          | 175<br>34          | 176<br>34          | 176<br>34          | 176<br>34          | 177<br>34          | 177<br>34          | 177<br>34          | 178<br>34          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 413.5 | 178<br>34          | 178<br>34          | 179<br>34          | 179<br>34          | 179<br>34          | 180<br>34          | 180<br>34          | 180<br>35          | 181<br>35          | 181<br>35          |
| 413.6 | 181<br>35          | 182<br>35          | 182<br>35          | 182<br>35          | 183<br>35          | 183<br>35          | 183<br>35          | 184<br>35          | 184<br>35          | 185<br>35          |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 413.7 | 185<br>35          | 185<br>35          | 186<br>35          | 186<br>35          | 186<br>35          | 187<br>35          | 187<br>35          | 187<br>35          | 188<br>35          | 188<br>35          |
| 413.8 | 188<br>35          | 189<br>35          | 189<br>36          | 189<br>36          | 190<br>36          | 190<br>36          | 191<br>36          | 191<br>36          | 191<br>36          | 192<br>36          |
| 413.9 | 192<br>36          | 192<br>36          | 193<br>36          | 193<br>36          | 193<br>36          | 194<br>36          | 194<br>36          | 194<br>36          | 195<br>36          | 195<br>36          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 414.0 | 196<br>36          | 196<br>36          | 196<br>36          | 197<br>36          | 197<br>36          | 197<br>36          | 198<br>37          | 198<br>37          | 198<br>37          | 199<br>37          |
| 414.1 | 199<br>37          | 200<br>37          | 200<br>37          | 200<br>37          | 201<br>37          | 201<br>37          | 201<br>37          | 202<br>37          | 202<br>37          | 203<br>37          |
| 414.2 | 203<br>37          | 203<br>37          | 204<br>37          | 204<br>37          | 204<br>37          | 205<br>37          | 205<br>37          | 206<br>37          | 206<br>37          | 206<br>37          |
| 414.3 | 207<br>38          | 207<br>38          | 207<br>38          | 208<br>38          | 208<br>38          | 209<br>38          | 209<br>38          | 209<br>38          | 210<br>38          | 210<br>38          |
| 414.4 | 210<br>38          | 211<br>38          | 211<br>38          | 212<br>38          | 212<br>38          | 212<br>38          | 213<br>38          | 213<br>38          | 213<br>38          | 214<br>38          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 414.5 | 214<br>38          | 215<br>38          | 215<br>38          | 215<br>39          | 216<br>39          | 216<br>39          | 217<br>39          | 217<br>39          | 217<br>39          | 218<br>39          |
| 414.6 | 218<br>39          | 218<br>39          | 219<br>39          | 219<br>39          | 220<br>39          | 220<br>39          | 220<br>39          | 221<br>39          | 221<br>39          | 222<br>39          |
| 414.7 | 222<br>39          | 222<br>39          | 223<br>39          | 223<br>39          | 224<br>39          | 224<br>39          | 224<br>39          | 225<br>40          | 225<br>40          | 226<br>40          |
| 414.8 | 226<br>40          | 226<br>40          | 227<br>40          | 227<br>40          | 228<br>40          | 228<br>40          | 228<br>40          | 229<br>40          | 229<br>40          | 230<br>40          |
| 414.9 | 230<br>40          | 230<br>40          | 231<br>40          | 231<br>40          | 232<br>40          | 232<br>40          | 232<br>40          | 233<br>40          | 233<br>40          | 234<br>40          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 415.0 | 234<br>41          | 234<br>41          | 235<br>41          | 235<br>41          | 236<br>41          | 236<br>41          | 236<br>41          | 237<br>41          | 237<br>41          | 238<br>41          |
| 415.1 | 238<br>41          | 238<br>41          | 239<br>41          | 239<br>41          | 240<br>41          | 240<br>41          | 241<br>41          | 241<br>41          | 241<br>41          | 242<br>41          |
| 415.2 | 242<br>41          | 243<br>41          | 243<br>41          | 243<br>42          | 244<br>42          | 244<br>42          | 245<br>42          | 245<br>42          | 245<br>42          | 246<br>42          |
| 415.3 | 246<br>42          | 247<br>42          | 247<br>42          | 248<br>42          | 248<br>42          | 248<br>42          | 249<br>42          | 249<br>42          | 250<br>42          | 250<br>42          |
| 415.4 | 251<br>42          | 251<br>42          | 251<br>42          | 252<br>42          | 252<br>42          | 253<br>43          | 253<br>43          | 254<br>43          | 254<br>43          | 254<br>43          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 415.5 | 255<br>43          | 255<br>43          | 256<br>43          | 256<br>43          | 256<br>43          | 257<br>43          | 257<br>43          | 258<br>43          | 258<br>43          | 259<br>43          |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 415.6 | 259<br>43          | 260<br>43          | 260<br>43          | 260<br>43          | 261<br>43          | 261<br>43          | 262<br>43          | 262<br>43          | 263<br>44          | 263<br>44          |
| 415.7 | 263<br>44          | 264<br>44          | 264<br>44          | 265<br>44          | 265<br>44          | 266<br>44          | 266<br>44          | 266<br>44          | 267<br>44          | 267<br>44          |
| 415.8 | 268<br>44          | 268<br>44          | 269<br>44          | 269<br>44          | 270<br>44          | 270<br>44          | 270<br>44          | 271<br>44          | 271<br>44          | 272<br>44          |
| 415.9 | 272<br>45          | 273<br>45          | 273<br>45          | 274<br>45          | 274<br>45          | 274<br>45          | 275<br>45          | 275<br>45          | 276<br>45          | 276<br>45          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 416.0 | 277<br>45          | 277<br>45          | 278<br>45          | 278<br>45          | 278<br>45          | 279<br>45          | 279<br>45          | 280<br>45          | 280<br>45          | 281<br>45          |
| 416.1 | 281<br>45          | 282<br>45          | 282<br>45          | 283<br>46          | 283<br>46          | 283<br>46          | 284<br>46          | 284<br>46          | 285<br>46          | 285<br>46          |
| 416.2 | 286<br>46          | 286<br>46          | 287<br>46          | 287<br>46          | 288<br>46          | 288<br>46          | 289<br>46          | 289<br>46          | 289<br>46          | 290<br>46          |
| 416.3 | 290<br>46          | 291<br>46          | 291<br>46          | 292<br>46          | 292<br>46          | 293<br>47          | 293<br>47          | 294<br>47          | 294<br>47          | 295<br>47          |
| 416.4 | 295<br>47          | 296<br>47          | 296<br>47          | 296<br>47          | 297<br>47          | 297<br>47          | 298<br>47          | 298<br>47          | 299<br>47          | 299<br>47          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 416.5 | 300<br>47          | 300<br>47          | 301<br>47          | 301<br>47          | 302<br>47          | 302<br>47          | 303<br>48          | 303<br>48          | 304<br>48          | 304<br>48          |
| 416.6 | 304<br>48          | 305<br>48          | 305<br>48          | 306<br>48          | 306<br>48          | 307<br>48          | 307<br>48          | 308<br>48          | 308<br>48          | 309<br>48          |
| 416.7 | 309<br>48          | 310<br>48          | 310<br>48          | 311<br>48          | 311<br>48          | 312<br>48          | 312<br>48          | 313<br>48          | 313<br>49          | 314<br>49          |
| 416.8 | 314<br>49          | 315<br>49          | 315<br>49          | 316<br>49          | 316<br>49          | 317<br>49          | 317<br>49          | 318<br>49          | 318<br>49          | 319<br>49          |
| 416.9 | 319<br>49          | 320<br>49          | 320<br>49          | 320<br>49          | 321<br>49          | 321<br>49          | 322<br>49          | 322<br>49          | 323<br>49          | 323<br>50          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 417.0 | 324<br>50          | 324<br>50          | 325<br>50          | 325<br>50          | 326<br>50          | 326<br>50          | 327<br>50          | 327<br>50          | 328<br>50          | 328<br>50          |
| 417.1 | 329<br>50          | 329<br>50          | 330<br>50          | 330<br>50          | 331<br>50          | 331<br>50          | 332<br>50          | 332<br>50          | 333<br>50          | 333<br>50          |
| 417.2 | 334<br>50          | 334<br>51          | 335<br>51          | 335<br>51          | 336<br>51          | 336<br>51          | 337<br>51          | 337<br>51          | 338<br>51          | 339<br>51          |
| 417.3 | 339<br>51          | 340<br>51          | 340<br>51          | 341<br>51          | 341<br>51          | 342<br>51          | 342<br>51          | 343<br>51          | 343<br>51          | 344<br>51          |
| 417.4 | 344<br>51          | 345<br>51          | 345<br>52          | 346<br>52          | 346<br>52          | 347<br>52          | 347<br>52          | 348<br>52          | 348<br>52          | 349<br>52          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 417.5 | 349<br>52          | 350<br>52          | 350<br>52          | 351<br>52          | 351<br>52          | 352<br>52          | 352<br>52          | 353<br>52          | 353<br>52          | 354<br>52          |
| 417.6 | 355<br>52          | 355<br>52          | 356<br>52          | 356<br>53          | 357<br>53          | 357<br>53          | 358<br>53          | 358<br>53          | 359<br>53          | 359<br>53          |
| 417.7 | 360<br>53          | 360<br>53          | 361<br>53          | 361<br>53          | 362<br>53          | 362<br>53          | 363<br>53          | 363<br>53          | 364<br>53          | 365<br>53          |
| 417.8 | 365<br>53          | 366<br>53          | 366<br>53          | 367<br>53          | 367<br>54          | 368<br>54          | 368<br>54          | 369<br>54          | 369<br>54          | 370<br>54          |
| 417.9 | 370<br>54          | 371<br>54          | 372<br>54          | 372<br>54          | 373<br>54          | 373<br>54          | 374<br>54          | 374<br>54          | 375<br>54          | 375<br>54          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 418.0 | 376<br>54          | 376<br>54          | 377<br>54          | 377<br>54          | 378<br>54          | 379<br>55          | 379<br>55          | 380<br>55          | 380<br>55          | 381<br>55          |
| 418.1 | 381<br>55          | 382<br>55          | 382<br>55          | 383<br>55          | 383<br>55          | 384<br>55          | 385<br>55          | 385<br>55          | 386<br>55          | 386<br>55          |
| 418.2 | 387<br>55          | 387<br>55          | 388<br>55          | 388<br>55          | 389<br>55          | 390<br>56          | 390<br>56          | 391<br>56          | 391<br>56          | 392<br>56          |
| 418.3 | 392<br>56          | 393<br>56          | 393<br>56          | 394<br>56          | 395<br>56          | 395<br>56          | 396<br>56          | 396<br>56          | 397<br>56          | 397<br>56          |
| 418.4 | 398<br>56          | 399<br>56          | 399<br>56          | 400<br>56          | 400<br>56          | 401<br>56          | 401<br>57          | 402<br>57          | 402<br>57          | 403<br>57          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 418.5 | 404<br>57          | 404<br>57          | 405<br>57          | 405<br>57          | 406<br>57          | 406<br>57          | 407<br>57          | 408<br>57          | 408<br>57          | 409<br>57          |
| 418.6 | 409<br>57          | 410<br>57          | 410<br>57          | 411<br>57          | 412<br>57          | 412<br>57          | 413<br>58          | 413<br>58          | 414<br>58          | 414<br>58          |
| 418.7 | 415<br>58          | 416<br>58          | 416<br>58          | 417<br>58          | 417<br>58          | 418<br>58          | 419<br>58          | 419<br>58          | 420<br>58          | 420<br>58          |
| 418.8 | 421<br>58          | 421<br>58          | 422<br>58          | 423<br>58          | 423<br>58          | 424<br>58          | 424<br>59          | 425<br>59          | 426<br>59          | 426<br>59          |
| 418.9 | 427<br>59          | 427<br>59          | 428<br>59          | 428<br>59          | 429<br>59          | 430<br>59          | 430<br>59          | 431<br>59          | 431<br>59          | 432<br>59          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 419.0 | 433<br>59          | 433<br>59          | 434<br>59          | 434<br>59          | 435<br>59          | 436<br>59          | 436<br>60          | 437<br>60          | 437<br>60          | 438<br>60          |
| 419.1 | 439<br>60          | 439<br>60          | 440<br>60          | 440<br>60          | 441<br>60          | 442<br>60          | 442<br>60          | 443<br>60          | 443<br>60          | 444<br>60          |
| 419.2 | 445<br>60          | 445<br>60          | 446<br>60          | 446<br>60          | 447<br>60          | 448<br>60          | 448<br>61          | 449<br>61          | 449<br>61          | 450<br>61          |
| 419.3 | 451<br>61          | 451<br>61          | 452<br>61          | 452<br>61          | 453<br>61          | 454<br>61          | 454<br>61          | 455<br>61          | 455<br>61          | 456<br>61          |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 419.4 | 457<br>61          | 457<br>61          | 458<br>61          | 459<br>61          | 459<br>61          | 460<br>61          | 460<br>62          | 461<br>62          | 462<br>62          | 462<br>62          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 419.5 | 463<br>62          | 463<br>62          | 464<br>62          | 465<br>62          | 465<br>62          | 466<br>62          | 467<br>62          | 467<br>62          | 468<br>62          | 468<br>62          |
| 419.6 | 469<br>62          | 470<br>62          | 470<br>62          | 471<br>62          | 472<br>62          | 472<br>63          | 473<br>63          | 473<br>63          | 474<br>63          | 475<br>63          |
| 419.7 | 475<br>63          | 476<br>63          | 477<br>63          | 477<br>63          | 478<br>63          | 478<br>63          | 479<br>63          | 480<br>63          | 480<br>63          | 481<br>63          |
| 419.8 | 482<br>63          | 482<br>63          | 483<br>63          | 483<br>63          | 484<br>63          | 485<br>64          | 485<br>64          | 486<br>64          | 487<br>64          | 487<br>64          |
| 419.9 | 488<br>64          | 489<br>64          | 489<br>64          | 490<br>64          | 490<br>64          | 491<br>64          | 492<br>64          | 492<br>64          | 493<br>64          | 494<br>64          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 420.0 | 494<br>64          | 495<br>64          | 496<br>64          | 496<br>64          | 497<br>65          | 498<br>65          | 498<br>65          | 499<br>65          | 499<br>65          | 500<br>65          |
| 420.1 | 501<br>65          | 501<br>65          | 502<br>65          | 503<br>65          | 503<br>65          | 504<br>65          | 505<br>65          | 505<br>65          | 506<br>65          | 507<br>65          |
| 420.2 | 507<br>65          | 508<br>65          | 509<br>65          | 509<br>65          | 510<br>66          | 511<br>66          | 511<br>66          | 512<br>66          | 513<br>66          | 513<br>66          |
| 420.3 | 514<br>66          | 515<br>66          | 515<br>66          | 516<br>66          | 516<br>66          | 517<br>66          | 518<br>66          | 518<br>66          | 519<br>66          | 520<br>66          |
| 420.4 | 520<br>66          | 521<br>66          | 522<br>66          | 522<br>67          | 523<br>67          | 524<br>67          | 524<br>67          | 525<br>67          | 526<br>67          | 526<br>67          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 420.5 | 527<br>67          | 528<br>67          | 528<br>67          | 529<br>67          | 530<br>67          | 530<br>67          | 531<br>67          | 532<br>67          | 533<br>67          | 533<br>67          |
| 420.6 | 534<br>67          | 535<br>67          | 535<br>68          | 536<br>68          | 537<br>68          | 537<br>68          | 538<br>68          | 539<br>68          | 539<br>68          | 540<br>68          |
| 420.7 | 541<br>68          | 541<br>68          | 542<br>68          | 543<br>68          | 543<br>68          | 544<br>68          | 545<br>68          | 545<br>68          | 546<br>68          | 547<br>68          |
| 420.8 | 547<br>68          | 548<br>69          | 549<br>69          | 549<br>69          | 550<br>69          | 551<br>69          | 552<br>69          | 552<br>69          | 553<br>69          | 554<br>69          |
| 420.9 | 554<br>69          | 555<br>69          | 556<br>69          | 556<br>69          | 557<br>69          | 558<br>69          | 558<br>69          | 559<br>69          | 560<br>69          | 561<br>69          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 421.0 | 561<br>70          | 562<br>70          | 563<br>70          | 563<br>70          | 564<br>70          | 565<br>70          | 565<br>70          | 566<br>70          | 567<br>70          | 568<br>70          |
| 421.1 | 568<br>70          | 569<br>70          | 570<br>70          | 570<br>70          | 571<br>70          | 572<br>70          | 572<br>70          | 573<br>70          | 574<br>70          | 575<br>71          |
| 421.2 | 575<br>71          | 576<br>71          | 577<br>71          | 577<br>71          | 578<br>71          | 579<br>71          | 579<br>71          | 580<br>71          | 581<br>71          | 582<br>71          |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 421.3 | 582<br>71          | 583<br>71          | 584<br>71          | 584<br>71          | 585<br>71          | 586<br>71          | 587<br>71          | 587<br>72          | 588<br>72          | 589<br>72          |
| 421.4 | 589<br>72          | 590<br>72          | 591<br>72          | 592<br>72          | 592<br>72          | 593<br>72          | 594<br>72          | 595<br>72          | 595<br>72          | 596<br>72          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 421.5 | 597<br>72          | 597<br>72          | 598<br>72          | 599<br>72          | 600<br>72          | 600<br>72          | 601<br>73          | 602<br>73          | 602<br>73          | 603<br>73          |
| 421.6 | 604<br>73          | 605<br>73          | 605<br>73          | 606<br>73          | 607<br>73          | 608<br>73          | 608<br>73          | 609<br>73          | 610<br>73          | 611<br>73          |
| 421.7 | 611<br>73          | 612<br>73          | 613<br>73          | 613<br>73          | 614<br>74          | 615<br>74          | 616<br>74          | 616<br>74          | 617<br>74          | 618<br>74          |
| 421.8 | 619<br>74          | 619<br>74          | 620<br>74          | 621<br>74          | 622<br>74          | 622<br>74          | 623<br>74          | 624<br>74          | 625<br>74          | 625<br>74          |
| 421.9 | 626<br>74          | 627<br>74          | 627<br>75          | 628<br>75          | 629<br>75          | 630<br>75          | 630<br>75          | 631<br>75          | 632<br>75          | 633<br>75          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 422.0 | 633<br>75          | 634<br>75          | 635<br>75          | 636<br>75          | 636<br>75          | 637<br>75          | 638<br>75          | 639<br>75          | 639<br>75          | 640<br>75          |
| 422.1 | 641<br>75          | 642<br>76          | 643<br>76          | 643<br>76          | 644<br>76          | 645<br>76          | 646<br>76          | 646<br>76          | 647<br>76          | 648<br>76          |
| 422.2 | 649<br>76          | 649<br>76          | 650<br>76          | 651<br>76          | 652<br>76          | 652<br>76          | 653<br>76          | 654<br>76          | 655<br>76          | 655<br>77          |
| 422.3 | 656<br>77          | 657<br>77          | 658<br>77          | 658<br>77          | 659<br>77          | 660<br>77          | 661<br>77          | 662<br>77          | 662<br>77          | 663<br>77          |
| 422.4 | 664<br>77          | 665<br>77          | 665<br>77          | 666<br>77          | 667<br>77          | 668<br>77          | 669<br>77          | 669<br>78          | 670<br>78          | 671<br>78          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 422.5 | 672<br>78          | 672<br>78          | 673<br>78          | 674<br>78          | 675<br>78          | 676<br>78          | 676<br>78          | 677<br>78          | 678<br>78          | 679<br>78          |
| 422.6 | 679<br>78          | 680<br>78          | 681<br>78          | 682<br>78          | 683<br>78          | 683<br>79          | 684<br>79          | 685<br>79          | 686<br>79          | 686<br>79          |
| 422.7 | 687<br>79          | 688<br>79          | 689<br>79          | 690<br>79          | 690<br>79          | 691<br>79          | 692<br>79          | 693<br>79          | 694<br>79          | 694<br>79          |
| 422.8 | 695<br>79          | 696<br>79          | 697<br>79          | 698<br>80          | 698<br>80          | 699<br>80          | 700<br>80          | 701<br>80          | 702<br>80          | 702<br>80          |
| 422.9 | 703<br>80          | 704<br>80          | 705<br>80          | 706<br>80          | 706<br>80          | 707<br>80          | 708<br>80          | 709<br>80          | 710<br>80          | 710<br>80          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 423.0 | 711<br>81          | 712<br>81          | 713<br>81          | 714<br>81          | 714<br>81          | 715<br>81          | 716<br>81          | 717<br>81          | 718<br>81          | 718<br>81          |
| 423.1 | 719<br>81          | 720<br>81          | 721<br>81          | 722<br>81          | 723<br>81          | 723<br>81          | 724<br>81          | 725<br>81          | 726<br>82          | 727<br>82          |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 423.2 | 727<br>82          | 728<br>82          | 729<br>82          | 730<br>82          | 731<br>82          | 731<br>82          | 732<br>92          | 733<br>82          | 734<br>82          | 735<br>82          |
| 423.3 | 736<br>82          | 736<br>82          | 737<br>82          | 738<br>82          | 739<br>82          | 740<br>82          | 741<br>83          | 741<br>83          | 742<br>83          | 743<br>83          |
| 423.4 | 744<br>83          | 745<br>83          | 745<br>83          | 746<br>83          | 747<br>83          | 748<br>83          | 749<br>83          | 750<br>83          | 750<br>83          | 751<br>83          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 423.5 | 752<br>83          | 753<br>83          | 754<br>83          | 755<br>84          | 755<br>84          | 756<br>84          | 757<br>84          | 758<br>84          | 759<br>84          | 760<br>84          |
| 423.6 | 761<br>84          | 761<br>84          | 762<br>84          | 763<br>84          | 764<br>84          | 765<br>84          | 766<br>84          | 766<br>84          | 767<br>84          | 768<br>84          |
| 423.7 | 769<br>85          | 770<br>85          | 771<br>85          | 771<br>85          | 772<br>85          | 773<br>85          | 774<br>85          | 775<br>85          | 776<br>85          | 777<br>85          |
| 423.8 | 777<br>85          | 778<br>85          | 779<br>85          | 780<br>85          | 781<br>85          | 782<br>85          | 783<br>85          | 783<br>85          | 784<br>86          | 785<br>86          |
| 423.9 | 786<br>86          | 787<br>86          | 788<br>86          | 789<br>86          | 789<br>86          | 790<br>86          | 791<br>86          | 792<br>86          | 793<br>86          | 794<br>86          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 424.0 | 795<br>86          | 795<br>86          | 796<br>86          | 797<br>86          | 798<br>86          | 799<br>87          | 800<br>87          | 801<br>87          | 801<br>87          | 802<br>87          |
| 424.1 | 803<br>87          | 804<br>87          | 805<br>87          | 806<br>87          | 807<br>87          | 808<br>87          | 808<br>87          | 809<br>87          | 810<br>87          | 811<br>87          |
| 424.2 | 812<br>87          | 813<br>87          | 814<br>88          | 815<br>88          | 815<br>88          | 816<br>88          | 817<br>88          | 818<br>88          | 819<br>88          | 820<br>88          |
| 424.3 | 821<br>88          | 822<br>88          | 822<br>88          | 823<br>88          | 824<br>88          | 825<br>88          | 826<br>88          | 827<br>88          | 828<br>88          | 829<br>89          |
| 424.4 | 830<br>89          | 830<br>89          | 831<br>89          | 832<br>89          | 833<br>89          | 834<br>89          | 835<br>89          | 836<br>89          | 837<br>89          | 838<br>89          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 424.5 | 838<br>89          | 839<br>89          | 840<br>89          | 841<br>89          | 842<br>89          | 843<br>89          | 844<br>90          | 845<br>90          | 846<br>90          | 846<br>90          |
| 424.6 | 847<br>90          | 848<br>90          | 849<br>90          | 850<br>90          | 851<br>90          | 852<br>90          | 853<br>90          | 854<br>90          | 855<br>90          | 855<br>90          |
| 424.7 | 856<br>90          | 857<br>90          | 858<br>90          | 859<br>91          | 860<br>91          | 861<br>91          | 862<br>91          | 863<br>91          | 864<br>91          | 864<br>91          |
| 424.8 | 865<br>91          | 866<br>91          | 867<br>91          | 868<br>91          | 869<br>91          | 870<br>91          | 871<br>91          | 872<br>91          | 873<br>91          | 874<br>91          |
| 424.9 | 875<br>92          | 875<br>92          | 876<br>92          | 877<br>92          | 878<br>92          | 879<br>92          | 880<br>92          | 881<br>92          | 882<br>92          | 883<br>92          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 425.0 | 884<br>92          | 885<br>92          | 886<br>92          | 886<br>92          | 887<br>92          | 888<br>92          | 889<br>92          | 890<br>93          | 891<br>93          | 892<br>93          |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 425.1 | 893<br>93          | 894<br>93          | 895<br>93          | 896<br>93          | 897<br>93          | 898<br>93          | 899<br>93          | 899<br>93          | 900<br>93          | 901<br>93          |
| 425.2 | 902<br>93          | 903<br>93          | 904<br>93          | 905<br>94          | 906<br>94          | 907<br>94          | 908<br>94          | 909<br>94          | 910<br>94          | 911<br>94          |
| 425.3 | 912<br>94          | 913<br>94          | 914<br>94          | 914<br>94          | 915<br>94          | 916<br>94          | 917<br>94          | 918<br>94          | 919<br>94          | 920<br>94          |
| 425.4 | 921<br>95          | 922<br>95          | 923<br>95          | 924<br>95          | 925<br>95          | 926<br>95          | 927<br>95          | 928<br>95          | 929<br>95          | 930<br>95          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 425.5 | 931<br>95          | 931<br>95          | 932<br>95          | 933<br>95          | 934<br>95          | 935<br>95          | 936<br>96          | 937<br>96          | 938<br>96          | 939<br>96          |
| 425.6 | 940<br>96          | 941<br>96          | 942<br>96          | 943<br>96          | 944<br>96          | 945<br>96          | 946<br>96          | 947<br>96          | 948<br>96          | 949<br>96          |
| 425.7 | 950<br>96          | 951<br>96          | 952<br>96          | 953<br>97          | 954<br>97          | 955<br>97          | 955<br>97          | 956<br>97          | 957<br>97          | 958<br>97          |
| 425.8 | 959<br>97          | 960<br>97          | 961<br>97          | 962<br>97          | 963<br>97          | 964<br>97          | 965<br>97          | 966<br>97          | 967<br>97          | 968<br>98          |
| 425.9 | 969<br>98          | 970<br>98          | 971<br>98          | 972<br>98          | 973<br>98          | 974<br>98          | 975<br>98          | 976<br>98          | 977<br>98          | 978<br>98          |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 426.0 | 979<br>98          | 980<br>98          | 981<br>98          | 982<br>98          | 983<br>98          | 984<br>99          | 985<br>99          | 986<br>99          | 987<br>99          | 988<br>99          |
| 426.1 | 989<br>99          | 990<br>99          | 991<br>99          | 992<br>99          | 993<br>99          | 994<br>99          | 995<br>99          | 996<br>99          | 997<br>99          | 998<br>99          |
| 426.2 | 999<br>99          | 1000<br>100        | 1001<br>100        | 1002<br>100        | 1003<br>100        | 1004<br>100        | 1005<br>100        | 1006<br>100        | 1007<br>100        | 1008<br>100        |
| 426.3 | 1009<br>100        | 1010<br>100        | 1011<br>100        | 1012<br>100        | 1013<br>100        | 1014<br>100        | 1015<br>100        | 1016<br>100        | 1017<br>101        | 1018<br>101        |
| 426.4 | 1019<br>101        | 1020<br>101        | 1021<br>101        | 1022<br>101        | 1023<br>101        | 1024<br>101        | 1025<br>101        | 1026<br>101        | 1027<br>101        | 1028<br>101        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 426.5 | 1029<br>101        | 1030<br>101        | 1031<br>101        | 1032<br>101        | 1033<br>102        | 1034<br>102        | 1035<br>102        | 1036<br>102        | 1037<br>102        | 1038<br>102        |
| 426.6 | 1039<br>102        | 1040<br>102        | 1041<br>102        | 1042<br>102        | 1043<br>102        | 1044<br>102        | 1045<br>102        | 1046<br>102        | 1047<br>102        | 1048<br>102        |
| 426.7 | 1049<br>103        | 1050<br>103        | 1051<br>103        | 1052<br>103        | 1053<br>103        | 1054<br>103        | 1055<br>103        | 1056<br>103        | 1057<br>103        | 1058<br>103        |
| 426.8 | 1059<br>103        | 1060<br>103        | 1061<br>103        | 1063<br>103        | 1064<br>103        | 1065<br>104        | 1066<br>104        | 1067<br>104        | 1068<br>104        | 1069<br>104        |
| 426.9 | 1070<br>104        | 1071<br>104        | 1072<br>104        | 1073<br>104        | 1074<br>104        | 1075<br>104        | 1076<br>104        | 1077<br>104        | 1078<br>104        | 1079<br>104        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 427.0 | 1080<br>104        | 1081<br>105        | 1082<br>105        | 1083<br>105        | 1084<br>105        | 1085<br>105        | 1086<br>105        | 1088<br>105        | 1089<br>105        | 1090<br>105        |
| 427.1 | 1091<br>105        | 1092<br>105        | 1093<br>105        | 1094<br>105        | 1095<br>105        | 1096<br>105        | 1097<br>105        | 1098<br>106        | 1099<br>106        | 1100<br>106        |
| 427.2 | 1101<br>106        | 1102<br>106        | 1103<br>106        | 1104<br>106        | 1105<br>106        | 1107<br>106        | 1108<br>106        | 1109<br>106        | 1110<br>106        | 1111<br>106        |
| 427.3 | 1112<br>106        | 1113<br>106        | 1114<br>106        | 1115<br>107        | 1116<br>107        | 1117<br>107        | 1118<br>107        | 1119<br>107        | 1120<br>107        | 1121<br>107        |
| 427.4 | 1122<br>107        | 1124<br>107        | 1125<br>107        | 1126<br>107        | 1127<br>107        | 1128<br>107        | 1129<br>107        | 1130<br>107        | 1131<br>108        | 1132<br>108        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 427.5 | 1133<br>108        | 1134<br>108        | 1135<br>108        | 1136<br>108        | 1138<br>108        | 1139<br>108        | 1140<br>108        | 1141<br>108        | 1142<br>108        | 1143<br>108        |
| 427.6 | 1144<br>108        | 1145<br>108        | 1146<br>108        | 1147<br>108        | 1148<br>109        | 1149<br>109        | 1151<br>109        | 1152<br>109        | 1153<br>109        | 1154<br>109        |
| 427.7 | 1155<br>109        | 1156<br>109        | 1157<br>109        | 1158<br>109        | 1159<br>109        | 1160<br>109        | 1161<br>109        | 1162<br>109        | 1164<br>109        | 1165<br>110        |
| 427.8 | 1166<br>110        | 1167<br>110        | 1168<br>110        | 1169<br>110        | 1170<br>110        | 1171<br>110        | 1172<br>110        | 1173<br>110        | 1175<br>110        | 1176<br>110        |
| 427.9 | 1177<br>110        | 1178<br>110        | 1179<br>110        | 1180<br>110        | 1181<br>110        | 1182<br>111        | 1183<br>111        | 1185<br>111        | 1186<br>111        | 1187<br>111        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 428.0 | 1188<br>111        | 1189<br>111        | 1190<br>111        | 1191<br>111        | 1192<br>111        | 1193<br>111        | 1194<br>111        | 1196<br>111        | 1197<br>111        | 1198<br>111        |
| 428.1 | 1199<br>112        | 1200<br>112        | 1201<br>112        | 1202<br>112        | 1203<br>112        | 1205<br>112        | 1206<br>112        | 1207<br>112        | 1208<br>112        | 1209<br>112        |
| 428.2 | 1210<br>112        | 1211<br>112        | 1212<br>112        | 1214<br>112        | 1215<br>112        | 1216<br>113        | 1217<br>113        | 1218<br>113        | 1219<br>113        | 1220<br>113        |
| 428.3 | 1221<br>113        | 1223<br>113        | 1224<br>113        | 1225<br>113        | 1226<br>113        | 1227<br>113        | 1228<br>113        | 1229<br>113        | 1230<br>113        | 1232<br>113        |
| 428.4 | 1233<br>113        | 1234<br>114        | 1235<br>114        | 1236<br>114        | 1237<br>114        | 1238<br>114        | 1240<br>114        | 1241<br>114        | 1242<br>114        | 1243<br>114        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 428.5 | 1244<br>114        | 1245<br>114        | 1246<br>114        | 1248<br>114        | 1249<br>114        | 1250<br>114        | 1251<br>115        | 1252<br>115        | 1253<br>115        | 1254<br>115        |
| 428.6 | 1256<br>115        | 1257<br>115        | 1258<br>115        | 1259<br>115        | 1260<br>115        | 1261<br>115        | 1262<br>115        | 1264<br>115        | 1265<br>115        | 1266<br>115        |
| 428.7 | 1267<br>115        | 1268<br>116        | 1269<br>116        | 1271<br>116        | 1272<br>116        | 1273<br>116        | 1274<br>116        | 1275<br>116        | 1276<br>116        | 1277<br>116        |
| 428.8 | 1279<br>116        | 1280<br>116        | 1281<br>116        | 1282<br>116        | 1283<br>116        | 1284<br>116        | 1286<br>117        | 1287<br>117        | 1288<br>117        | 1289<br>117        |
| 428.9 | 1290<br>117        | 1291<br>117        | 1293<br>117        | 1294<br>117        | 1295<br>117        | 1296<br>117        | 1297<br>117        | 1298<br>117        | 1300<br>117        | 1301<br>117        |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 429.0 | 1302<br>117        | 1303<br>118        | 1304<br>118        | 1306<br>118        | 1307<br>118        | 1308<br>118        | 1309<br>118        | 1310<br>118        | 1311<br>118        | 1313<br>118        |
| 429.1 | 1314<br>118        | 1315<br>118        | 1316<br>118        | 1317<br>118        | 1319<br>118        | 1320<br>118        | 1321<br>119        | 1322<br>119        | 1323<br>119        | 1324<br>119        |
| 429.2 | 1326<br>119        | 1327<br>119        | 1328<br>119        | 1329<br>119        | 1330<br>119        | 1332<br>119        | 1333<br>119        | 1334<br>119        | 1335<br>119        | 1336<br>119        |
| 429.3 | 1338<br>119        | 1339<br>120        | 1340<br>120        | 1341<br>120        | 1342<br>120        | 1344<br>120        | 1345<br>120        | 1346<br>120        | 1347<br>120        | 1348<br>120        |
| 429.4 | 1350<br>120        | 1351<br>120        | 1352<br>120        | 1353<br>120        | 1354<br>120        | 1356<br>120        | 1357<br>121        | 1358<br>121        | 1359<br>121        | 1360<br>121        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 429.5 | 1362<br>121        | 1363<br>121        | 1364<br>121        | 1365<br>121        | 1366<br>121        | 1368<br>121        | 1369<br>121        | 1370<br>121        | 1371<br>121        | 1372<br>121        |
| 429.6 | 1374<br>122        | 1375<br>122        | 1376<br>122        | 1377<br>122        | 1379<br>122        | 1380<br>122        | 1381<br>122        | 1382<br>122        | 1383<br>122        | 1385<br>122        |
| 429.7 | 1386<br>122        | 1387<br>122        | 1388<br>122        | 1390<br>122        | 1391<br>122        | 1392<br>123        | 1393<br>123        | 1394<br>123        | 1396<br>123        | 1397<br>123        |
| 429.8 | 1398<br>123        | 1399<br>123        | 1401<br>123        | 1402<br>123        | 1403<br>123        | 1404<br>123        | 1406<br>123        | 1407<br>123        | 1408<br>123        | 1409<br>123        |
| 429.9 | 1410<br>124        | 1412<br>124        | 1413<br>124        | 1414<br>124        | 1415<br>124        | 1417<br>124        | 1418<br>124        | 1419<br>124        | 1420<br>124        | 1422<br>124        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 430.0 | 1423<br>124        | 1424<br>124        | 1425<br>124        | 1427<br>124        | 1428<br>125        | 1429<br>125        | 1430<br>125        | 1432<br>125        | 1433<br>125        | 1434<br>125        |
| 430.1 | 1435<br>125        | 1437<br>125        | 1438<br>125        | 1439<br>125        | 1440<br>125        | 1442<br>125        | 1443<br>125        | 1444<br>125        | 1445<br>125        | 1447<br>126        |
| 430.2 | 1448<br>126        | 1449<br>126        | 1450<br>126        | 1452<br>126        | 1453<br>126        | 1454<br>126        | 1455<br>126        | 1457<br>126        | 1458<br>126        | 1459<br>126        |
| 430.3 | 1460<br>126        | 1462<br>126        | 1463<br>126        | 1464<br>127        | 1465<br>127        | 1467<br>127        | 1468<br>127        | 1469<br>127        | 1471<br>127        | 1472<br>127        |
| 430.4 | 1473<br>127        | 1474<br>127        | 1476<br>127        | 1477<br>127        | 1478<br>127        | 1479<br>127        | 1481<br>127        | 1482<br>128        | 1483<br>128        | 1485<br>128        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 430.5 | 1486<br>128        | 1487<br>128        | 1488<br>128        | 1490<br>128        | 1491<br>128        | 1492<br>128        | 1493<br>128        | 1495<br>128        | 1496<br>128        | 1497<br>128        |
| 430.6 | 1499<br>128        | 1500<br>128        | 1501<br>129        | 1502<br>129        | 1504<br>129        | 1505<br>129        | 1506<br>129        | 1508<br>129        | 1509<br>129        | 1510<br>129        |
| 430.7 | 1512<br>129        | 1513<br>129        | 1514<br>129        | 1515<br>129        | 1517<br>129        | 1518<br>129        | 1519<br>130        | 1521<br>130        | 1522<br>130        | 1523<br>130        |
| 430.8 | 1524<br>130        | 1526<br>130        | 1527<br>130        | 1528<br>130        | 1530<br>130        | 1531<br>130        | 1532<br>130        | 1534<br>130        | 1535<br>130        | 1536<br>130        |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 430.9 | 1537<br>131        | 1539<br>131        | 1540<br>131        | 1541<br>131        | 1543<br>131        | 1544<br>131        | 1545<br>131        | 1547<br>131        | 1548<br>131        | 1549<br>131        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 431.0 | 1551<br>131        | 1552<br>131        | 1553<br>131        | 1554<br>131        | 1556<br>132        | 1557<br>132        | 1558<br>132        | 1560<br>132        | 1561<br>132        | 1562<br>132        |
| 431.1 | 1564<br>132        | 1565<br>132        | 1566<br>132        | 1568<br>132        | 1569<br>132        | 1570<br>132        | 1572<br>132        | 1573<br>132        | 1574<br>132        | 1576<br>133        |
| 431.2 | 1577<br>133        | 1578<br>133        | 1580<br>133        | 1581<br>133        | 1582<br>133        | 1584<br>133        | 1585<br>133        | 1586<br>133        | 1588<br>133        | 1589<br>133        |
| 431.3 | 1590<br>133        | 1592<br>133        | 1593<br>133        | 1594<br>134        | 1596<br>134        | 1597<br>134        | 1598<br>134        | 1600<br>134        | 1601<br>134        | 1602<br>134        |
| 431.4 | 1604<br>134        | 1605<br>134        | 1606<br>134        | 1608<br>134        | 1609<br>134        | 1610<br>134        | 1612<br>134        | 1613<br>135        | 1614<br>135        | 1616<br>135        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 431.5 | 1617<br>135        | 1618<br>135        | 1620<br>135        | 1621<br>135        | 1622<br>135        | 1624<br>135        | 1625<br>135        | 1627<br>135        | 1628<br>135        | 1629<br>135        |
| 431.6 | 1631<br>135        | 1632<br>136        | 1633<br>136        | 1635<br>136        | 1636<br>136        | 1637<br>136        | 1639<br>136        | 1640<br>136        | 1641<br>136        | 1643<br>136        |
| 431.7 | 1644<br>136        | 1646<br>136        | 1647<br>136        | 1648<br>136        | 1650<br>137        | 1651<br>137        | 1652<br>137        | 1654<br>137        | 1655<br>137        | 1656<br>137        |
| 431.8 | 1658<br>137        | 1659<br>137        | 1661<br>137        | 1662<br>137        | 1663<br>137        | 1665<br>137        | 1666<br>137        | 1667<br>137        | 1669<br>138        | 1670<br>138        |
| 431.9 | 1672<br>138        | 1673<br>138        | 1674<br>138        | 1676<br>138        | 1677<br>138        | 1678<br>138        | 1680<br>138        | 1681<br>138        | 1683<br>138        | 1684<br>138        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 432.0 | 1685<br>138        | 1687<br>138        | 1688<br>139        | 1689<br>139        | 1691<br>139        | 1692<br>139        | 1694<br>139        | 1695<br>139        | 1696<br>139        | 1698<br>139        |
| 432.1 | 1699<br>139        | 1701<br>139        | 1702<br>139        | 1703<br>139        | 1705<br>139        | 1706<br>139        | 1708<br>140        | 1709<br>140        | 1710<br>140        | 1712<br>140        |
| 432.2 | 1713<br>140        | 1715<br>140        | 1716<br>140        | 1717<br>140        | 1719<br>140        | 1720<br>140        | 1722<br>140        | 1723<br>140        | 1724<br>140        | 1726<br>140        |
| 432.3 | 1727<br>141        | 1729<br>141        | 1730<br>141        | 1731<br>141        | 1733<br>141        | 1734<br>141        | 1736<br>141        | 1737<br>141        | 1738<br>141        | 1740<br>141        |
| 432.4 | 1741<br>141        | 1743<br>141        | 1744<br>141        | 1746<br>142        | 1747<br>142        | 1748<br>142        | 1750<br>142        | 1751<br>142        | 1753<br>142        | 1754<br>142        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 432.5 | 1755<br>142        | 1757<br>142        | 1758<br>142        | 1760<br>142        | 1761<br>142        | 1763<br>142        | 1764<br>142        | 1765<br>143        | 1767<br>143        | 1768<br>143        |
| 432.6 | 1770<br>143        | 1771<br>143        | 1773<br>143        | 1774<br>143        | 1775<br>143        | 1777<br>143        | 1778<br>143        | 1780<br>143        | 1781<br>143        | 1783<br>143        |
| 432.7 | 1784<br>144        | 1785<br>144        | 1787<br>144        | 1788<br>144        | 1790<br>144        | 1791<br>144        | 1793<br>144        | 1794<br>144        | 1795<br>144        | 1797<br>144        |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 432.8 | 1798<br>144        | 1800<br>144        | 1801<br>144        | 1803<br>144        | 1804<br>145        | 1806<br>145        | 1807<br>145        | 1809<br>145        | 1810<br>145        | 1811<br>145        |
| 432.9 | 1813<br>145        | 1814<br>145        | 1816<br>145        | 1817<br>145        | 1819<br>145        | 1820<br>145        | 1822<br>145        | 1823<br>146        | 1824<br>146        | 1826<br>146        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 433.0 | 1827<br>146        | 1829<br>146        | 1830<br>146        | 1832<br>146        | 1833<br>146        | 1835<br>146        | 1836<br>146        | 1838<br>146        | 1839<br>146        | 1841<br>146        |
| 433.1 | 1842<br>146        | 1843<br>147        | 1845<br>147        | 1846<br>147        | 1848<br>147        | 1849<br>147        | 1851<br>147        | 1832<br>147        | 1854<br>147        | 1855<br>147        |
| 433.2 | 1857<br>147        | 1858<br>147        | 1860<br>147        | 1861<br>147        | 1863<br>148        | 1864<br>148        | 1866<br>148        | 1867<br>148        | 1868<br>148        | 1870<br>148        |
| 433.3 | 1871<br>148        | 1873<br>148        | 1874<br>148        | 1876<br>148        | 1877<br>148        | 1879<br>148        | 1880<br>148        | 1882<br>149        | 1883<br>149        | 1885<br>149        |
| 433.4 | 1886<br>149        | 1888<br>149        | 1889<br>149        | 1891<br>149        | 1892<br>149        | 1894<br>149        | 1895<br>149        | 1897<br>149        | 1898<br>149        | 1900<br>149        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 433.5 | 1901<br>149        | 1903<br>150        | 1904<br>150        | 1906<br>150        | 1907<br>150        | 1909<br>150        | 1910<br>150        | 1912<br>150        | 1913<br>150        | 1915<br>150        |
| 433.6 | 1916<br>150        | 1918<br>150        | 1919<br>150        | 1921<br>150        | 1922<br>151        | 1924<br>151        | 1925<br>151        | 1927<br>151        | 1928<br>151        | 1930<br>151        |
| 433.7 | 1931<br>151        | 1933<br>151        | 1934<br>151        | 1936<br>151        | 1937<br>151        | 1939<br>151        | 1940<br>151        | 1942<br>152        | 1943<br>152        | 1945<br>152        |
| 433.8 | 1946<br>152        | 1948<br>152        | 1949<br>152        | 1951<br>152        | 1952<br>152        | 1954<br>152        | 1956<br>152        | 1957<br>152        | 1959<br>152        | 1960<br>152        |
| 433.9 | 1962<br>153        | 1963<br>153        | 1965<br>153        | 1966<br>153        | 1968<br>153        | 1969<br>153        | 1971<br>153        | 1972<br>153        | 1974<br>153        | 1975<br>153        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 434.0 | 1977<br>153        | 1978<br>153        | 1980<br>153        | 1981<br>154        | 1983<br>154        | 1985<br>154        | 1986<br>154        | 1988<br>154        | 1989<br>154        | 1991<br>154        |
| 434.1 | 1992<br>154        | 1994<br>154        | 1995<br>154        | 1997<br>154        | 1998<br>154        | 2000<br>154        | 2002<br>155        | 2003<br>155        | 2005<br>155        | 2006<br>155        |
| 434.2 | 2008<br>155        | 2009<br>155        | 2011<br>155        | 2012<br>155        | 2014<br>155        | 2015<br>155        | 2017<br>155        | 2019<br>155        | 2020<br>155        | 2022<br>156        |
| 434.3 | 2023<br>156        | 2025<br>156        | 2026<br>156        | 2028<br>156        | 2029<br>156        | 2031<br>156        | 2033<br>156        | 2034<br>156        | 2036<br>156        | 2037<br>156        |
| 434.4 | 2039<br>156        | 2040<br>156        | 2042<br>157        | 2044<br>157        | 2045<br>157        | 2047<br>157        | 2048<br>157        | 2050<br>157        | 2051<br>157        | 2053<br>157        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 434.5 | 2055<br>157        | 2056<br>157        | 2058<br>157        | 2059<br>157        | 2061<br>157        | 2062<br>158        | 2064<br>158        | 2066<br>158        | 2067<br>158        | 2069<br>158        |
| 434.6 | 2070<br>158        | 2072<br>158        | 2073<br>158        | 2075<br>158        | 2077<br>158        | 2078<br>158        | 2080<br>158        | 2081<br>158        | 2083<br>159        | 2085<br>159        |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 434.7 | 2086<br>159        | 2088<br>159        | 2089<br>159        | 2091<br>159        | 2092<br>159        | 2094<br>159        | 2096<br>159        | 2097<br>159        | 2099<br>159        | 2100<br>159        |
| 434.8 | 2102<br>159        | 2104<br>160        | 2105<br>160        | 2107<br>160        | 2108<br>160        | 2110<br>160        | 2112<br>160        | 2113<br>160        | 2115<br>160        | 2116<br>160        |
| 434.9 | 2118<br>160        | 2120<br>160        | 2121<br>160        | 2123<br>160        | 2124<br>161        | 2126<br>161        | 2128<br>161        | 2129<br>161        | 2131<br>161        | 2132<br>161        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 435.0 | 2134<br>161        | 2136<br>161        | 2137<br>161        | 2139<br>161        | 2140<br>161        | 2142<br>161        | 2144<br>162        | 2145<br>162        | 2147<br>162        | 2149<br>162        |
| 435.1 | 2150<br>162        | 2152<br>162        | 2153<br>162        | 2155<br>162        | 2157<br>162        | 2158<br>162        | 2160<br>162        | 2162<br>162        | 2163<br>162        | 2165<br>163        |
| 435.2 | 2166<br>163        | 2168<br>163        | 2170<br>163        | 2171<br>163        | 2173<br>163        | 2175<br>163        | 2176<br>163        | 2178<br>163        | 2179<br>163        | 2181<br>163        |
| 435.3 | 2183<br>163        | 2184<br>163        | 2186<br>164        | 2188<br>164        | 2189<br>164        | 2191<br>164        | 2193<br>164        | 2194<br>164        | 2196<br>164        | 2197<br>164        |
| 435.4 | 2199<br>164        | 2201<br>164        | 2202<br>164        | 2204<br>164        | 2206<br>165        | 2207<br>165        | 2209<br>165        | 2211<br>165        | 2212<br>165        | 2214<br>165        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 435.5 | 2216<br>165        | 2217<br>165        | 2219<br>165        | 2220<br>165        | 2222<br>165        | 2224<br>165        | 2225<br>165        | 2227<br>166        | 2229<br>166        | 2230<br>166        |
| 435.6 | 2232<br>166        | 2234<br>166        | 2235<br>166        | 2237<br>166        | 2239<br>166        | 2240<br>166        | 2242<br>166        | 2244<br>166        | 2245<br>166        | 2247<br>167        |
| 435.7 | 2249<br>167        | 2250<br>167        | 2252<br>167        | 2254<br>167        | 2255<br>167        | 2257<br>167        | 2259<br>167        | 2260<br>167        | 2262<br>167        | 2264<br>167        |
| 435.8 | 2265<br>167        | 2267<br>167        | 2269<br>168        | 2270<br>168        | 2272<br>168        | 2274<br>168        | 2275<br>168        | 2277<br>168        | 2279<br>168        | 2281<br>168        |
| 435.9 | 2282<br>168        | 2284<br>168        | 2286<br>168        | 2287<br>168        | 2289<br>169        | 2291<br>169        | 2292<br>169        | 2294<br>169        | 2296<br>169        | 2297<br>169        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 436.0 | 2299<br>169        | 2301<br>169        | 2302<br>169        | 2304<br>169        | 2306<br>169        | 2308<br>169        | 2309<br>169        | 2311<br>170        | 2313<br>170        | 2314<br>170        |
| 436.1 | 2316<br>170        | 2318<br>170        | 2319<br>170        | 2321<br>170        | 2323<br>170        | 2325<br>170        | 2326<br>170        | 2328<br>170        | 2330<br>170        | 2331<br>171        |
| 436.2 | 2333<br>171        | 2335<br>171        | 2336<br>171        | 2338<br>171        | 2340<br>171        | 2342<br>171        | 2343<br>171        | 2345<br>171        | 2347<br>171        | 2348<br>171        |
| 436.3 | 2350<br>171        | 2352<br>172        | 2354<br>172        | 2355<br>172        | 2357<br>172        | 2359<br>172        | 2360<br>172        | 2362<br>172        | 2364<br>172        | 2366<br>172        |
| 436.4 | 2367<br>172        | 2369<br>172        | 2371<br>172        | 2372<br>172        | 2374<br>173        | 2376<br>173        | 2378<br>173        | 2379<br>173        | 2381<br>173        | 2383<br>173        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 436.5 | 2385<br>173        | 2386<br>173        | 2388<br>173        | 2390<br>173        | 2391<br>173        | 2393<br>173        | 2395<br>174        | 2397<br>174        | 2398<br>174        | 2400<br>174        |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 436.6 | 2402<br>174        | 2404<br>174        | 2405<br>174        | 2407<br>174        | 2409<br>174        | 2411<br>174        | 2412<br>174        | 2414<br>174        | 2416<br>175        | 2418<br>175        |
| 436.7 | 2419<br>175        | 2421<br>175        | 2423<br>175        | 2425<br>175        | 2426<br>175        | 2428<br>175        | 2430<br>175        | 2432<br>175        | 2433<br>175        | 2435<br>175        |
| 436.8 | 2437<br>176        | 2439<br>176        | 2440<br>176        | 2442<br>176        | 2444<br>176        | 2446<br>176        | 2447<br>176        | 2449<br>176        | 2451<br>176        | 2453<br>176        |
| 436.9 | 2454<br>176        | 2456<br>176        | 2458<br>177        | 2460<br>177        | 2462<br>177        | 2463<br>177        | 2465<br>177        | 2467<br>177        | 2469<br>177        | 2470<br>177        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 437.0 | 2472<br>177        | 2474<br>177        | 2476<br>177        | 2477<br>177        | 2479<br>178        | 2481<br>178        | 2483<br>178        | 2485<br>178        | 2486<br>178        | 2488<br>178        |
| 437.1 | 2490<br>178        | 2492<br>178        | 2493<br>178        | 2495<br>178        | 2497<br>178        | 2499<br>178        | 2501<br>179        | 2502<br>179        | 2504<br>179        | 2506<br>179        |
| 437.2 | 2508<br>179        | 2510<br>179        | 2511<br>179        | 2513<br>179        | 2515<br>179        | 2517<br>179        | 2518<br>179        | 2520<br>179        | 2522<br>180        | 2524<br>180        |
| 437.3 | 2526<br>180        | 2527<br>180        | 2529<br>180        | 2531<br>180        | 2533<br>180        | 2535<br>180        | 2536<br>180        | 2538<br>180        | 2540<br>180        | 2542<br>180        |
| 437.4 | 2544<br>181        | 2545<br>181        | 2547<br>181        | 2549<br>181        | 2551<br>181        | 2553<br>181        | 2555<br>181        | 2556<br>181        | 2558<br>181        | 2560<br>181        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 437.5 | 2562<br>181        | 2564<br>181        | 2565<br>182        | 2567<br>182        | 2569<br>182        | 2571<br>182        | 2573<br>182        | 2574<br>182        | 2576<br>182        | 2578<br>182        |
| 437.6 | 2580<br>182        | 2582<br>182        | 2584<br>182        | 2585<br>182        | 2587<br>183        | 2589<br>183        | 2591<br>183        | 2593<br>183        | 2595<br>183        | 2596<br>183        |
| 437.7 | 2598<br>183        | 2600<br>183        | 2602<br>183        | 2604<br>183        | 2606<br>183        | 2607<br>183        | 2609<br>184        | 2611<br>184        | 2613<br>184        | 2615<br>184        |
| 437.8 | 2617<br>184        | 2618<br>184        | 2620<br>184        | 2622<br>184        | 2624<br>184        | 2626<br>184        | 2628<br>184        | 2629<br>184        | 2631<br>185        | 2633<br>185        |
| 437.9 | 2635<br>185        | 2637<br>185        | 2639<br>185        | 2641<br>185        | 2642<br>185        | 2644<br>185        | 2646<br>185        | 2648<br>185        | 2650<br>185        | 2652<br>185        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 438.0 | 2654<br>186        | 2655<br>186        | 2657<br>186        | 2659<br>186        | 2661<br>186        | 2663<br>186        | 2665<br>186        | 2666<br>186        | 2668<br>186        | 2670<br>186        |
| 438.1 | 2672<br>186        | 2674<br>186        | 2676<br>187        | 2678<br>187        | 2680<br>187        | 2681<br>187        | 2683<br>187        | 2685<br>187        | 2687<br>187        | 2689<br>187        |
| 438.2 | 2691<br>187        | 2693<br>187        | 2695<br>187        | 2696<br>188        | 2698<br>188        | 2700<br>188        | 2702<br>188        | 2704<br>188        | 2706<br>188        | 2708<br>188        |
| 438.3 | 2710<br>188        | 2711<br>188        | 2713<br>188        | 2715<br>188        | 2717<br>188        | 2719<br>189        | 2721<br>189        | 2723<br>189        | 2725<br>189        | 2727<br>189        |
| 438.4 | 2728<br>189        | 2730<br>189        | 2732<br>189        | 2734<br>189        | 2736<br>189        | 2738<br>189        | 2740<br>189        | 2742<br>190        | 2744<br>190        | 2745<br>190        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 438.5 | 2747<br>190        | 2749<br>190        | 2751<br>190        | 2753<br>190        | 2755<br>190        | 2757<br>190        | 2759<br>190        | 2761<br>190        | 2763<br>191        | 2764<br>191        |
| 438.6 | 2766<br>191        | 2768<br>191        | 2770<br>191        | 2772<br>191        | 2774<br>191        | 2776<br>191        | 2778<br>191        | 2780<br>191        | 2782<br>191        | 2784<br>191        |
| 438.7 | 2785<br>192        | 2787<br>192        | 2789<br>192        | 2791<br>192        | 2793<br>192        | 2795<br>192        | 2797<br>192        | 2799<br>192        | 2801<br>192        | 2803<br>192        |
| 438.8 | 2805<br>192        | 2807<br>193        | 2809<br>193        | 2810<br>193        | 2812<br>193        | 2814<br>193        | 2816<br>193        | 2818<br>193        | 2820<br>193        | 2822<br>193        |
| 438.9 | 2824<br>193        | 2826<br>193        | 2828<br>193        | 2830<br>194        | 2832<br>194        | 2834<br>194        | 2836<br>194        | 2838<br>194        | 2839<br>194        | 2841<br>194        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 439.0 | 2843<br>194        | 2845<br>194        | 2847<br>194        | 2849<br>194        | 2851<br>195        | 2853<br>195        | 2855<br>195        | 2857<br>195        | 2859<br>195        | 2861<br>195        |
| 439.1 | 2863<br>195        | 2865<br>195        | 2867<br>195        | 2869<br>195        | 2871<br>195        | 2873<br>195        | 2875<br>196        | 2876<br>196        | 2878<br>196        | 2880<br>196        |
| 439.2 | 2882<br>196        | 2884<br>196        | 2886<br>196        | 2888<br>196        | 2890<br>196        | 2892<br>196        | 2894<br>196        | 2896<br>197        | 2898<br>197        | 2900<br>197        |
| 439.3 | 2902<br>197        | 2904<br>197        | 2906<br>197        | 2908<br>197        | 2910<br>197        | 2912<br>197        | 2914<br>197        | 2916<br>197        | 2918<br>197        | 2920<br>198        |
| 439.4 | 2922<br>198        | 2924<br>198        | 2926<br>198        | 2928<br>198        | 2930<br>198        | 2932<br>198        | 2934<br>198        | 2936<br>198        | 2938<br>198        | 2940<br>198        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 439.5 | 2942<br>199        | 2943<br>199        | 2945<br>199        | 2947<br>199        | 2949<br>199        | 2951<br>199        | 2953<br>199        | 2955<br>199        | 2957<br>199        | 2959<br>199        |
| 439.6 | 2961<br>199        | 2963<br>200        | 2965<br>200        | 2967<br>200        | 2969<br>200        | 2971<br>200        | 2973<br>200        | 2975<br>200        | 2977<br>200        | 2979<br>200        |
| 439.7 | 2981<br>200        | 2983<br>200        | 2985<br>200        | 2987<br>201        | 2989<br>201        | 2991<br>201        | 2993<br>201        | 2995<br>201        | 2997<br>201        | 2999<br>201        |
| 439.8 | 3001<br>201        | 3003<br>201        | 3005<br>201        | 3007<br>201        | 3010<br>202        | 3012<br>202        | 3014<br>202        | 3016<br>202        | 3018<br>202        | 3020<br>202        |
| 439.9 | 3022<br>202        | 3024<br>202        | 3026<br>202        | 3028<br>202        | 3030<br>202        | 3032<br>203        | 3034<br>203        | 3036<br>203        | 3038<br>203        | 3040<br>203        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 440.0 | 3042<br>203        | 3044<br>203        | 3046<br>203        | 3048<br>203        | 3050<br>203        | 3052<br>203        | 3054<br>204        | 3056<br>204        | 3058<br>204        | 3060<br>204        |
| 440.1 | 3062<br>204        | 3064<br>204        | 3066<br>204        | 3068<br>204        | 3070<br>204        | 3072<br>204        | 3074<br>204        | 3077<br>204        | 3079<br>205        | 3081<br>205        |
| 440.2 | 3083<br>205        | 3085<br>205        | 3087<br>205        | 3089<br>205        | 3091<br>205        | 3093<br>205        | 3095<br>205        | 3097<br>205        | 3099<br>205        | 3101<br>206        |
| 440.3 | 3103<br>206        | 3105<br>206        | 3107<br>206        | 3109<br>206        | 3111<br>206        | 3113<br>206        | 3116<br>206        | 3118<br>206        | 3120<br>206        | 3122<br>206        |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 440.4 | 3124<br>207        | 3126<br>207        | 3128<br>207        | 3130<br>207        | 3132<br>207        | 3134<br>207        | 3136<br>207        | 3138<br>207        | 3140<br>207        | 3142<br>207        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 440.5 | 3145<br>207        | 3147<br>208        | 3149<br>208        | 3151<br>208        | 3153<br>208        | 3155<br>208        | 3157<br>208        | 3159<br>208        | 3161<br>208        | 3163<br>208        |
| 440.6 | 3165<br>208        | 3167<br>208        | 3169<br>209        | 3172<br>209        | 3174<br>209        | 3176<br>209        | 3178<br>209        | 3180<br>209        | 3182<br>209        | 3184<br>209        |
| 440.7 | 3186<br>209        | 3188<br>209        | 3190<br>209        | 3192<br>210        | 3195<br>210        | 3197<br>210        | 3199<br>210        | 3201<br>210        | 3203<br>210        | 3205<br>210        |
| 440.8 | 3207<br>210        | 3209<br>210        | 3211<br>210        | 3213<br>210        | 3216<br>211        | 3218<br>211        | 3220<br>211        | 3222<br>211        | 3224<br>211        | 3226<br>211        |
| 440.9 | 3228<br>211        | 3230<br>211        | 3232<br>211        | 3235<br>211        | 3237<br>211        | 3239<br>212        | 3241<br>212        | 3243<br>212        | 3245<br>212        | 3247<br>212        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 441.0 | 3249<br>212        | 3251<br>212        | 3254<br>212        | 3256<br>212        | 3258<br>212        | 3260<br>212        | 3262<br>213        | 3264<br>213        | 3266<br>213        | 3268<br>213        |
| 441.1 | 3271<br>213        | 3273<br>213        | 3275<br>213        | 3277<br>213        | 3279<br>213        | 3281<br>213        | 3283<br>213        | 3286<br>214        | 3288<br>214        | 3290<br>214        |
| 441.2 | 3292<br>214        | 3294<br>214        | 3296<br>214        | 3298<br>214        | 3301<br>214        | 3303<br>214        | 3305<br>214        | 3307<br>214        | 3309<br>215        | 3311<br>215        |
| 441.3 | 3313<br>215        | 3316<br>215        | 3318<br>215        | 3320<br>215        | 3322<br>215        | 3324<br>215        | 3326<br>215        | 3328<br>215        | 3331<br>216        | 3333<br>216        |
| 441.4 | 3335<br>216        | 3337<br>216        | 3339<br>216        | 3341<br>216        | 3344<br>216        | 3346<br>216        | 3348<br>216        | 3350<br>216        | 3352<br>216        | 3354<br>217        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 441.5 | 3357<br>217        | 3359<br>217        | 3361<br>217        | 3363<br>217        | 3365<br>217        | 3367<br>217        | 3370<br>217        | 3372<br>217        | 3374<br>217        | 3376<br>217        |
| 441.6 | 3378<br>218        | 3380<br>218        | 3383<br>218        | 3385<br>218        | 3387<br>218        | 3389<br>218        | 3391<br>218        | 3393<br>218        | 3396<br>218        | 3398<br>218        |
| 441.7 | 3400<br>218        | 3402<br>219        | 3404<br>219        | 3407<br>219        | 3409<br>219        | 3411<br>219        | 3413<br>219        | 3415<br>219        | 3418<br>219        | 3420<br>219        |
| 441.8 | 3422<br>219        | 3424<br>219        | 3426<br>220        | 3428<br>220        | 3431<br>220        | 3433<br>220        | 3435<br>220        | 3437<br>220        | 3439<br>220        | 3442<br>220        |
| 441.9 | 3444<br>220        | 3446<br>220        | 3448<br>221        | 3451<br>221        | 3453<br>221        | 3455<br>221        | 3457<br>221        | 3459<br>221        | 3462<br>221        | 3464<br>221        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 442.0 | 3466<br>221        | 3468<br>221        | 3470<br>221        | 3473<br>222        | 3475<br>222        | 3477<br>222        | 3479<br>222        | 3481<br>222        | 3484<br>222        | 3486<br>222        |
| 442.1 | 3488<br>222        | 3490<br>222        | 3493<br>222        | 3495<br>222        | 3497<br>223        | 3499<br>223        | 3502<br>223        | 3504<br>223        | 3506<br>223        | 3508<br>223        |
| 442.2 | 3510<br>223        | 3513<br>223        | 3515<br>223        | 3517<br>223        | 3519<br>224        | 3522<br>224        | 3524<br>224        | 3526<br>224        | 3528<br>224        | 3531<br>224        |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 442.3 | 3533<br>224        | 3535<br>224        | 3537<br>224        | 3539<br>224        | 3542<br>224        | 3544<br>225        | 3546<br>225        | 3548<br>225        | 3551<br>225        | 3553<br>225        |
| 442.4 | 3555<br>225        | 3557<br>225        | 3560<br>225        | 3562<br>225        | 3564<br>225        | 3567<br>226        | 3569<br>226        | 3571<br>226        | 3573<br>226        | 3576<br>226        |
| 442.5 | 3578<br>226        | 3580<br>226        | 3582<br>226        | 3585<br>226        | 3587<br>226        | 3589<br>226        | 3591<br>227        | 3594<br>227        | 3596<br>227        | 3598<br>227        |
| 442.6 | 3600<br>227        | 3603<br>227        | 3605<br>227        | 3607<br>227        | 3610<br>227        | 3612<br>227        | 3614<br>227        | 3616<br>228        | 3619<br>228        | 3621<br>228        |
| 442.7 | 3623<br>228        | 3625<br>228        | 3628<br>228        | 3630<br>228        | 3632<br>228        | 3635<br>228        | 3637<br>228        | 3639<br>229        | 3641<br>229        | 3644<br>229        |
| 442.8 | 3646<br>229        | 3648<br>229        | 3651<br>229        | 3653<br>229        | 3655<br>229        | 3657<br>229        | 3660<br>229        | 3662<br>230        | 3664<br>230        | 3667<br>230        |
| 442.9 | 3669<br>230        | 3671<br>230        | 3674<br>230        | 3676<br>230        | 3678<br>230        | 3680<br>230        | 3683<br>230        | 3685<br>230        | 3687<br>231        | 3690<br>231        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 443.0 | 3692<br>231        | 3694<br>231        | 3697<br>231        | 3699<br>231        | 3701<br>231        | 3703<br>231        | 3706<br>231        | 3708<br>231        | 3710<br>232        | 3713<br>232        |
| 443.1 | 3715<br>232        | 3717<br>232        | 3720<br>232        | 3722<br>232        | 3724<br>232        | 3727<br>232        | 3729<br>232        | 3731<br>232        | 3734<br>232        | 3736<br>233        |
| 443.2 | 3738<br>233        | 3741<br>233        | 3743<br>233        | 3745<br>233        | 3748<br>233        | 3750<br>233        | 3752<br>233        | 3755<br>233        | 3757<br>233        | 3759<br>234        |
| 443.3 | 3762<br>234        | 3764<br>234        | 3766<br>234        | 3769<br>234        | 3771<br>234        | 3773<br>234        | 3776<br>234        | 3778<br>234        | 3780<br>234        | 3783<br>235        |
| 443.4 | 3785<br>235        | 3787<br>235        | 3790<br>235        | 3792<br>235        | 3794<br>235        | 3797<br>235        | 3799<br>235        | 3801<br>235        | 3804<br>235        | 3806<br>235        |
| 443.5 | 3809<br>236        | 3811<br>236        | 3813<br>236        | 3816<br>236        | 3818<br>236        | 3820<br>236        | 3823<br>236        | 3825<br>236        | 3827<br>236        | 3830<br>236        |
| 443.6 | 3832<br>237        | 3835<br>237        | 3837<br>237        | 3839<br>237        | 3842<br>237        | 3844<br>237        | 3846<br>237        | 3849<br>237        | 3851<br>237        | 3853<br>237        |
| 443.7 | 3856<br>238        | 3858<br>238        | 3861<br>238        | 3863<br>238        | 3865<br>238        | 3868<br>238        | 3870<br>238        | 3872<br>238        | 3875<br>238        | 3877<br>238        |
| 443.8 | 3880<br>238        | 3882<br>239        | 3884<br>239        | 3887<br>239        | 3889<br>239        | 3892<br>239        | 3894<br>239        | 3896<br>239        | 3899<br>239        | 3901<br>239        |
| 443.9 | 3904<br>239        | 3906<br>240        | 3908<br>240        | 3911<br>240        | 3913<br>240        | 3916<br>240        | 3918<br>240        | 3920<br>240        | 3923<br>240        | 3925<br>240        |
| 444.0 | 3928<br>240        | 3930<br>241        | 3932<br>241        | 3935<br>241        | 3937<br>241        | 3940<br>241        | 3942<br>241        | 3944<br>241        | 3947<br>241        | 3949<br>241        |
| 444.1 | 3952<br>241        | 3954<br>242        | 3956<br>242        | 3959<br>242        | 3961<br>242        | 3964<br>242        | 3966<br>242        | 3969<br>242        | 3971<br>242        | 3973<br>242        |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 444.2 | 3976<br>242        | 3978<br>243        | 3981<br>243        | 3983<br>243        | 3986<br>243        | 3988<br>243        | 3990<br>243        | 3993<br>243        | 3995<br>243        | 3998<br>243        |
| 444.3 | 4000<br>243        | 4003<br>244        | 4005<br>244        | 4007<br>244        | 4010<br>244        | 4012<br>244        | 4015<br>244        | 4017<br>244        | 4020<br>244        | 4022<br>244        |
| 444.4 | 4025<br>244        | 4027<br>244        | 4029<br>245        | 4032<br>245        | 4034<br>245        | 4037<br>245        | 4039<br>245        | 4042<br>245        | 4044<br>245        | 4047<br>245        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 444.5 | 4049<br>245        | 4051<br>245        | 4054<br>246        | 4056<br>246        | 4059<br>246        | 4061<br>246        | 4064<br>246        | 4066<br>246        | 4069<br>246        | 4071<br>246        |
| 444.6 | 4074<br>246        | 4076<br>246        | 4079<br>247        | 4081<br>247        | 4083<br>247        | 4086<br>247        | 4088<br>247        | 4091<br>247        | 4093<br>247        | 4096<br>247        |
| 444.7 | 4098<br>247        | 4101<br>247        | 4103<br>248        | 4106<br>248        | 4108<br>248        | 4111<br>248        | 4113<br>248        | 4116<br>248        | 4118<br>248        | 4121<br>248        |
| 444.8 | 4123<br>248        | 4126<br>248        | 4128<br>249        | 4131<br>249        | 4133<br>249        | 4135<br>249        | 4138<br>249        | 4140<br>249        | 4143<br>249        | 4145<br>249        |
| 444.9 | 4148<br>249        | 4150<br>249        | 4153<br>250        | 4155<br>250        | 4158<br>250        | 4160<br>250        | 4163<br>250        | 4165<br>250        | 4168<br>250        | 4170<br>250        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 445.0 | 4173<br>250        | 4175<br>250        | 4178<br>251        | 4180<br>251        | 4183<br>251        | 4185<br>251        | 4188<br>251        | 4190<br>251        | 4193<br>251        | 4196<br>251        |
| 445.1 | 4198<br>251        | 4201<br>251        | 4203<br>252        | 4206<br>252        | 4208<br>252        | 4211<br>252        | 4213<br>252        | 4216<br>252        | 4218<br>252        | 4221<br>252        |
| 445.2 | 4223<br>252        | 4226<br>252        | 4228<br>253        | 4231<br>253        | 4233<br>253        | 4236<br>253        | 4238<br>253        | 4241<br>253        | 4243<br>253        | 4246<br>253        |
| 445.3 | 4248<br>253        | 4251<br>254        | 4254<br>254        | 4256<br>254        | 4259<br>254        | 4261<br>254        | 4264<br>254        | 4266<br>254        | 4269<br>254        | 4271<br>254        |
| 445.4 | 4274<br>254        | 4276<br>255        | 4279<br>255        | 4282<br>255        | 4284<br>255        | 4287<br>255        | 4289<br>255        | 4292<br>255        | 4294<br>255        | 4297<br>255        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 445.5 | 4299<br>255        | 4302<br>256        | 4304<br>256        | 4307<br>256        | 4310<br>256        | 4312<br>256        | 4315<br>256        | 4317<br>256        | 4320<br>256        | 4322<br>256        |
| 445.6 | 4325<br>256        | 4328<br>257        | 4330<br>257        | 4333<br>257        | 4335<br>257        | 4338<br>257        | 4340<br>257        | 4343<br>257        | 4346<br>257        | 4348<br>257        |
| 445.7 | 4351<br>257        | 4353<br>258        | 4356<br>258        | 4358<br>258        | 4361<br>258        | 4364<br>258        | 4366<br>258        | 4369<br>258        | 4371<br>258        | 4374<br>258        |
| 445.8 | 4376<br>258        | 4379<br>259        | 4382<br>259        | 4384<br>259        | 4387<br>259        | 4389<br>259        | 4392<br>259        | 4395<br>259        | 4397<br>259        | 4400<br>259        |
| 445.9 | 4402<br>260        | 4405<br>260        | 4408<br>260        | 4410<br>260        | 4413<br>260        | 4415<br>260        | 4418<br>260        | 4421<br>260        | 4423<br>260        | 4426<br>260        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 446.0 | 4428<br>261        | 4431<br>261        | 4434<br>261        | 4436<br>261        | 4439<br>261        | 4441<br>261        | 4444<br>261        | 4447<br>261        | 4449<br>261        | 4452<br>261        |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 446.1 | 4454<br>262        | 4457<br>262        | 4460<br>262        | 4462<br>262        | 4465<br>262        | 4468<br>262        | 4470<br>262        | 4473<br>262        | 4475<br>262        | 4478<br>262        |
| 446.2 | 4481<br>263        | 4483<br>263        | 4486<br>263        | 4489<br>263        | 4491<br>263        | 4494<br>263        | 4496<br>263        | 4499<br>263        | 4502<br>263        | 4504<br>264        |
| 446.3 | 4507<br>264        | 4510<br>264        | 4512<br>264        | 4515<br>264        | 4518<br>264        | 4520<br>264        | 4523<br>264        | 4525<br>264        | 4528<br>264        | 4531<br>265        |
| 446.4 | 4353<br>265        | 4536<br>265        | 4539<br>265        | 4541<br>265        | 4544<br>265        | 4547<br>265        | 4549<br>265        | 4552<br>265        | 4555<br>266        | 4557<br>266        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 446.5 | 4560<br>266        | 4563<br>266        | 4565<br>266        | 4568<br>266        | 4571<br>266        | 4573<br>266        | 4576<br>266        | 4579<br>266        | 4581<br>267        | 4584<br>267        |
| 446.6 | 4587<br>267        | 4589<br>267        | 4592<br>267        | 4595<br>267        | 4597<br>267        | 4600<br>267        | 4603<br>267        | 4605<br>267        | 4608<br>268        | 4611<br>268        |
| 446.7 | 4613<br>268        | 4616<br>268        | 4619<br>268        | 4621<br>268        | 4624<br>268        | 4627<br>268        | 4629<br>268        | 4632<br>269        | 4635<br>269        | 4637<br>269        |
| 446.8 | 4640<br>269        | 4643<br>269        | 4645<br>269        | 4648<br>269        | 4651<br>269        | 4654<br>269        | 4656<br>269        | 4659<br>270        | 4662<br>270        | 4664<br>270        |
| 446.9 | 4667<br>270        | 4670<br>270        | 4672<br>270        | 4675<br>270        | 4678<br>270        | 4681<br>270        | 4683<br>271        | 4686<br>271        | 4689<br>271        | 4691<br>271        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 447.0 | 4694<br>271        | 4697<br>271        | 4699<br>271        | 4702<br>271        | 4705<br>271        | 4708<br>271        | 4710<br>272        | 4713<br>272        | 4716<br>272        | 4719<br>272        |
| 447.1 | 4721<br>272        | 4724<br>272        | 4727<br>272        | 4729<br>272        | 4732<br>272        | 4735<br>273        | 4738<br>273        | 4740<br>273        | 4743<br>273        | 4746<br>273        |
| 447.2 | 4749<br>273        | 4751<br>273        | 4754<br>273        | 4757<br>273        | 4759<br>273        | 4762<br>274        | 4765<br>274        | 4768<br>274        | 4770<br>274        | 4773<br>274        |
| 447.3 | 4776<br>274        | 4779<br>274        | 4781<br>274        | 4784<br>274        | 4787<br>275        | 4790<br>275        | 4792<br>275        | 4795<br>275        | 4798<br>275        | 4801<br>275        |
| 447.4 | 4803<br>275        | 4806<br>275        | 4809<br>275        | 4812<br>275        | 4814<br>276        | 4817<br>276        | 4820<br>276        | 4823<br>276        | 4825<br>276        | 4828<br>276        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 447.5 | 4831<br>276        | 4834<br>276        | 4836<br>276        | 4839<br>277        | 4842<br>277        | 4845<br>277        | 4847<br>277        | 4850<br>277        | 4853<br>277        | 4856<br>277        |
| 447.6 | 4859<br>277        | 4861<br>277        | 4864<br>277        | 4867<br>278        | 4870<br>278        | 4872<br>278        | 4875<br>278        | 4878<br>278        | 4881<br>278        | 4884<br>278        |
| 447.7 | 4886<br>278        | 4889<br>278        | 4892<br>279        | 4895<br>279        | 4898<br>279        | 4900<br>279        | 4903<br>279        | 4906<br>279        | 4909<br>279        | 4911<br>279        |
| 447.8 | 4914<br>279        | 4917<br>280        | 4920<br>280        | 4923<br>280        | 4925<br>280        | 4928<br>280        | 4931<br>280        | 4934<br>280        | 4937<br>280        | 4939<br>280        |
| 447.9 | 4942<br>280        | 4945<br>281        | 4948<br>281        | 4951<br>281        | 4953<br>281        | 4956<br>281        | 4959<br>281        | 4962<br>281        | 4965<br>281        | 4968<br>281        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 448.0 | 4970<br>282        | 4973<br>282        | 4976<br>282        | 4979<br>282        | 4982<br>282        | 4984<br>282        | 4987<br>282        | 4990<br>282        | 4993<br>282        | 4996<br>283        |
| 448.1 | 4999<br>283        | 5001<br>283        | 5004<br>283        | 5007<br>283        | 5010<br>283        | 5013<br>283        | 5016<br>283        | 5018<br>283        | 5021<br>283        | 5024<br>284        |
| 448.2 | 5027<br>284        | 5030<br>284        | 5033<br>284        | 5035<br>284        | 5038<br>284        | 5041<br>284        | 5044<br>284        | 5047<br>284        | 5050<br>285        | 5052<br>285        |
| 448.3 | 5055<br>285        | 5058<br>285        | 5061<br>285        | 5064<br>285        | 5067<br>285        | 5070<br>285        | 5072<br>285        | 5075<br>286        | 5078<br>286        | 5081<br>286        |
| 448.4 | 5084<br>286        | 5087<br>286        | 5090<br>286        | 5092<br>286        | 5095<br>286        | 5098<br>286        | 5101<br>287        | 5104<br>287        | 5107<br>287        | 5110<br>287        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 448.5 | 5112<br>287        | 5115<br>287        | 5118<br>287        | 5121<br>287        | 5124<br>287        | 5127<br>287        | 5130<br>288        | 5133<br>288        | 5135<br>288        | 5138<br>288        |
| 448.6 | 5141<br>288        | 5144<br>288        | 5147<br>288        | 5150<br>288        | 5153<br>288        | 5136<br>289        | 5158<br>289        | 5161<br>289        | 5164<br>289        | 5167<br>289        |
| 448.7 | 5170<br>289        | 5173<br>289        | 5176<br>289        | 5179<br>289        | 5182<br>290        | 5185<br>290        | 5187<br>290        | 5190<br>290        | 5193<br>290        | 5196<br>290        |
| 448.8 | 5199<br>290        | 5202<br>290        | 5205<br>290        | 5208<br>291        | 5211<br>291        | 5214<br>291        | 5216<br>291        | 5219<br>291        | 5222<br>291        | 5225<br>291        |
| 448.9 | 5228<br>291        | 5231<br>291        | 5234<br>292        | 5237<br>292        | 5240<br>292        | 5243<br>292        | 5246<br>292        | 5249<br>292        | 5251<br>292        | 5254<br>292        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 449.0 | 5257<br>292        | 5260<br>292        | 5263<br>293        | 5266<br>293        | 5269<br>293        | 5272<br>293        | 5275<br>293        | 5278<br>293        | 5281<br>293        | 5284<br>293        |
| 449.1 | 5287<br>293        | 5289<br>294        | 5292<br>294        | 5295<br>294        | 5298<br>294        | 5301<br>294        | 5304<br>294        | 5307<br>294        | 5310<br>294        | 5313<br>294        |
| 449.2 | 5316<br>295        | 5319<br>295        | 5322<br>295        | 5325<br>295        | 5328<br>295        | 5331<br>295        | 5334<br>295        | 5337<br>295        | 5340<br>295        | 5342<br>296        |
| 449.3 | 5345<br>296        | 5348<br>296        | 5351<br>296        | 5354<br>296        | 5357<br>296        | 5360<br>296        | 5363<br>296        | 5366<br>296        | 5369<br>297        | 5372<br>297        |
| 449.4 | 5375<br>297        | 5378<br>297        | 5381<br>297        | 5384<br>297        | 5387<br>297        | 5390<br>297        | 5393<br>297        | 5396<br>298        | 5399<br>298        | 5402<br>298        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 449.5 | 5405<br>298        | 5408<br>298        | 5411<br>298        | 5414<br>298        | 5417<br>298        | 5420<br>298        | 5423<br>299        | 5426<br>299        | 5429<br>299        | 5432<br>299        |
| 449.6 | 5435<br>299        | 5438<br>299        | 5441<br>299        | 5444<br>299        | 5447<br>299        | 5450<br>300        | 5453<br>300        | 5456<br>300        | 5459<br>300        | 5462<br>300        |
| 449.7 | 5465<br>300        | 5468<br>300        | 5471<br>300        | 5474<br>300        | 5477<br>301        | 5480<br>301        | 5483<br>301        | 5486<br>301        | 5489<br>301        | 5492<br>301        |
| 449.8 | 5495<br>301        | 5498<br>301        | 5501<br>301        | 5504<br>302        | 5507<br>302        | 5510<br>302        | 5513<br>302        | 5516<br>302        | 5519<br>302        | 5522<br>302        |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 449.9 | 5525<br>302        | 5528<br>302        | 5531<br>303        | 5534<br>303        | 5537<br>303        | 5540<br>303        | 5543<br>303        | 5546<br>303        | 5549<br>303        | 5552<br>303        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 450.0 | 5555<br>303        | 5558<br>304        | 5561<br>304        | 5564<br>304        | 5567<br>304        | 5570<br>304        | 5573<br>304        | 5576<br>304        | 5579<br>304        | 5582<br>304        |
| 450.1 | 5586<br>305        | 5589<br>305        | 5592<br>305        | 5595<br>305        | 5598<br>305        | 5601<br>305        | 5604<br>305        | 5607<br>305        | 5610<br>305        | 5613<br>306        |
| 450.2 | 5616<br>306        | 5619<br>306        | 5622<br>306        | 5625<br>306        | 5628<br>306        | 5631<br>306        | 5634<br>306        | 5637<br>306        | 5641<br>307        | 5644<br>307        |
| 450.3 | 5647<br>307        | 5650<br>307        | 5653<br>307        | 5656<br>307        | 5659<br>307        | 5662<br>307        | 5665<br>307        | 5668<br>308        | 5671<br>308        | 5674<br>308        |
| 450.4 | 5677<br>308        | 5681<br>308        | 5684<br>308        | 5687<br>308        | 5690<br>308        | 5693<br>308        | 5696<br>309        | 5699<br>309        | 5702<br>309        | 5705<br>309        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 450.5 | 5708<br>309        | 5711<br>309        | 5714<br>309        | 5718<br>309        | 5721<br>310        | 5724<br>310        | 5727<br>310        | 5730<br>310        | 5733<br>310        | 5736<br>310        |
| 450.6 | 5739<br>310        | 5742<br>310        | 5745<br>310        | 5749<br>311        | 5752<br>311        | 5755<br>311        | 5758<br>311        | 5761<br>311        | 5764<br>311        | 5767<br>311        |
| 450.7 | 5770<br>311        | 5773<br>311        | 5777<br>312        | 5780<br>312        | 5783<br>312        | 5786<br>312        | 5789<br>312        | 5792<br>312        | 5795<br>312        | 5798<br>312        |
| 450.8 | 5801<br>312        | 5805<br>313        | 5808<br>313        | 5811<br>313        | 5814<br>313        | 5817<br>313        | 5820<br>313        | 5823<br>313        | 5827<br>313        | 5830<br>313        |
| 450.9 | 5833<br>314        | 5836<br>314        | 5839<br>314        | 5842<br>314        | 5845<br>314        | 5849<br>314        | 5852<br>314        | 5855<br>314        | 5858<br>315        | 5861<br>315        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 451.0 | 5864<br>315        | 5867<br>315        | 5870<br>315        | 5874<br>315        | 5877<br>315        | 5880<br>315        | 5883<br>315        | 5886<br>316        | 5889<br>316        | 5893<br>316        |
| 451.1 | 5896<br>316        | 5899<br>316        | 5902<br>316        | 5905<br>316        | 5908<br>316        | 5912<br>316        | 5915<br>317        | 5918<br>317        | 5921<br>317        | 5924<br>317        |
| 451.2 | 5927<br>317        | 5931<br>317        | 5934<br>.317       | 5937<br>317        | 5940<br>317        | 5943<br>318        | 5946<br>318        | 5950<br>318        | 5953<br>318        | 5956<br>318        |
| 451.3 | 5959<br>318        | 5962<br>318        | 5966<br>318        | 5969<br>319        | 5972<br>319        | 5975<br>319        | 5978<br>319        | 5981<br>319        | 5985<br>319        | 5988<br>319        |
| 451.4 | 5991<br>319        | 5994<br>319        | 5997<br>320        | 6001<br>320        | 6004<br>320        | 6007<br>320        | 6010<br>320        | 6013<br>320        | 6017<br>320        | 6020<br>320        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 451.5 | 6023<br>320        | 6026<br>321        | 6029<br>321        | 6033<br>321        | 6036<br>321        | 6039<br>321        | 6042<br>321        | 6045<br>321        | 6049<br>321        | 6052<br>322        |
| 451.6 | 6055<br>322        | 6058<br>322        | 6062<br>322        | 6065<br>322        | 6068<br>322        | 6071<br>322        | 6074<br>322        | 6078<br>322        | 6081<br>323        | 6084<br>323        |
| 451.7 | 6087<br>323        | 6091<br>323        | 6094<br>323        | 6097<br>323        | 6100<br>323        | 6104<br>323        | 6107<br>323        | 6110<br>324        | 6113<br>324        | 6116<br>324        |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 451.8 | 6120<br>324        | 6123<br>324        | 6126<br>324        | 6129<br>324        | 6133<br>324        | 6136<br>325        | 6139<br>325        | 6142<br>325        | 6146<br>325        | 6149<br>325        |
| 451.9 | 6152<br>325        | 6155<br>325        | 6159<br>325        | 6162<br>325        | 6165<br>326        | 6168<br>326        | 6172<br>326        | 6175<br>326        | 6178<br>326        | 6181<br>326        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 452.0 | 6185<br>326        | 6188<br>326        | 6191<br>326        | 6194<br>327        | 6198<br>327        | 6201<br>327        | 6204<br>327        | 6208<br>327        | 6211<br>327        | 6214<br>327        |
| 452.1 | 6217<br>327        | 6221<br>328        | 6224<br>328        | 6227<br>328        | 6230<br>328        | 6234<br>328        | 6237<br>328        | 6240<br>328        | 6244<br>328        | 6247<br>328        |
| 452.2 | 6250<br>329        | 6253<br>329        | 6257<br>329        | 6260<br>329        | 6263<br>329        | 6267<br>329        | 6270<br>329        | 6273<br>329        | 6276<br>330        | 6280<br>330        |
| 452.3 | 6283<br>330        | 6286<br>330        | 6290<br>330        | 6293<br>330        | 6296<br>330        | 6300<br>330        | 6303<br>330        | 6306<br>331        | 6310<br>331        | 6313<br>331        |
| 452.4 | 6316<br>331        | 6319<br>331        | 6323<br>331        | 6326<br>331        | 6329<br>331        | 6333<br>332        | 6336<br>332        | 6339<br>332        | 6343<br>332        | 6346<br>332        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 452.5 | 6349<br>332        | 6353<br>332        | 6356<br>332        | 6359<br>332        | 6363<br>333        | 6366<br>333        | 6369<br>333        | 6373<br>333        | 6376<br>333        | 6379<br>333        |
| 452.6 | 6383<br>333        | 6386<br>333        | 6389<br>333        | 6393<br>334        | 6396<br>334        | 6399<br>334        | 6403<br>334        | 6406<br>334        | 6409<br>334        | 6413<br>334        |
| 452.7 | 6416<br>334        | 6419<br>335        | 6423<br>335        | 6426<br>335        | 6429<br>335        | 6433<br>335        | 6436<br>335        | 6439<br>335        | 6443<br>335        | 6446<br>335        |
| 452.8 | 6449<br>336        | 6453<br>336        | 6456<br>336        | 6459<br>336        | 6463<br>336        | 6466<br>336        | 6470<br>336        | 6473<br>336        | 6476<br>337        | 6480<br>337        |
| 452.9 | 6483<br>337        | 6486<br>337        | 6490<br>337        | 6493<br>337        | 6497<br>337        | 6500<br>337        | 6503<br>338        | 6507<br>338        | 6510<br>338        | 6513<br>338        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 453.0 | 6517<br>338        | 6520<br>338        | 6524<br>338        | 6527<br>338        | 6530<br>338        | 6534<br>339        | 6537<br>339        | 6540<br>339        | 6544<br>339        | 6547<br>339        |
| 453.1 | 6551<br>339        | 6554<br>339        | 6557<br>339        | 6561<br>340        | 6564<br>340        | 6568<br>340        | 6571<br>340        | 6574<br>340        | 6578<br>340        | 6581<br>340        |
| 453.2 | 6585<br>340        | 6588<br>340        | 6591<br>341        | 6595<br>341        | 6598<br>341        | 6602<br>341        | 6605<br>341        | 6608<br>341        | 6612<br>341        | 6615<br>341        |
| 453.3 | 6619<br>342        | 6622<br>342        | 6626<br>342        | 6629<br>342        | 6632<br>342        | 6636<br>342        | 6639<br>342        | 6643<br>342        | 6646<br>342        | 6650<br>343        |
| 453.4 | 6653<br>343        | 6656<br>343        | 6660<br>343        | 6663<br>343        | 6667<br>343        | 6670<br>343        | 6674<br>343        | 6677<br>344        | 6680<br>344        | 6684<br>344        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 453.5 | 6687<br>344        | 6691<br>344        | 6694<br>344        | 6698<br>344        | 6701<br>344        | 6704<br>345        | 6708<br>345        | 6711<br>345        | 6715<br>345        | 6718<br>345        |
| 453.6 | 6722<br>345        | 6725<br>345        | 6729<br>345        | 6732<br>345        | 6736<br>346        | 6739<br>346        | 6742<br>346        | 6746<br>346        | 6749<br>346        | 6753<br>346        |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 453.7 | 6756<br>346        | 6760<br>346        | 6763<br>347        | 6767<br>347        | 6770<br>347        | 6774<br>347        | 6777<br>347        | 6781<br>347        | 6784<br>347        | 6787<br>347        |
| 453.8 | 6791<br>348        | 6794<br>348        | 6798<br>348        | 6801<br>348        | 6805<br>348        | 6808<br>348        | 6812<br>348        | 6815<br>348        | 6819<br>348        | 6822<br>349        |
| 453.9 | 6826<br>349        | 6829<br>349        | 6833<br>349        | 6836<br>349        | 6840<br>349        | 6843<br>349        | 6847<br>349        | 6850<br>350        | 6854<br>350        | 6857<br>350        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 454.0 | 6861<br>350        | 6864<br>350        | 6868<br>350        | 6871<br>350        | 6875<br>350        | 6878<br>351        | 6882<br>351        | 6885<br>351        | 6889<br>351        | 6892<br>351        |
| 454.1 | 6896<br>351        | 6899<br>351        | 6903<br>351        | 6906<br>352        | 6910<br>352        | 6913<br>352        | 6917<br>352        | 6920<br>352        | 6924<br>352        | 6927<br>352        |
| 454.2 | 6931<br>352        | 6935<br>352        | 6938<br>353        | 6942<br>353        | 6945<br>353        | 6949<br>353        | 6952<br>353        | 6956<br>353        | 6959<br>353        | 6963<br>353        |
| 454.3 | 6966<br>354        | 6970<br>354        | 6973<br>354        | 6977<br>354        | 6980<br>354        | 6984<br>354        | 6987<br>354        | 6991<br>354        | 6995<br>355        | 6998<br>355        |
| 454.4 | 7002<br>355        | 7005<br>355        | 7009<br>355        | 7012<br>355        | 7016<br>355        | 7019<br>355        | 7023<br>356        | 7027<br>356        | 7030<br>356        | 7034<br>356        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 454.5 | 7037<br>356        | 7041<br>356        | 7044<br>356        | 7048<br>356        | 7051<br>356        | 7055<br>357        | 7059<br>357        | 7062<br>357        | 7066<br>357        | 7069<br>357        |
| 454.6 | 7073<br>357        | 7076<br>357        | 7080<br>357        | 7084<br>358        | 7087<br>358        | 7091<br>358        | 7094<br>358        | 7098<br>358        | 7102<br>358        | 7105<br>358        |
| 454.7 | 7109<br>358        | 7112<br>359        | 7116<br>359        | 7119<br>359        | 7123<br>359        | 7127<br>359        | 7130<br>359        | 7134<br>359        | 7137<br>359        | 7141<br>360        |
| 454.8 | 7145<br>360        | 7148<br>360        | 7152<br>360        | 7155<br>360        | 7159<br>360        | 7163<br>360        | 7166<br>360        | 7170<br>361        | 7173<br>361        | 7177<br>361        |
| 454.9 | 7181<br>361        | 7184<br>361        | 7188<br>361        | 7191<br>361        | 7195<br>361        | 7199<br>361        | 7202<br>362        | 7206<br>362        | 7210<br>362        | 7213<br>362        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 455.0 | 7217<br>362        | 7220<br>362        | 7224<br>362        | 7228<br>362        | 7231<br>363        | 7235<br>363        | 7238<br>363        | 7242<br>363        | 7246<br>363        | 7249<br>363        |
| 455.1 | 7253<br>363        | 7257<br>363        | 7260<br>364        | 7264<br>364        | 7268<br>364        | 7271<br>364        | 7275<br>364        | 7278<br>364        | 7282<br>364        | 7286<br>364        |
| 455.2 | 7289<br>365        | 7293<br>365        | 7297<br>365        | 7300<br>365        | 7304<br>365        | 7308<br>365        | 7311<br>365        | 7315<br>365        | 7319<br>366        | 7322<br>366        |
| 455.3 | 7326<br>366        | 7330<br>366        | 7333<br>366        | 7337<br>366        | 7341<br>366        | 7344<br>366        | 7348<br>367        | 7352<br>367        | 7355<br>367        | 7359<br>367        |
| 455.4 | 7363<br>367        | 7366<br>367        | 7370<br>367        | 7374<br>367        | 7377<br>368        | 7381<br>368        | 7385<br>368        | 7388<br>368        | 7392<br>368        | 7396<br>368        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 455.5 | 7399<br>368        | 7403<br>368        | 7407<br>369        | 7410<br>369        | 7414<br>369        | 7418<br>369        | 7421<br>369        | 7425<br>369        | 7429<br>369        | 7433<br>369        |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 455.6 | 7436<br>369        | 7440<br>370        | 7444<br>370        | 7447<br>370        | 7451<br>370        | 7455<br>370        | 7458<br>370        | 7462<br>370        | 7466<br>370        | 7470<br>371        |
| 455.7 | 7473<br>371        | 7477<br>371        | 7481<br>371        | 7484<br>371        | 7488<br>371        | 7492<br>371        | 7495<br>371        | 7499<br>372        | 7503<br>372        | 7507<br>372        |
| 455.8 | 7510<br>372        | 7514<br>372        | 7518<br>372        | 7522<br>372        | 7525<br>372        | 7529<br>373        | 7533<br>373        | 7536<br>373        | 7540<br>373        | 7544<br>373        |
| 455.9 | 7548<br>373        | 7551<br>373        | 7555<br>373        | 7559<br>374        | 7563<br>374        | 7566<br>374        | 7570<br>374        | 7574<br>374        | 7578<br>374        | 7581<br>374        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 456.0 | 7585<br>374        | 7589<br>375        | 7592<br>375        | 7596<br>375        | 7600<br>375        | 7604<br>375        | 7607<br>375        | 7611<br>375        | 7615<br>375        | 7619<br>376        |
| 456.1 | 7623<br>376        | 7626<br>376        | 7630<br>376        | 7634<br>376        | 7638<br>376        | 7641<br>376        | 7645<br>376        | 7649<br>377        | 7653<br>377        | 7656<br>377        |
| 456.2 | 7660<br>377        | 7664<br>377        | 7668<br>377        | 7671<br>377        | 7675<br>377        | 7679<br>378        | 7683<br>378        | 7687<br>378        | 7690<br>378        | 7694<br>378        |
| 456.3 | 7698<br>378        | 7702<br>378        | 7705<br>378        | 7709<br>379        | 7713<br>379        | 7717<br>379        | 7721<br>379        | 7724<br>379        | 7728<br>379        | 7732<br>379        |
| 456.4 | 7736<br>379        | 7740<br>380        | 7743<br>380        | 7747<br>380        | 7751<br>380        | 7755<br>380        | 7759<br>380        | 7762<br>380        | 7766<br>380        | 7770<br>381        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 456.5 | 7774<br>381        | 7778<br>381        | 7781<br>381        | 7785<br>381        | 7789<br>381        | 7793<br>381        | 7797<br>381        | 7800<br>382        | 7804<br>382        | 7808<br>382        |
| 456.6 | 7812<br>382        | 7816<br>382        | 7820<br>382        | 7823<br>382        | 7827<br>383        | 7831<br>383        | 7835<br>393        | 7839<br>383        | 7843<br>383        | 7846<br>383        |
| 456.7 | 7850<br>383        | 7854<br>383        | 7858<br>384        | 7862<br>384        | 7866<br>384        | 7869<br>384        | 7873<br>384        | 7877<br>384        | 7881<br>384        | 7885<br>384        |
| 456.8 | 7889<br>385        | 7892<br>385        | 7896<br>385        | 7900<br>385        | 7904<br>385        | 7908<br>385        | 7912<br>385        | 7916<br>385        | 7919<br>386        | 7923<br>386        |
| 456.9 | 7927<br>386        | 7931<br>386        | 7935<br>386        | 7939<br>386        | 7943<br>386        | 7946<br>386        | 7950<br>387        | 7954<br>387        | 7958<br>387        | 7962<br>387        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 457.0 | 7966<br>387        | 7970<br>387        | 7973<br>387        | 7977<br>387        | 7981<br>388        | 7985<br>388        | 7989<br>388        | 7993<br>388        | 7997<br>388        | 8001<br>388        |
| 457.1 | 8005<br>388        | 8008<br>388        | 8012<br>389        | 8016<br>389        | 8020<br>389        | 8024<br>389        | 8028<br>389        | 8032<br>389        | 8036<br>389        | 8040<br>389        |
| 457.2 | 8043<br>390        | 8047<br>390        | 8051<br>390        | 8055<br>390        | 8059<br>390        | 8063<br>390        | 8067<br>390        | 8071<br>390        | 8075<br>391        | 8079<br>391        |
| 457.3 | 8082<br>391        | 8086<br>391        | 8090<br>391        | 8094<br>391        | 8098<br>391        | 8102<br>392        | 8106<br>392        | 8110<br>392        | 8114<br>392        | 8118<br>392        |
| 457.4 | 8122<br>392        | 8126<br>392        | 8129<br>392        | 8133<br>393        | 8137<br>393        | 8141<br>393        | 8145<br>393        | 8149<br>393        | 8153<br>393        | 8157<br>393        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 457.5 | 8161<br>393        | 8165<br>394        | 8169<br>394        | 8173<br>394        | 8177<br>394        | 8181<br>394        | 8184<br>394        | 8188<br>394        | 8192<br>394        | 8196<br>395        |
| 457.6 | 8200<br>395        | 8204<br>395        | 8208<br>395        | 8212<br>395        | 8216<br>395        | 8220<br>395        | 8224<br>395        | 8228<br>396        | 8232<br>396        | 8236<br>396        |
| 457.7 | 8240<br>396        | 8244<br>396        | 8248<br>396        | 8252<br>396        | 8256<br>397        | 8260<br>397        | 8264<br>397        | 8268<br>397        | 8271<br>397        | 8275<br>397        |
| 457.8 | 8279<br>397        | 8283<br>397        | 8287<br>398        | 8291<br>398        | 8295<br>398        | 8299<br>398        | 8303<br>398        | 8307<br>398        | 8311<br>398        | 8315<br>398        |
| 457.9 | 8319<br>399        | 8323<br>399        | 8327<br>399        | 8331<br>399        | 8335<br>399        | 8339<br>399        | 8343<br>399        | 8347<br>399        | 8351<br>400        | 8355<br>400        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 458.0 | 8359<br>400        | 8363<br>400        | 8367<br>400        | 8371<br>400        | 8375<br>400        | 8379<br>400        | 8383<br>401        | 8387<br>401        | 8391<br>401        | 8395<br>401        |
| 458.1 | 8399<br>401        | 8403<br>401        | 8407<br>401        | 8411<br>402        | 8415<br>402        | 8419<br>402        | 8423<br>402        | 8427<br>402        | 8431<br>402        | 8433<br>402        |
| 458.2 | 8439<br>402        | 8443<br>403        | 8448<br>403        | 8452<br>403        | 8456<br>403        | 8460<br>403        | 8464<br>403        | 8468<br>403        | 8472<br>403        | 8476<br>404        |
| 458.3 | 8480<br>404        | 8484<br>404        | 8488<br>404        | 8492<br>404        | 8496<br>404        | 8500<br>404        | 8504<br>405        | 8508<br>405        | 8512<br>405        | 8516<br>405        |
| 458.4 | 8520<br>405        | 8524<br>405        | 8528<br>405        | 8532<br>405        | 8536<br>406        | 8540<br>406        | 8545<br>406        | 8549<br>406        | 8553<br>406        | 8557<br>406        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 458.5 | 8561<br>406        | 8565<br>406        | 8569<br>407        | 8573<br>407        | 8577<br>407        | 8581<br>407        | 8585<br>407        | 8589<br>407        | 8593<br>407        | 8597<br>407        |
| 458.6 | 8601<br>408        | 8606<br>408        | 8610<br>408        | 8614<br>408        | 8618<br>408        | 8622<br>408        | 8626<br>408        | 8630<br>409        | 8634<br>409        | 8638<br>409        |
| 458.7 | 8642<br>409        | 8646<br>409        | 8650<br>409        | 8653<br>409        | 8659<br>409        | 8663<br>410        | 8667<br>410        | 8671<br>410        | 8675<br>410        | 8679<br>410        |
| 458.8 | 8683<br>410        | 8687<br>410        | 8691<br>410        | 8696<br>411        | 8700<br>411        | 8704<br>411        | 8708<br>411        | 8712<br>411        | 8716<br>411        | 8720<br>411        |
| 458.9 | 8724<br>412        | 8728<br>412        | 8733<br>412        | 8737<br>412        | 8741<br>412        | 8745<br>412        | 8749<br>412        | 8753<br>412        | 8757<br>413        | 8761<br>413        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 459.0 | 8766<br>413        | 8770<br>413        | 8774<br>413        | 8778<br>413        | 8782<br>413        | 8786<br>413        | 8790<br>414        | 8794<br>414        | 8799<br>414        | 8803<br>414        |
| 459.1 | 8807<br>414        | 8811<br>414        | 8815<br>414        | 8819<br>415        | 8823<br>415        | 8828<br>415        | 8832<br>415        | 8836<br>415        | 8840<br>415        | 8844<br>415        |
| 459.2 | 8848<br>415        | 8853<br>416        | 8857<br>416        | 8861<br>416        | 8865<br>416        | 8869<br>416        | 8873<br>416        | 8877<br>416        | 8882<br>417        | 8886<br>417        |
| 459.3 | 8890<br>417        | 8894<br>417        | 8898<br>417        | 8902<br>417        | 8907<br>417        | 8911<br>417        | 8915<br>418        | 8919<br>418        | 8923<br>418        | 8928<br>418        |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 459.4 | 8932<br>418        | 8936<br>418        | 8940<br>418        | 8944<br>418        | 8948<br>419        | 8953<br>419        | 8957<br>419        | 8961<br>419        | 8965<br>419        | 8969<br>419        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 459.5 | 8974<br>419        | 8978<br>420        | 8982<br>420        | 8986<br>420        | 8990<br>420        | 8995<br>420        | 8999<br>420        | 9003<br>420        | 9007<br>420        | 9011<br>421        |
| 459.6 | 9016<br>421        | 9020<br>421        | 9024<br>421        | 9028<br>421        | 9032<br>421        | 9037<br>421        | 9041<br>422        | 9045<br>422        | 9049<br>422        | 9054<br>422        |
| 459.7 | 9058<br>422        | 9062<br>422        | 9066<br>422        | 9070<br>422        | 9075<br>423        | 9079<br>423        | 9083<br>423        | 9087<br>423        | 9091<br>423        | 9096<br>423        |
| 459.8 | 9100<br>423        | 9104<br>424        | 9108<br>424        | 9113<br>424        | 9117<br>424        | 9121<br>424        | 9125<br>424        | 9130<br>424        | 9134<br>424        | 9138<br>425        |
| 459.9 | 9142<br>425        | 9147<br>425        | 9151<br>425        | 9155<br>425        | 9159<br>425        | 9164<br>425        | 9168<br>425        | 9172<br>426        | 9176<br>426        | 9181<br>426        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 460.0 | 9185<br>426        | 9189<br>426        | 9193<br>426        | 9198<br>426        | 9202<br>427        | 9206<br>427        | 9210<br>427        | 9215<br>427        | 9219<br>427        | 9223<br>427        |
| 460.1 | 9228<br>427        | 9232<br>427        | 9236<br>428        | 9240<br>428        | 9245<br>428        | 9249<br>428        | 9253<br>428        | 9258<br>428        | 9262<br>428        | 9266<br>429        |
| 460.2 | 9270<br>429        | 9275<br>429        | 9279<br>429        | 9283<br>429        | 9288<br>429        | 9292<br>429        | 9296<br>429        | 9300<br>430        | 9305<br>430        | 9309<br>430        |
| 460.3 | 9313<br>430        | 9318<br>430        | 9322<br>430        | 9326<br>430        | 9331<br>431        | 9335<br>431        | 9339<br>431        | 9343<br>431        | 9348<br>431        | 9352<br>431        |
| 460.4 | 9356<br>431        | 9361<br>431        | 9365<br>432        | 9369<br>432        | 9374<br>432        | 9378<br>432        | 9382<br>432        | 9387<br>432        | 9391<br>432        | 9395<br>433        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 460.5 | 9400<br>433        | 9404<br>433        | 9408<br>433        | 9413<br>433        | 9417<br>433        | 9421<br>433        | 9426<br>433        | 9430<br>434        | 9434<br>434        | 9439<br>434        |
| 460.6 | 9443<br>434        | 9447<br>434        | 9452<br>434        | 9456<br>434        | 9460<br>435        | 9465<br>435        | 9469<br>435        | 9473<br>435        | 9478<br>435        | 9482<br>435        |
| 460.7 | 9486<br>435        | 9491<br>435        | 9495<br>436        | 9500<br>436        | 9504<br>436        | 9508<br>436        | 9513<br>436        | 9517<br>436        | 9521<br>436        | 9526<br>437        |
| 460.8 | 9530<br>437        | 9534<br>437        | 9539<br>437        | 9543<br>437        | 9547<br>437        | 9552<br>437        | 9556<br>438        | 9561<br>438        | 9565<br>438        | 9569<br>438        |
| 460.9 | 9574<br>438        | 9578<br>438        | 9583<br>438        | 9587<br>438        | 9591<br>439        | 9596<br>439        | 9600<br>439        | 9604<br>439        | 9609<br>439        | 9613<br>439        |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 461.0 | 9618<br>439        | 9622<br>440        | 9626<br>440        | 9631<br>440        | 9635<br>440        | 9640<br>440        | 9644<br>440        | 9648<br>440        | 9653<br>440        | 9657<br>441        |
| 461.1 | 9662<br>441        | 9666<br>441        | 9670<br>441        | 9675<br>441        | 9679<br>441        | 9684<br>441        | 9668<br>442        | 9693<br>442        | 9697<br>442        | 9701<br>442        |
| 461.2 | 9706<br>442        | 9710<br>442        | 9715<br>442        | 9719<br>442        | 9724<br>443        | 9728<br>443        | 9732<br>443        | 9737<br>443        | 9741<br>443        | 9746<br>443        |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 461.3 | 9750<br>443        | 9754<br>444        | 9759<br>444        | 9763<br>444        | 9768<br>444        | 9772<br>444        | 9777<br>444        | 9781<br>444        | 9786<br>445        | 9790<br>445        |
| 461.4 | 9794<br>445        | 9799<br>445        | 9803<br>445        | 9808<br>445        | 9812<br>445        | 9817<br>445        | 9821<br>446        | 9826<br>446        | 9830<br>446        | 9835<br>446        |
| 461.5 | 9839<br>446        | 9843<br>446        | 9848<br>446        | 9852<br>447        | 9857<br>447        | 9861<br>447        | 9866<br>447        | 9870<br>447        | 9875<br>447        | 9879<br>447        |
| 461.6 | 9884<br>448        | 9888<br>448        | 9893<br>448        | 9897<br>448        | 9902<br>448        | 9906<br>448        | 9911<br>448        | 9915<br>448        | 9920<br>449        | 9924<br>449        |
| 461.7 | 9929<br>449        | 9933<br>449        | 9938<br>449        | 9942<br>449        | 9947<br>449        | 9951<br>450        | 9955<br>450        | 9960<br>450        | 9964<br>450        | 9969<br>450        |
| 461.8 | 9973<br>450        | 9978<br>450        | 9982<br>450        | 9987<br>451        | 9991<br>451        | 9996<br>451        | 10000<br>451       | 10005<br>451       | 10010<br>451       | 10014<br>451       |
| 461.9 | 10019<br>452       | 10023<br>452       | 10028<br>452       | 10032<br>452       | 10037<br>452       | 10041<br>452       | 10046<br>452       | 10050<br>453       | 10055<br>453       | 10059<br>453       |
| 462.0 | 10064<br>453       | 10068<br>453       | 10073<br>453       | 10077<br>453       | 10082<br>453       | 10086<br>454       | 10091<br>454       | 10095<br>454       | 10100<br>454       | 10105<br>454       |
| 462.1 | 10109<br>454       | 10114<br>454       | 10118<br>455       | 10123<br>455       | 10127<br>455       | 10132<br>455       | 10136<br>455       | 10141<br>455       | 10146<br>455       | 10150<br>456       |
| 462.2 | 10155<br>456       | 10159<br>456       | 10164<br>456       | 10168<br>456       | 10173<br>456       | 10178<br>456       | 10182<br>457       | 10187<br>457       | 10191<br>457       | 10196<br>457       |
| 462.3 | 10200<br>457       | 10205<br>457       | 10209<br>457       | 10214<br>457       | 10219<br>458       | 10223<br>458       | 10228<br>458       | 10232<br>458       | 10237<br>458       | 10241<br>458       |
| 462.4 | 10246<br>458       | 10251<br>459       | 10255<br>459       | 10260<br>459       | 10264<br>459       | 10269<br>459       | 10274<br>459       | 10278<br>459       | 10283<br>460       | 10287<br>460       |
| 462.5 | 10292<br>460       | 10297<br>460       | 10301<br>460       | 10306<br>460       | 10310<br>460       | 10315<br>460       | 10320<br>461       | 10324<br>461       | 10329<br>461       | 10333<br>461       |
| 462.6 | 10338<br>461       | 10343<br>461       | 10347<br>461       | 10352<br>462       | 10356<br>462       | 10361<br>462       | 10366<br>462       | 10370<br>462       | 10375<br>462       | 10380<br>462       |
| 462.7 | 10384<br>463       | 10389<br>463       | 10393<br>463       | 10398<br>463       | 10403<br>463       | 10407<br>463       | 10412<br>463       | 10417<br>464       | 10421<br>464       | 10426<br>464       |
| 462.8 | 10430<br>464       | 10435<br>464       | 10440<br>464       | 10444<br>464       | 10449<br>464       | 10454<br>465       | 10458<br>465       | 10463<br>465       | 10468<br>465       | 10472<br>465       |
| 462.9 | 10477<br>465       | 10482<br>465       | 10486<br>466       | 10491<br>466       | 10496<br>466       | 10500<br>466       | 10505<br>466       | 10510<br>466       | 10514<br>466       | 10519<br>467       |
| 463.0 | 10524<br>467       | 10528<br>467       | 10533<br>467       | 10538<br>467       | 10542<br>467       | 10547<br>467       | 10552<br>468       | 10556<br>468       | 10561<br>468       | 10566<br>468       |
| 463.1 | 10570<br>468       | 10575<br>468       | 10580<br>468       | 10584<br>468       | 10589<br>469       | 10594<br>469       | 10598<br>469       | 10603<br>469       | 10608<br>469       | 10613<br>469       |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 463.2 | 10617<br>469       | 10622<br>470       | 10627<br>470       | 10631<br>470       | 10636<br>470       | 10641<br>470       | 10645<br>470       | 10650<br>470       | 10655<br>471       | 10659<br>471       |
| 463.3 | 10664<br>471       | 10669<br>471       | 10674<br>471       | 10678<br>471       | 10683<br>471       | 10688<br>472       | 10692<br>472       | 10697<br>472       | 10702<br>472       | 10707<br>472       |
| 463.4 | 10711<br>472       | 10716<br>472       | 10721<br>473       | 10726<br>473       | 10730<br>473       | 10735<br>473       | 10740<br>473       | 10744<br>473       | 10749<br>473       | 10754<br>473       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 463.5 | 10759<br>474       | 10763<br>474       | 10768<br>474       | 10773<br>474       | 10778<br>474       | 10782<br>474       | 10787<br>474       | 10792<br>475       | 10797<br>475       | 10801<br>475       |
| 463.6 | 10606<br>475       | 10811<br>475       | 10816<br>475       | 10820<br>475       | 10825<br>476       | 10830<br>476       | 10835<br>476       | 10839<br>476       | 10844<br>476       | 10849<br>476       |
| 463.7 | 10854<br>476       | 10858<br>477       | 10863<br>477       | 10868<br>477       | 10873<br>477       | 10878<br>477       | 10882<br>477       | 10887<br>477       | 10892<br>478       | 10897<br>478       |
| 463.8 | 10901<br>478       | 10906<br>478       | 10911<br>478       | 10916<br>478       | 10920<br>478       | 10925<br>478       | 10930<br>479       | 10935<br>479       | 10940<br>479       | 10944<br>479       |
| 463.9 | 10949<br>479       | 10954<br>479       | 10959<br>479       | 10964<br>480       | 10968<br>480       | 10973<br>480       | 10978<br>480       | 10983<br>480       | 10988<br>480       | 10992<br>480       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 464.0 | 10997<br>481       | 11002<br>481       | 11007<br>481       | 11012<br>481       | 11016<br>481       | 11021<br>481       | 11026<br>481       | 11031<br>482       | 11036<br>482       | 11040<br>482       |
| 464.1 | 11045<br>482       | 11050<br>482       | 11055<br>482       | 11060<br>482       | 11065<br>483       | 11069<br>483       | 11074<br>483       | 11079<br>483       | 11084<br>483       | 11089<br>483       |
| 464.2 | 11094<br>483       | 11098<br>484       | 11103<br>484       | 11108<br>484       | 11113<br>484       | 11118<br>484       | 11123<br>484       | 11127<br>484       | 11132<br>485       | 11137<br>485       |
| 464.3 | 11142<br>485       | 11147<br>485       | 11152<br>485       | 11157<br>485       | 11161<br>485       | 11166<br>485       | 11171<br>486       | 11176<br>486       | 11181<br>486       | 11186<br>486       |
| 464.4 | 11191<br>486       | 11195<br>486       | 11200<br>486       | 11205<br>487       | 11210<br>487       | 11215<br>487       | 11220<br>487       | 11225<br>487       | 11230<br>487       | 11234<br>487       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 464.5 | 11239<br>488       | 11244<br>488       | 11249<br>488       | 11254<br>488       | 11259<br>488       | 11264<br>488       | 11268<br>488       | 11273<br>489       | 11278<br>489       | 11283<br>489       |
| 464.6 | 11288<br>489       | 11293<br>489       | 11298<br>489       | 11303<br>489       | 11308<br>490       | 11313<br>490       | 11317<br>490       | 11322<br>490       | 11327<br>490       | 11332<br>490       |
| 464.7 | 11337<br>490       | 11342<br>491       | 11347<br>491       | 11352<br>491       | 11357<br>491       | 11362<br>491       | 11366<br>491       | 11371<br>491       | 11376<br>492       | 11381<br>492       |
| 464.8 | 11386<br>492       | 11391<br>492       | 11396<br>492       | 11401<br>492       | 11406<br>492       | 11411<br>493       | 11416<br>493       | 11421<br>493       | 11426<br>493       | 11430<br>493       |
| 464.9 | 11435<br>493       | 11440<br>493       | 11445<br>494       | 11450<br>494       | 11455<br>494       | 11460<br>494       | 11465<br>494       | 11470<br>494       | 11475<br>494       | 11480<br>495       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 465.0 | 11485<br>495       | 11490<br>495       | 11495<br>495       | 11500<br>495       | 11505<br>495       | 11510<br>495       | 11514<br>496       | 11519<br>496       | 11524<br>496       | 11529<br>496       |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 465.1 | 11534<br>496       | 11539<br>496       | 11544<br>496       | 11549<br>496       | 11554<br>497       | 11559<br>497       | 11564<br>497       | 11569<br>497       | 11574<br>497       | 11579<br>497       |
| 465.2 | 11584<br>497       | 11589<br>498       | 11594<br>498       | 11599<br>498       | 11604<br>498       | 11609<br>498       | 11614<br>498       | 11619<br>498       | 11624<br>499       | 11629<br>499       |
| 465.3 | 11634<br>499       | 11639<br>499       | 11644<br>499       | 11649<br>499       | 11654<br>499       | 11659<br>500       | 11664<br>500       | 11669<br>500       | 11674<br>500       | 11679<br>500       |
| 465.4 | 11684<br>500       | 11689<br>500       | 11694<br>501       | 11699<br>501       | 11704<br>501       | 11709<br>501       | 11714<br>501       | 11719<br>501       | 11724<br>501       | 11729<br>502       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 465.5 | 11734<br>502       | 11739<br>502       | 11744<br>502       | 11749<br>502       | 11754<br>502       | 11759<br>502       | 11764<br>503       | 11769<br>503       | 11774<br>503       | 11779<br>503       |
| 465.6 | 11784<br>503       | 11789<br>503       | 11794<br>503       | 11799<br>504       | 11804<br>504       | 11809<br>504       | 11814<br>504       | 11819<br>504       | 11824<br>504       | 11830<br>504       |
| 465.7 | 11835<br>505       | 11840<br>505       | 11845<br>505       | 11850<br>505       | 11855<br>505       | 11860<br>505       | 11865<br>505       | 11870<br>506       | 11875<br>506       | 11880<br>506       |
| 465.8 | 11885<br>506       | 11890<br>506       | 11895<br>506       | 11900<br>506       | 11905<br>507       | 11910<br>507       | 11915<br>507       | 11921<br>507       | 11926<br>507       | 11931<br>507       |
| 465.9 | 11936<br>507       | 11941<br>508       | 11946<br>508       | 11951<br>508       | 11956<br>508       | 11961<br>508       | 11966<br>508       | 11971<br>508       | 11976<br>509       | 11982<br>509       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 466.0 | 11987<br>509       | 11992<br>509       | 11997<br>509       | 12002<br>509       | 12007<br>509       | 12012<br>510       | 12017<br>510       | 12022<br>510       | 12027<br>510       | 12032<br>510       |
| 466.1 | 12038<br>510       | 12043<br>510       | 12048<br>511       | 12053<br>511       | 12058<br>511       | 12063<br>511       | 12068<br>511       | 12073<br>511       | 12078<br>511       | 12084<br>512       |
| 466.2 | 12089<br>512       | 12094<br>512       | 12099<br>512       | 12104<br>512       | 12109<br>512       | 12114<br>512       | 12119<br>513       | 12124<br>513       | 12130<br>513       | 12135<br>513       |
| 466.3 | 12140<br>513       | 12145<br>513       | 12150<br>513       | 12155<br>514       | 12160<br>514       | 12166<br>514       | 12171<br>514       | 12176<br>514       | 12181<br>514       | 12186<br>514       |
| 466.4 | 12191<br>515       | 12196<br>515       | 12202<br>515       | 12207<br>515       | 12212<br>515       | 12217<br>515       | 12222<br>515       | 12227<br>516       | 12233<br>516       | 12238<br>516       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 466.5 | 12243<br>516       | 12248<br>516       | 12253<br>516       | 12258<br>516       | 12263<br>517       | 12269<br>517       | 12274<br>517       | 12279<br>517       | 12284<br>517       | 12289<br>517       |
| 466.6 | 12294<br>517       | 12300<br>518       | 12305<br>518       | 12310<br>518       | 12315<br>518       | 12320<br>518       | 12326<br>518       | 12331<br>518       | 12336<br>519       | 12341<br>519       |
| 466.7 | 12346<br>519       | 12352<br>519       | 12357<br>519       | 12362<br>519       | 12367<br>520       | 12372<br>520       | 12377<br>520       | 12383<br>520       | 12388<br>520       | 12393<br>520       |
| 466.8 | 12398<br>520       | 12403<br>521       | 12409<br>521       | 12414<br>521       | 12419<br>521       | 12424<br>521       | 12430<br>521       | 12435<br>521       | 12440<br>522       | 12445<br>522       |
| 466.9 | 12450<br>522       | 12456<br>522       | 12461<br>522       | 12466<br>522       | 12471<br>522       | 12477<br>523       | 12482<br>523       | 12487<br>523       | 12492<br>523       | 12497<br>523       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 467.0 | 12503<br>523       | 12508<br>523       | 12513<br>524       | 12518<br>524       | 12524<br>524       | 12529<br>524       | 12534<br>524       | 12539<br>524       | 12545<br>524       | 12550<br>525       |
| 467.1 | 12555<br>525       | 12560<br>525       | 12566<br>525       | 12571<br>525       | 12576<br>525       | 12581<br>525       | 12587<br>526       | 12592<br>526       | 12597<br>526       | 12602<br>526       |
| 467.2 | 12608<br>526       | 12613<br>526       | 12618<br>526       | 12623<br>527       | 12629<br>527       | 12634<br>527       | 12639<br>527       | 12644<br>527       | 12650<br>527       | 12655<br>527       |
| 467.3 | 12660<br>528       | 12665<br>528       | 12671<br>528       | 12676<br>528       | 12681<br>528       | 12687<br>528       | 12692<br>528       | 12697<br>529       | 12703<br>529       | 12708<br>529       |
| 467.4 | 12713<br>529       | 12718<br>529       | 12724<br>529       | 12729<br>529       | 12734<br>530       | 12740<br>530       | 12745<br>530       | 12750<br>530       | 12756<br>530       | 12761<br>530       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 467.5 | 12766<br>531       | 12771<br>531       | 12777<br>531       | 12782<br>531       | 12787<br>531       | 12793<br>531       | 12798<br>531       | 12803<br>532       | 12809<br>532       | 12814<br>532       |
| 467.6 | 12819<br>532       | 12824<br>532       | 12830<br>532       | 12835<br>532       | 12840<br>533       | 12846<br>533       | 12851<br>533       | 12856<br>533       | 12862<br>533       | 12867<br>533       |
| 467.7 | 12872<br>533       | 12878<br>534       | 12883<br>534       | 12889<br>534       | 12894<br>534       | 12899<br>534       | 12904<br>534       | 12910<br>534       | 12915<br>535       | 12920<br>535       |
| 467.8 | 12926<br>535       | 12931<br>535       | 12937<br>535       | 12942<br>535       | 12947<br>535       | 12953<br>536       | 12956<br>536       | 12963<br>536       | 12969<br>536       | 12974<br>536       |
| 467.9 | 12979<br>536       | 12985<br>536       | 12990<br>537       | 12996<br>537       | 13001<br>537       | 13006<br>537       | 13012<br>537       | 13017<br>537       | 13022<br>537       | 13028<br>538       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 468.0 | 13033<br>538       | 13038<br>538       | 13044<br>538       | 13049<br>538       | 13055<br>538       | 13060<br>539       | 13065<br>539       | 13071<br>539       | 13076<br>539       | 13082<br>539       |
| 468.1 | 13087<br>539       | 13092<br>539       | 13098<br>540       | 13103<br>540       | 13109<br>540       | 13114<br>540       | 13119<br>540       | 13125<br>540       | 13130<br>540       | 13136<br>541       |
| 468.2 | 13141<br>541       | 13146<br>541       | 13152<br>541       | 13157<br>541       | 13163<br>541       | 13168<br>541       | 13173<br>542       | 13179<br>542       | 13184<br>542       | 13190<br>542       |
| 468.3 | 13195<br>542       | 13201<br>542       | 13206<br>542       | 13211<br>543       | 13217<br>543       | 13222<br>543       | 13228<br>543       | 13233<br>543       | 13239<br>543       | 13244<br>543       |
| 468.4 | 13249<br>544       | 13255<br>544       | 13260<br>544       | 13266<br>544       | 13271<br>544       | 13277<br>544       | 13282<br>545       | 13288<br>545       | 13293<br>545       | 13298<br>545       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 468.5 | 13304<br>545       | 13309<br>545       | 13315<br>545       | 13320<br>546       | 13326<br>546       | 13331<br>546       | 13337<br>546       | 13342<br>546       | 13347<br>546       | 13353<br>546       |
| 468.6 | 13358<br>547       | 13364<br>547       | 13369<br>547       | 13375<br>547       | 13380<br>547       | 13386<br>547       | 13391<br>547       | 13397<br>548       | 13402<br>548       | 13408<br>548       |
| 468.7 | 13413<br>548       | 13419<br>548       | 13424<br>548       | 13430<br>548       | 13435<br>549       | 13441<br>549       | 13446<br>549       | 13452<br>549       | 13457<br>549       | 13462<br>549       |
| 468.8 | 13468<br>549       | 13473<br>550       | 13479<br>550       | 13485<br>550       | 13490<br>550       | 13496<br>550       | 13501<br>550       | 13507<br>551       | 13512<br>551       | 13518<br>551       |
| 468.9 | 13523<br>551       | 13529<br>551       | 13534<br>551       | 13540<br>551       | 13545<br>552       | 13551<br>552       | 13556<br>552       | 13562<br>552       | 13567<br>552       | 13573<br>552       |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 469.0 | 13578<br>552       | 13584<br>553       | 13589<br>553       | 13595<br>553       | 13600<br>553       | 13606<br>553       | 13611<br>553       | 13617<br>553       | 13622<br>554       | 13628<br>554       |
| 469.1 | 13634<br>554       | 13639<br>554       | 13645<br>554       | 13650<br>554       | 13656<br>554       | 13661<br>555       | 13667<br>555       | 13672<br>555       | 13678<br>555       | 13683<br>555       |
| 469.2 | 13689<br>555       | 13695<br>556       | 13700<br>556       | 13706<br>556       | 13711<br>556       | 13717<br>556       | 13722<br>556       | 13728<br>556       | 13733<br>557       | 13739<br>557       |
| 469.3 | 13745<br>557       | 13750<br>557       | 13756<br>557       | 13761<br>557       | 13767<br>557       | 13772<br>558       | 13778<br>558       | 13784<br>558       | 13789<br>558       | 13795<br>558       |
| 469.4 | 13800<br>558       | 13806<br>558       | 13812<br>559       | 13817<br>559       | 13823<br>559       | 13828<br>559       | 13834<br>559       | 13840<br>559       | 13845<br>560       | 13851<br>560       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 469.5 | 13856<br>560       | 13862<br>560       | 13867<br>560       | 13873<br>560       | 13879<br>560       | 13884<br>561       | 13890<br>561       | 13895<br>561       | 13901<br>561       | 13907<br>561       |
| 469.6 | 13912<br>561       | 13918<br>561       | 13924<br>562       | 13929<br>562       | 13935<br>562       | 13940<br>562       | 13946<br>562       | 13952<br>562       | 13957<br>562       | 13963<br>563       |
| 469.7 | 13969<br>563       | 13974<br>563       | 13980<br>563       | 13985<br>563       | 13991<br>563       | 13997<br>564       | 14002<br>564       | 14008<br>564       | 14014<br>564       | 14019<br>564       |
| 469.8 | 14025<br>564       | 14031<br>564       | 14036<br>565       | 14042<br>565       | 14047<br>565       | 14053<br>565       | 14059<br>565       | 14064<br>565       | 14070<br>565       | 14076<br>566       |
| 469.9 | 14081<br>566       | 14087<br>566       | 14093<br>566       | 14098<br>566       | 14104<br>566       | 14110<br>566       | 14115<br>567       | 14121<br>567       | 14127<br>567       | 14132<br>567       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 470.0 | 14138<br>567       | 14144<br>567       | 14149<br>568       | 14155<br>568       | 14161<br>568       | 14166<br>568       | 14172<br>568       | 14178<br>568       | 14183<br>568       | 14189<br>569       |
| 470.1 | 14195<br>569       | 14201<br>569       | 14206<br>569       | 14212<br>569       | 14218<br>569       | 14223<br>569       | 14229<br>570       | 14235<br>570       | 14240<br>570       | 14246<br>570       |
| 470.2 | 14252<br>570       | 14258<br>570       | 14263<br>570       | 14269<br>571       | 14275<br>571       | 14280<br>571       | 14286<br>571       | 14292<br>571       | 14297<br>571       | 14303<br>572       |
| 470.3 | 14309<br>572       | 14315<br>572       | 14320<br>572       | 14326<br>572       | 14332<br>572       | 14337<br>572       | 14343<br>573       | 14349<br>573       | 14355<br>573       | 14360<br>573       |
| 470.4 | 14366<br>573       | 14372<br>573       | 14378<br>573       | 14383<br>574       | 14389<br>574       | 14395<br>574       | 14401<br>574       | 14406<br>574       | 14412<br>574       | 14418<br>575       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 470.5 | 14424<br>575       | 14429<br>575       | 14435<br>575       | 14441<br>575       | 14446<br>575       | 14452<br>575       | 14458<br>576       | 14464<br>576       | 14470<br>576       | 14475<br>576       |
| 470.6 | 14481<br>576       | 14487<br>576       | 14493<br>576       | 14498<br>577       | 14504<br>577       | 14510<br>577       | 14516<br>577       | 14521<br>577       | 14527<br>577       | 14533<br>577       |
| 470.7 | 14539<br>578       | 14545<br>578       | 14550<br>578       | 14556<br>578       | 14562<br>578       | 14568<br>578       | 14573<br>579       | 14579<br>579       | 14585<br>579       | 14591<br>579       |
| 470.8 | 14597<br>579       | 14602<br>579       | 14608<br>579       | 14614<br>580       | 14620<br>580       | 14626<br>580       | 14631<br>580       | 14637<br>580       | 14643<br>580       | 14649<br>580       |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 470.9 | 14655<br>581       | 14660<br>581       | 14666<br>581       | 14672<br>581       | 14678<br>581       | 14684<br>581       | 14689<br>582       | 14695<br>582       | 14701<br>582       | 14707<br>582       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 471.0 | 14713<br>582       | 14718<br>582       | 14724<br>582       | 14730<br>583       | 14736<br>583       | 14742<br>583       | 14748<br>583       | 14753<br>583       | 14759<br>583       | 14765<br>583       |
| 471.1 | 14771<br>584       | 14777<br>584       | 14783<br>584       | 14789<br>584       | 14794<br>584       | 14800<br>584       | 14806<br>585       | 14812<br>585       | 14818<br>585       | 14824<br>585       |
| 471.2 | 14829<br>585       | 14835<br>585       | 14841<br>585       | 14847<br>586       | 14853<br>586       | 14859<br>586       | 14865<br>586       | 14870<br>586       | 14876<br>586       | 14882<br>586       |
| 471.3 | 14888<br>587       | 14894<br>587       | 14900<br>587       | 14906<br>587       | 14911<br>587       | 14917<br>587       | 14923<br>588       | 14929<br>588       | 14935<br>588       | 14941<br>598       |
| 471.4 | 14947<br>588       | 14953<br>588       | 14959<br>588       | 14964<br>589       | 14970<br>589       | 14976<br>589       | 14982<br>589       | 14988<br>589       | 14994<br>589       | 15000<br>589       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 471.5 | 15006<br>590       | 15011<br>590       | 15017<br>590       | 15023<br>590       | 15029<br>590       | 15035<br>590       | 15041<br>591       | 15047<br>591       | 15053<br>591       | 15059<br>591       |
| 471.6 | 15065<br>591       | 15071<br>591       | 15077<br>591       | 15082<br>592       | 15088<br>592       | 15094<br>592       | 15100<br>592       | 15106<br>592       | 15112<br>592       | 15118<br>592       |
| 471.7 | 15124<br>593       | 15130<br>593       | 15136<br>593       | 15142<br>593       | 15148<br>593       | 15154<br>593       | 15159<br>594       | 15165<br>594       | 15171<br>594       | 15177<br>594       |
| 471.8 | 15183<br>594       | 15189<br>594       | 15195<br>594       | 15201<br>595       | 15207<br>595       | 15213<br>595       | 15219<br>595       | 15225<br>595       | 15231<br>595       | 15237<br>595       |
| 471.9 | 15243<br>596       | 15249<br>596       | 15255<br>596       | 15261<br>596       | 15267<br>596       | 15273<br>596       | 15279<br>597       | 15284<br>597       | 15290<br>597       | 15296<br>597       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 472.0 | 15302<br>597       | 15308<br>597       | 15314<br>597       | 15320<br>598       | 15326<br>598       | 15332<br>599       | 15338<br>598       | 15344<br>598       | 15350<br>598       | 15356<br>598       |
| 472.1 | 15362<br>599       | 15368<br>599       | 15374<br>599       | 15380<br>599       | 15386<br>599       | 15392<br>599       | 15398<br>600       | 15404<br>600       | 15410<br>600       | 15416<br>600       |
| 472.2 | 15422<br>600       | 15428<br>600       | 15434<br>600       | 15440<br>601       | 15446<br>601       | 15452<br>601       | 15458<br>601       | 15464<br>601       | 15470<br>601       | 15476<br>602       |
| 472.3 | 15482<br>602       | 15488<br>602       | 15494<br>602       | 15500<br>602       | 15506<br>602       | 15512<br>602       | 15518<br>603       | 15524<br>603       | 15530<br>603       | 15536<br>603       |
| 472.4 | 15542<br>603       | 15548<br>603       | 15554<br>603       | 15561<br>604       | 15567<br>604       | 15573<br>604       | 15579<br>604       | 15585<br>604       | 15591<br>604       | 15597<br>605       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 472.5 | 15603<br>605       | 15609<br>605       | 15615<br>605       | 15621<br>605       | 15627<br>605       | 15633<br>605       | 15639<br>606       | 15645<br>606       | 15651<br>606       | 15657<br>606       |
| 472.6 | 15663<br>606       | 15669<br>606       | 15675<br>607       | 15682<br>607       | 15688<br>607       | 15694<br>607       | 15700<br>607       | 15706<br>607       | 15712<br>607       | 15718<br>608       |
| 472.7 | 15724<br>608       | 15730<br>608       | 15736<br>608       | 15742<br>608       | 15748<br>608       | 15755<br>608       | 15760<br>609       | 15767<br>609       | 15773<br>609       | 15779<br>609       |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 472.8 | 15785<br>609       | 15791<br>609       | 15797<br>610       | 15803<br>610       | 15809<br>610       | 15815<br>610       | 15821<br>610       | 15828<br>610       | 15834<br>610       | 15840<br>611       |
| 472.9 | 15846<br>611       | 15852<br>611       | 15858<br>611       | 15864<br>611       | 15870<br>611       | 15876<br>612       | 15883<br>612       | 15889<br>612       | 15895<br>612       | 15901<br>612       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 473.0 | 15907<br>612       | 15913<br>612       | 15919<br>613       | 15925<br>613       | 15931<br>613       | 15938<br>613       | 15944<br>613       | 15950<br>613       | 15956<br>613       | 15962<br>614       |
| 473.1 | 15968<br>614       | 15974<br>614       | 15981<br>614       | 15987<br>614       | 15993<br>614       | 15999<br>615       | 16005<br>615       | 16011<br>615       | 16018<br>615       | 16024<br>615       |
| 473.2 | 16030<br>615       | 16036<br>615       | 16042<br>616       | 16048<br>616       | 16054<br>616       | 16061<br>616       | 16067<br>616       | 16073<br>616       | 16079<br>617       | 16085<br>617       |
| 473.3 | 16091<br>617       | 16098<br>617       | 16104<br>617       | 16110<br>617       | 16116<br>617       | 16122<br>618       | 16128<br>618       | 16135<br>618       | 16141<br>618       | 16147<br>618       |
| 473.4 | 16153<br>618       | 16159<br>618       | 16166<br>619       | 16172<br>619       | 16178<br>619       | 16184<br>619       | 16190<br>619       | 16197<br>619       | 16203<br>620       | 16209<br>620       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 473.5 | 16215<br>620       | 16221<br>620       | 16227<br>620       | 16234<br>620       | 16240<br>620       | 16246<br>621       | 16252<br>621       | 16258<br>621       | 16265<br>621       | 16271<br>621       |
| 473.6 | 16277<br>621       | 16283<br>622       | 16290<br>622       | 16296<br>622       | 16302<br>622       | 16308<br>622       | 16314<br>622       | 16321<br>622       | 16327<br>623       | 16333<br>623       |
| 473.7 | 16339<br>623       | 16346<br>623       | 16352<br>623       | 16358<br>623       | 16364<br>624       | 16371<br>624       | 16377<br>624       | 16383<br>624       | 16369<br>624       | 16395<br>624       |
| 473.8 | 16402<br>624       | 16408<br>625       | 16414<br>625       | 16420<br>625       | 16427<br>625       | 16433<br>625       | 16439<br>625       | 16445<br>625       | 16452<br>626       | 16458<br>626       |
| 473.9 | 16464<br>626       | 16470<br>626       | 16477<br>626       | 16483<br>626       | 16489<br>627       | 16496<br>627       | 16502<br>62 7      | 16508<br>627       | 16514<br>627       | 16521<br>627       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 474.0 | 16527<br>627       | 16533<br>628       | 16539<br>628       | 16546<br>628       | 16552<br>628       | 16558<br>628       | 16565<br>628       | 16571<br>629       | 16577<br>629       | 16583<br>629       |
| 474.1 | 16590<br>629       | 16596<br>629       | 16602<br>629       | 16609<br>629       | 16615<br>630       | 16621<br>630       | 16628<br>630       | 16634<br>630       | 16640<br>630       | 16646<br>630       |
| 474.2 | 16653<br>631       | 16659<br>631       | 16665<br>631       | 16672<br>631       | 16678<br>631       | 16684<br>631       | 16690<br>631       | 16697<br>632       | 16703<br>632       | 16709<br>632       |
| 474.3 | 16716<br>632       | 16722<br>632       | 16728<br>632       | 16735<br>633       | 16741<br>633       | 16747<br>633       | 16754<br>633       | 16760<br>633       | 16766<br>633       | 16773<br>633       |
| 474.4 | 16779<br>634       | 16785<br>634       | 16792<br>634       | 16798<br>634       | 16804<br>634       | 16811<br>634       | 16817<br>635       | 16824<br>635       | 16830<br>635       | 16836<br>635       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 474.5 | 16843<br>635       | 16849<br>635       | 16855<br>635       | 16862<br>636       | 16868<br>636       | 16874<br>636       | 16881<br>636       | 16887<br>636       | 16893<br>636       | 16900<br>636       |
| 474.6 | 16906<br>637       | 16912<br>637       | 16919<br>637       | 16925<br>637       | 16932<br>637       | 16936<br>637       | 16944<br>638       | 16951<br>638       | 16957<br>638       | 16964<br>638       |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 474.7 | 16970<br>638       | 16976<br>638       | 16983<br>638       | 16989<br>639       | 16995<br>639       | 17002<br>639       | 17008<br>639       | 17015<br>639       | 17021<br>640       | 17027<br>640       |
| 474.8 | 17034<br>640       | 17040<br>640       | 17047<br>640       | 17053<br>640       | 17059<br>640       | 17066<br>640       | 17072<br>641       | 17079<br>641       | 17085<br>641       | 17091<br>641       |
| 474.9 | 17098<br>641       | 17104<br>641       | 17111<br>642       | 17117<br>642       | 17124<br>642       | 17130<br>642       | 17136<br>642       | 17143<br>642       | 17149<br>642       | 17156<br>643       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 475.0 | 17162<br>643       | 17168<br>643       | 17175<br>643       | 17181<br>643       | 17188<br>643       | 17194<br>644       | 17201<br>644       | 17207<br>644       | 17213<br>644       | 17220<br>644       |
| 475.1 | 17226<br>644       | 17233<br>644       | 17239<br>645       | 17246<br>645       | 17252<br>645       | 17259<br>645       | 17265<br>645       | 17272<br>645       | 17278<br>646       | 17284<br>646       |
| 475.2 | 17291<br>646       | 17297<br>646       | 17304<br>646       | 17310<br>646       | 17317<br>646       | 17323<br>647       | 17330<br>647       | 17336<br>647       | 17343<br>647       | 17349<br>647       |
| 475.3 | 17355<br>647       | 17362<br>648       | 17368<br>648       | 17375<br>648       | 17381<br>648       | 17388<br>648       | 17394<br>648       | 17401<br>648       | 17407<br>649       | 17414<br>649       |
| 475.4 | 17420<br>649       | 17427<br>649       | 17433<br>649       | 17440<br>649       | 17446<br>650       | 17453<br>650       | 17459<br>650       | 17466<br>650       | 17472<br>650       | 17479<br>650       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 475.5 | 17485<br>650       | 17492<br>651       | 17498<br>651       | 17505<br>651       | 17511<br>651       | 17518<br>651       | 17524<br>651       | 17531<br>652       | 17537<br>652       | 17544<br>652       |
| 475.6 | 17550<br>652       | 17557<br>652       | 17563<br>652       | 17570<br>652       | 17577<br>653       | 17583<br>653       | 17590<br>653       | 17596<br>653       | 17603<br>653       | 17609<br>653       |
| 475.7 | 17616<br>654       | 17622<br>654       | 17629<br>654       | 17635<br>654       | 17642<br>654       | 17648<br>654       | 17655<br>654       | 17661<br>655       | 17668<br>655       | 17675<br>655       |
| 475.8 | 17681<br>655       | 17688<br>655       | 17694<br>655       | 17701<br>656       | 17707<br>656       | 17714<br>656       | 17720<br>656       | 17727<br>656       | 17734<br>656       | 17740<br>656       |
| 475.9 | 17747<br>657       | 17753<br>657       | 17760<br>657       | 17766<br>657       | 17773<br>657       | 17780<br>657       | 17786<br>658       | 17793<br>658       | 17799<br>658       | 17806<br>658       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 476.0 | 17813<br>658       | 17819<br>658       | 17826<br>658       | 17832<br>659       | 17839<br>659       | 17845<br>659       | 17852<br>659       | 17859<br>659       | 17865<br>659       | 17872<br>660       |
| 476.1 | 17878<br>660       | 17885<br>660       | 17892<br>660       | 17898<br>660       | 17905<br>660       | 17911<br>660       | 17918<br>661       | 17925<br>661       | 17931<br>661       | 17938<br>661       |
| 476.2 | 17944<br>661       | 17951<br>661       | 17958<br>662       | 17964<br>662       | 17971<br>662       | 17978<br>662       | 17984<br>662       | 17991<br>662       | 17997<br>662       | 18004<br>663       |
| 476.3 | 18011<br>663       | 18017<br>663       | 18024<br>663       | 18030<br>663       | 18037<br>663       | 18044<br>664       | 18050<br>664       | 18057<br>664       | 18064<br>664       | 18070<br>664       |
| 476.4 | 18077<br>664       | 18084<br>664       | 18090<br>665       | 18097<br>665       | 18104<br>665       | 18110<br>665       | 18117<br>665       | 18124<br>665       | 18130<br>666       | 18137<br>666       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 476.5 | 18144<br>666       | 18150<br>666       | 18157<br>666       | 18163<br>666       | 18170<br>666       | 18177<br>667       | 18183<br>667       | 18190<br>667       | 18197<br>667       | 18203<br>667       |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 476.6 | 18210<br>667       | 18217<br>668       | 18223<br>668       | 18230<br>668       | 18237<br>668       | 18244<br>668       | 18250<br>668       | 18257<br>669       | 18264<br>669       | 18270<br>669       |
| 476.7 | 18277<br>669       | 18284<br>669       | 18290<br>669       | 18297<br>669       | 18304<br>670       | 18311<br>670       | 18317<br>670       | 18324<br>670       | 18330<br>670       | 18337<br>670       |
| 476.8 | 18344<br>671       | 18351<br>671       | 18357<br>671       | 18364<br>671       | 18371<br>671       | 18377<br>671       | 18384<br>671       | 18391<br>672       | 18398<br>672       | 18404<br>672       |
| 476.9 | 18411<br>672       | 18418<br>672       | 18425<br>672       | 18431<br>673       | 18438<br>673       | 18445<br>673       | 18451<br>673       | 18458<br>673       | 18465<br>673       | 18472<br>673       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 477.0 | 18478<br>674       | 18485<br>674       | 18492<br>674       | 18499<br>674       | 18505<br>674       | 18512<br>674       | 18519<br>675       | 18526<br>675       | 18532<br>675       | 18539<br>675       |
| 477.1 | 18546<br>675       | 18553<br>675       | 18559<br>675       | 18566<br>676       | 18573<br>676       | 18580<br>676       | 18586<br>676       | 18593<br>676       | 18600<br>676       | 18607<br>677       |
| 477.2 | 18613<br>677       | 18620<br>677       | 18627<br>677       | 18634<br>677       | 18641<br>677       | 18647<br>677       | 18654<br>678       | 18661<br>678       | 18668<br>678       | 18674<br>678       |
| 477.3 | 18681<br>678       | 18688<br>678       | 18695<br>679       | 18701<br>679       | 18708<br>679       | 18715<br>679       | 18722<br>679       | 18729<br>679       | 18735<br>679       | 18742<br>680       |
| 477.4 | 18749<br>680       | 18756<br>680       | 18763<br>680       | 18769<br>680       | 18776<br>680       | 18783<br>681       | 18790<br>681       | 18797<br>681       | 18804<br>681       | 18810<br>681       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 477.5 | 18817<br>681       | 18824<br>682       | 18831<br>682       | 18837<br>682       | 18844<br>682       | 18851<br>682       | 18859<br>682       | 18865<br>682       | 18872<br>683       | 18878<br>683       |
| 477.6 | 18885<br>683       | 18892<br>683       | 18899<br>683       | 18906<br>683       | 18913<br>684       | 18919<br>684       | 18926<br>684       | 18933<br>684       | 18940<br>684       | 18947<br>684       |
| 477.7 | 18954<br>684       | 18961<br>685       | 18967<br>685       | 18974<br>685       | 18981<br>685       | 18988<br>685       | 18995<br>685       | 19002<br>686       | 19008<br>686       | 19015<br>686       |
| 477.8 | 19022<br>686       | 19029<br>686       | 19036<br>686       | 19043<br>686       | 19050<br>687       | 19057<br>687       | 19063<br>687       | 19070<br>687       | 19077<br>687       | 19084<br>687       |
| 477.9 | 19091<br>688       | 19098<br>688       | 19105<br>688       | 19112<br>688       | 19118<br>688       | 19125<br>688       | 19132<br>688       | 19139<br>689       | 19146<br>689       | 19153<br>689       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 478.0 | 19160<br>689       | 19167<br>689       | 19173<br>689       | 19180<br>690       | 19187<br>690       | 19194<br>690       | 19201<br>690       | 19208<br>690       | 19215<br>690       | 19222<br>691       |
| 478.1 | 19229<br>691       | 19236<br>691       | 19243<br>691       | 19249<br>691       | 19256<br>691       | 19263<br>691       | 19270<br>692       | 19277<br>692       | 19284<br>692       | 19291<br>692       |
| 478.2 | 19298<br>692       | 19305<br>692       | 19312<br>693       | 19319<br>693       | 19326<br>693       | 19333<br>693       | 19339<br>693       | 19346<br>693       | 19353<br>693       | 19360<br>694       |
| 478.3 | 19367<br>694       | 19374<br>694       | 19381<br>694       | 19388<br>694       | 19395<br>694       | 19402<br>695       | 19409<br>695       | 19416<br>695       | 19423<br>695       | 19430<br>695       |
| 478.4 | 19437<br>695       | 19444<br>695       | 19451<br>696       | 19458<br>696       | 19464<br>696       | 19471<br>696       | 19478<br>696       | 19485<br>696       | 19492<br>697       | 19499<br>697       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 478.5 | 19506<br>697       | 19513<br>697       | 19520<br>697       | 19527<br>697       | 19534<br>698       | 19541<br>698       | 19548<br>698       | 19555<br>698       | 19562<br>698       | 19569<br>698       |
| 478.6 | 19576<br>698       | 19583<br>699       | 19590<br>699       | 19597<br>699       | 19604<br>699       | 19611<br>699       | 19618<br>699       | 19625<br>700       | 19632<br>700       | 19639<br>700       |
| 478.7 | 19646<br>700       | 19653<br>700       | 19660<br>700       | 19667<br>700       | 19674<br>701       | 19681<br>701       | 19688<br>701       | 19695<br>701       | 19702<br>701       | 19709<br>701       |
| 478.8 | 19716<br>702       | 19723<br>702       | 19730<br>702       | 19737<br>702       | 19744<br>702       | 19751<br>702       | 19758<br>703       | 19765<br>703       | 19772<br>703       | 19779<br>703       |
| 478.9 | 19786<br>703       | 19793<br>703       | 19800<br>703       | 19807<br>704       | 19814<br>704       | 19821<br>704       | 19828<br>704       | 19836<br>704       | 19843<br>704       | 19850<br>705       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 479.0 | 19857<br>705       | 19864<br>705       | 19871<br>705       | 19878<br>705       | 19885<br>705       | 19892<br>705       | 19899<br>706       | 19906<br>706       | 19913<br>706       | 19920<br>706       |
| 479.1 | 19927<br>706       | 19934<br>706       | 19941<br>707       | 19948<br>707       | 19955<br>707       | 19963<br>707       | 19970<br>707       | 19977<br>707       | 19984<br>707       | 19991<br>708       |
| 479.2 | 19998<br>708       | 20005<br>708       | 20012<br>708       | 20019<br>708       | 20026<br>708       | 20033<br>709       | 20040<br>709       | 20047<br>709       | 20054<br>709       | 20062<br>709       |
| 479.3 | 20069<br>709       | 20076<br>710       | 20083<br>710       | 20090<br>710       | 20097<br>710       | 20104<br>710       | 20111<br>710       | 20118<br>710       | 20126<br>711       | 20133<br>711       |
| 479.4 | 20140<br>711       | 20147<br>711       | 20154<br>711       | 20161<br>711       | 20168<br>712       | 20175<br>712       | 20182<br>712       | 20190<br>712       | 20197<br>712       | 20204<br>712       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 479.5 | 20211<br>712       | 20218<br>713       | 20225<br>713       | 20232<br>713       | 20239<br>713       | 20246<br>713       | 20254<br>713       | 20261<br>714       | 20268<br>714       | 20275<br>714       |
| 479.6 | 20282<br>714       | 20289<br>714       | 20297<br>714       | 20304<br>715       | 20311<br>715       | 20318<br>715       | 20325<br>715       | 20332<br>715       | 20339<br>715       | 20347<br>715       |
| 479.7 | 20354<br>716       | 20361<br>716       | 20368<br>716       | 20375<br>716       | 20382<br>716       | 20390<br>716       | 20397<br>717       | 20404<br>717       | 20411<br>717       | 20418<br>717       |
| 479.8 | 20425<br>717       | 20432<br>717       | 20440<br>717       | 20447<br>718       | 20454<br>718       | 20461<br>718       | 20468<br>718       | 20476<br>718       | 20483<br>718       | 20490<br>719       |
| 479.9 | 20497<br>719       | 20504<br>719       | 20512<br>719       | 20519<br>719       | 20526<br>719       | 20533<br>720       | 20340<br>720       | 20548<br>720       | 20555<br>720       | 20562<br>720       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 480.0 | 20569<br>720       | 20576<br>720       | 20583<br>721       | 20591<br>721       | 20598<br>721       | 20605<br>721       | 20612<br>721       | 20620<br>721       | 20627<br>722       | 20634<br>722       |
| 480.1 | 20641<br>722       | 20648<br>722       | 20656<br>722       | 20663<br>722       | 20670<br>722       | 20677<br>723       | 20685<br>723       | 20692<br>723       | 20699<br>723       | 20706<br>723       |
| 480.2 | 20714<br>723       | 20721<br>724       | 20728<br>724       | 20735<br>724       | 20742<br>724       | 20750<br>724       | 20757<br>724       | 20764<br>725       | 20771<br>725       | 20779<br>725       |
| 480.3 | 20786<br>725       | 20793<br>725       | 20800<br>725       | 20808<br>725       | 20815<br>726       | 20822<br>726       | 20829<br>726       | 20837<br>726       | 20844<br>726       | 20851<br>726       |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 480.4 | 20858<br>727       | 20866<br>727       | 20873<br>727       | 20880<br>727       | 20888<br>727       | 20895<br>727       | 20902<br>727       | 20909<br>728       | 20917<br>728       | 20924<br>728       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 480.5 | 20931<br>728       | 20938<br>728       | 20946<br>728       | 20953<br>729       | 20960<br>729       | 20968<br>729       | 20975<br>729       | 20982<br>729       | 20969<br>729       | 20997<br>730       |
| 480.6 | 21004<br>730       | 21011<br>730       | 21019<br>730       | 21026<br>730       | 21033<br>730       | 21041<br>730       | 21048<br>731       | 21055<br>731       | 21063<br>731       | 21070<br>731       |
| 480.7 | 21077<br>731       | 21084<br>731       | 21092<br>732       | 21099<br>732       | 21106<br>732       | 21114<br>732       | 21121<br>732       | 21128<br>732       | 21136<br>732       | 21143<br>733       |
| 480.8 | 21150<br>733       | 21158<br>733       | 21165<br>733       | 21172<br>733       | 21180<br>733       | 21187<br>734       | 21194<br>734       | 21202<br>734       | 21209<br>734       | 21216<br>734       |
| 480.9 | 21224<br>734       | 21231<br>735       | 21238<br>735       | 21246<br>735       | 21253<br>735       | 21260<br>735       | 21268<br>735       | 21275<br>735       | 21283<br>736       | 21290<br>736       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 481.0 | 21297<br>736       | 21304<br>736       | 21312<br>736       | 21319<br>736       | 21327<br>737       | 21334<br>737       | 21341<br>737       | 21349<br>737       | 21356<br>737       | 21363<br>737       |
| 481.1 | 21371<br>737       | 21378<br>738       | 21386<br>738       | 21393<br>738       | 21400<br>736       | 21408<br>738       | 21415<br>738       | 21423<br>739       | 21430<br>739       | 21437<br>739       |
| 481.2 | 21445<br>739       | 21452<br>739       | 21460<br>739       | 21467<br>740       | 21474<br>740       | 21482<br>740       | 21489<br>740       | 21496<br>740       | 21504<br>740       | 21511<br>740       |
| 481.3 | 21519<br>741       | 21526<br>741       | 21533<br>741       | 21541<br>741       | 21548<br>741       | 21556<br>741       | 21563<br>742       | 21571<br>742       | 21578<br>742       | 21585<br>742       |
| 481.4 | 21593<br>742       | 21600<br>742       | 21608<br>743       | 21615<br>743       | 21623<br>743       | 21630<br>743       | 21637<br>743       | 21645<br>743       | 21652<br>743       | 21660<br>744       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 481.5 | 21667<br>744       | 21674<br>744       | 21682<br>744       | 21689<br>744       | 21697<br>744       | 21704<br>745       | 21712<br>745       | 21719<br>745       | 21727<br>745       | 21734<br>745       |
| 481.6 | 21742<br>745       | 21749<br>745       | 21756<br>746       | 21764<br>746       | 21771<br>746       | 21779<br>746       | 21786<br>746       | 21794<br>746       | 21801<br>747       | 21809<br>747       |
| 481.7 | 21816<br>747       | 21824<br>747       | 21831<br>747       | 21839<br>747       | 21846<br>748       | 21854<br>748       | 21861<br>748       | 21868<br>748       | 21876<br>748       | 21883<br>748       |
| 481.8 | 21891<br>748       | 21898<br>749       | 21906<br>749       | 21913<br>749       | 21921<br>749       | 21928<br>749       | 21936<br>749       | 21943<br>750       | 21951<br>750       | 21958<br>750       |
| 481.9 | 21966<br>750       | 21973<br>750       | 21981<br>750       | 21988<br>751       | 21996<br>751       | 22003<br>751       | 22011<br>751       | 22018<br>751       | 22026<br>751       | 22034<br>751       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 482.0 | 22041<br>752       | 22048<br>752       | 22056<br>752       | 22063<br>752       | 22071<br>752       | 22079<br>752       | 22086<br>753       | 22094<br>753       | 22101<br>753       | 22109<br>753       |
| 482.1 | 22116<br>753       | 22124<br>753       | 22131<br>753       | 22139<br>754       | 22146<br>754       | 22154<br>754       | 22161<br>754       | 22169<br>754       | 22177<br>754       | 22184<br>755       |
| 482.2 | 22192<br>755       | 22199<br>755       | 22207<br>755       | 22214<br>755       | 22222<br>755       | 22229<br>756       | 22237<br>756       | 22244<br>756       | 22252<br>756       | 22260<br>756       |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 482.3 | 22267<br>756       | 22275<br>756       | 22282<br>757       | 22290<br>757       | 22297<br>757       | 22305<br>757       | 22313<br>757       | 22320<br>757       | 22328<br>758       | 22335<br>758       |
| 482.4 | 22343<br>758       | 22350<br>758       | 22358<br>758       | 22366<br>758       | 22373<br>758       | 22381<br>759       | 22388<br>759       | 22396<br>759       | 22404<br>759       | 22411<br>759       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 482.5 | 22419<br>759       | 22426<br>760       | 22434<br>760       | 22441<br>760       | 22449<br>760       | 22457<br>760       | 22464<br>760       | 22472<br>761       | 22479<br>761       | 22487<br>761       |
| 482.6 | 22495<br>761       | 22502<br>761       | 22510<br>761       | 22518<br>761       | 22525<br>762       | 22533<br>762       | 22540<br>762       | 22548<br>762       | 22556<br>762       | 22563<br>762       |
| 482.7 | 22571<br>763       | 22579<br>763       | 22586<br>763       | 22594<br>763       | 22602<br>763       | 22609<br>763       | 22617<br>764       | 22624<br>764       | 22632<br>764       | 22640<br>764       |
| 482.8 | 22647<br>764       | 22655<br>764       | 22662<br>764       | 22670<br>765       | 22678<br>765       | 22685<br>765       | 22693<br>765       | 22701<br>765       | 22708<br>765       | 22716<br>766       |
| 482.9 | 22724<br>766       | 22731<br>766       | 22739<br>766       | 22747<br>766       | 22754<br>766       | 22762<br>766       | 22770<br>767       | 22777<br>767       | 22785<br>767       | 22793<br>767       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 483.0 | 22800<br>767       | 22808<br>767       | 22816<br>768       | 22823<br>768       | 22831<br>768       | 22839<br>768       | 22846<br>768       | 22854<br>768       | 22862<br>769       | 22869<br>769       |
| 483.1 | 22877<br>769       | 22885<br>769       | 22893<br>769       | 22900<br>769       | 22908<br>769       | 22916<br>770       | 22923<br>770       | 22931<br>770       | 22939<br>770       | 22947<br>770       |
| 483.2 | 22954<br>770       | 22962<br>771       | 22970<br>771       | 22977<br>771       | 22985<br>771       | 22993<br>771       | 23000<br>771       | 23008<br>772       | 23016<br>772       | 23024<br>772       |
| 483.3 | 23031<br>772       | 23039<br>772       | 23047<br>772       | 23054<br>772       | 23062<br>773       | 23070<br>773       | 23078<br>773       | 23085<br>773       | 23093<br>773       | 23101<br>773       |
| 483.4 | 23109<br>774       | 23116<br>774       | 23124<br>774       | 23132<br>774       | 23140<br>774       | 23147<br>774       | 23155<br>775       | 23163<br>775       | 23171<br>775       | 23178<br>775       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 483.5 | 23186<br>775       | 23194<br>775       | 23201<br>775       | 23209<br>776       | 23217<br>776       | 23225<br>776       | 23232<br>776       | 23240<br>776       | 23248<br>776       | 23256<br>777       |
| 483.6 | 23264<br>777       | 23271<br>777       | 23279<br>777       | 23287<br>777       | 23295<br>777       | 23302<br>777       | 23310<br>778       | 23318<br>778       | 23326<br>778       | 23334<br>778       |
| 483.7 | 23341<br>778       | 23349<br>778       | 23357<br>779       | 23365<br>779       | 23373<br>779       | 23380<br>779       | 23388<br>779       | 23396<br>779       | 23404<br>780       | 23411<br>780       |
| 483.8 | 23419<br>780       | 23427<br>780       | 23435<br>780       | 23443<br>780       | 23450<br>780       | 23458<br>781       | 23466<br>781       | 23474<br>781       | 23482<br>781       | 23490<br>781       |
| 483.9 | 23497<br>781       | 23505<br>782       | 23513<br>782       | 23521<br>782       | 23529<br>782       | 23536<br>782       | 23544<br>782       | 23552<br>783       | 23560<br>783       | 23568<br>783       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 484.0 | 23576<br>783       | 23583<br>783       | 23591<br>783       | 23599<br>783       | 23607<br>784       | 23615<br>784       | 23622<br>784       | 23630<br>784       | 23638<br>784       | 23646<br>784       |
| 484.1 | 23654<br>785       | 23662<br>785       | 23670<br>785       | 23677<br>785       | 23685<br>785       | 23693<br>785       | 23701<br>785       | 23709<br>786       | 23717<br>786       | 23725<br>786       |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 484.2 | 23732<br>786       | 23740<br>786       | 23748<br>786       | 23756<br>787       | 23764<br>787       | 23772<br>787       | 23780<br>787       | 23787<br>787       | 23795<br>787       | 23803<br>788       |
| 484.3 | 23811<br>788       | 23819<br>788       | 23827<br>788       | 23835<br>788       | 23843<br>788       | 23851<br>788       | 23858<br>789       | 23866<br>789       | 23874<br>789       | 23882<br>789       |
| 484.4 | 23890<br>789       | 23898<br>789       | 23906<br>790       | 23914<br>790       | 23922<br>790       | 23930<br>790       | 23937<br>790       | 23945<br>790       | 23953<br>791       | 23961<br>791       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 484.5 | 23969<br>791       | 23977<br>791       | 23985<br>791       | 23993<br>791       | 24001<br>791       | 24008<br>792       | 24016<br>792       | 24024<br>792       | 24032<br>792       | 24040<br>792       |
| 484.6 | 24048<br>792       | 24056<br>793       | 24064<br>793       | 24072<br>793       | 24080<br>793       | 24088<br>793       | 24096<br>793       | 24104<br>793       | 24112<br>794       | 24120<br>794       |
| 484.7 | 24128<br>794       | 24135<br>794       | 24143<br>794       | 24151<br>794       | 24159<br>795       | 24167<br>795       | 24175<br>795       | 24183<br>795       | 24191<br>795       | 24199<br>795       |
| 484.8 | 24207<br>796       | 24215<br>796       | 24223<br>796       | 24231<br>796       | 24239<br>796       | 24247<br>796       | 24255<br>796       | 24263<br>797       | 24271<br>797       | 24279<br>797       |
| 484.9 | 24287<br>797       | 24295<br>797       | 24303<br>797       | 24311<br>798       | 24319<br>798       | 24326<br>798       | 24334<br>798       | 24342<br>798       | 24350<br>798       | 24358<br>799       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 485.0 | 24366<br>799       | 24374<br>799       | 24382<br>799       | 24390<br>799       | 24398<br>799       | 24406<br>799       | 24414<br>800       | 24422<br>800       | 24430<br>800       | 24438<br>800       |
| 485.1 | 24446<br>800       | 24454<br>800       | 24462<br>801       | 24470<br>801       | 24478<br>801       | 24486<br>801       | 24494<br>801       | 24502<br>801       | 24510<br>802       | 24518<br>802       |
| 485.2 | 24526<br>802       | 24534<br>802       | 24543<br>802       | 24551<br>802       | 24559<br>802       | 24567<br>803       | 24574<br>803       | 24582<br>803       | 24591<br>803       | 24599<br>803       |
| 485.3 | 24607<br>803       | 24615<br>804       | 24623<br>804       | 24631<br>804       | 24639<br>804       | 24647<br>804       | 24655<br>804       | 24663<br>804       | 24671<br>805       | 24679<br>805       |
| 485.4 | 24687<br>805       | 24695<br>805       | 24703<br>805       | 24711<br>805       | 24719<br>806       | 24727<br>806       | 24735<br>806       | 24744<br>806       | 24752<br>806       | 24760<br>806       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 485.5 | 24768<br>807       | 24776<br>807       | 24784<br>807       | 24792<br>807       | 24800<br>807       | 24808<br>807       | 24816<br>807       | 24824<br>808       | 24832<br>808       | 24840<br>808       |
| 485.6 | 24848<br>808       | 24856<br>808       | 24865<br>808       | 24873<br>809       | 24881<br>809       | 24889<br>809       | 24897<br>809       | 24905<br>809       | 24913<br>809       | 24921<br>810       |
| 485.7 | 24929<br>810       | 24937<br>810       | 24946<br>810       | 24954<br>810       | 24962<br>810       | 24970<br>810       | 24978<br>811       | 24986<br>811       | 24994<br>811       | 25002<br>811       |
| 485.8 | 25010<br>811       | 25018<br>811       | 25026<br>812       | 25035<br>812       | 25043<br>812       | 25051<br>812       | 25059<br>812       | 25067<br>812       | 25075<br>812       | 25083<br>813       |
| 485.9 | 25092<br>813       | 25100<br>813       | 25108<br>813       | 25116<br>813       | 25124<br>813       | 25132<br>814       | 25140<br>814       | 25149<br>814       | 25157<br>814       | 25165<br>814       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 486.0 | 25173<br>814       | 25181<br>815       | 25189<br>815       | 25197<br>815       | 25205<br>815       | 25214<br>815       | 25222<br>815       | 25230<br>815       | 25238<br>816       | 25246<br>816       |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 486.1 | 25254<br>816       | 25263<br>816       | 25271<br>816       | 25279<br>816       | 25287<br>817       | 25295<br>817       | 25303<br>817       | 25312<br>817       | 25320<br>817       | 25328<br>817       |
| 486.2 | 25336<br>818       | 25344<br>818       | 25352<br>818       | 25361<br>818       | 25369<br>818       | 25377<br>818       | 25385<br>818       | 25393<br>819       | 25401<br>819       | 25410<br>819       |
| 486.3 | 25418<br>819       | 25426<br>819       | 25434<br>819       | 25442<br>820       | 25451<br>820       | 25459<br>820       | 25467<br>820       | 25475<br>820       | 25483<br>820       | 25492<br>820       |
| 486.4 | 25500<br>821       | 25508<br>821       | 25516<br>821       | 25525<br>821       | 25533<br>821       | 25541<br>821       | 25549<br>822       | 25557<br>822       | 25566<br>822       | 25574<br>822       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 486.5 | 25582<br>822       | 25590<br>822       | 25598<br>823       | 25607<br>823       | 25615<br>823       | 25623<br>823       | 25631<br>823       | 25640<br>823       | 25648<br>823       | 25656<br>824       |
| 486.6 | 25664<br>824       | 25673<br>824       | 25681<br>824       | 25689<br>824       | 25697<br>824       | 25706<br>825       | 25714<br>825       | 25722<br>825       | 25730<br>825       | 25739<br>825       |
| 486.7 | 25747<br>825       | 25755<br>825       | 25763<br>826       | 25772<br>826       | 25780<br>826       | 25788<br>826       | 25796<br>826       | 25805<br>826       | 25813<br>827       | 25821<br>827       |
| 486.8 | 25829<br>827       | 25838<br>827       | 25846<br>827       | 25854<br>827       | 25862<br>828       | 25871<br>828       | 25879<br>828       | 25887<br>828       | 25896<br>828       | 25904<br>828       |
| 486.9 | 25912<br>828       | 25920<br>829       | 25929<br>829       | 25937<br>829       | 25945<br>829       | 25954<br>829       | 25962<br>829       | 25970<br>830       | 25979<br>830       | 25987<br>830       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 487.0 | 25995<br>830       | 26003<br>830       | 26012<br>830       | 26020<br>831       | 26028<br>831       | 26037<br>831       | 26045<br>831       | 26053<br>831       | 26061<br>831       | 26070<br>831       |
| 487.1 | 26078<br>832       | 26086<br>832       | 26095<br>832       | 26103<br>832       | 26111<br>832       | 26120<br>832       | 26128<br>833       | 26136<br>833       | 26145<br>833       | 26153<br>833       |
| 487.2 | 26161<br>833       | 26170<br>833       | 26178<br>833       | 26186<br>834       | 26195<br>834       | 26203<br>834       | 26211<br>834       | 26220<br>834       | 26228<br>834       | 26236<br>835       |
| 487.3 | 26245<br>835       | 26253<br>835       | 26261<br>835       | 26270<br>835       | 26278<br>835       | 26287<br>836       | 26295<br>836       | 26303<br>836       | 26312<br>836       | 26320<br>836       |
| 487.4 | 26328<br>836       | 26337<br>836       | 26345<br>837       | 26353<br>837       | 26362<br>837       | 26370<br>837       | 26379<br>837       | 26387<br>837       | 26395<br>838       | 26404<br>838       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 487.5 | 26412<br>838       | 26420<br>838       | 26429<br>838       | 26437<br>838       | 26446<br>838       | 26454<br>839       | 26462<br>839       | 26471<br>839       | 26479<br>839       | 26488<br>839       |
| 487.6 | 26496<br>839       | 26504<br>840       | 26513<br>840       | 26521<br>840       | 26530<br>840       | 26538<br>840       | 26546<br>840       | 26555<br>841       | 26563<br>841       | 26572<br>841       |
| 487.7 | 26580<br>841       | 26588<br>841       | 26597<br>841       | 26605<br>841       | 26614<br>842       | 26622<br>842       | 26630<br>842       | 26639<br>842       | 26647<br>842       | 26656<br>842       |
| 487.8 | 26664<br>843       | 26672<br>843       | 26681<br>843       | 26689<br>843       | 26698<br>843       | 26706<br>843       | 26715<br>844       | 26723<br>844       | 26732<br>844       | 26740<br>844       |
| 487.9 | 26748<br>844       | 26757<br>844       | 26765<br>844       | 26774<br>845       | 26782<br>845       | 26791<br>845       | 26799<br>845       | 26808<br>845       | 26816<br>845       | 26825<br>846       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 488.0 | 26833<br>846       | 26841<br>846       | 26850<br>846       | 26858<br>846       | 26867<br>846       | 26875<br>846       | 26884<br>847       | 26892<br>847       | 26901<br>847       | 26909<br>847       |
| 488.1 | 26918<br>847       | 26926<br>847       | 26935<br>848       | 26943<br>848       | 26952<br>848       | 26960<br>848       | 26968<br>848       | 26977<br>848       | 26985<br>849       | 26994<br>849       |
| 488.2 | 27002<br>849       | 27011<br>849       | 27019<br>849       | 27028<br>849       | 27036<br>849       | 27045<br>850       | 27053<br>850       | 27062<br>850       | 27070<br>850       | 27079<br>850       |
| 488.3 | 27087<br>850       | 27096<br>851       | 27104<br>851       | 27113<br>851       | 27121<br>851       | 27130<br>851       | 27138<br>851       | 27147<br>851       | 27155<br>852       | 27164<br>852       |
| 488.4 | 27173<br>852       | 27181<br>852       | 27190<br>852       | 27198<br>852       | 27207<br>853       | 27215<br>853       | 27224<br>853       | 27232<br>853       | 27241<br>853       | 27249<br>853       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 488.5 | 27258<br>854       | 27266<br>854       | 27275<br>854       | 27283<br>854       | 27292<br>854       | 27300<br>854       | 27309<br>854       | 27317<br>855       | 27326<br>855       | 27335<br>855       |
| 488.6 | 27343<br>855       | 27352<br>855       | 27360<br>855       | 27369<br>856       | 27377<br>856       | 27386<br>856       | 27395<br>856       | 27403<br>856       | 27412<br>856       | 27420<br>856       |
| 488.7 | 27429<br>857       | 27437<br>857       | 27446<br>857       | 27455<br>857       | 27463<br>857       | 27472<br>857       | 27480<br>858       | 27489<br>858       | 27497<br>858       | 27506<br>858       |
| 488.8 | 27514<br>858       | 27523<br>858       | 27532<br>859       | 27540<br>859       | 27549<br>859       | 27557<br>859       | 27566<br>859       | 27575<br>859       | 27583<br>859       | 27592<br>860       |
| 488.9 | 27600<br>860       | 27609<br>860       | 27618<br>860       | 27626<br>860       | 27635<br>860       | 27643<br>861       | 27652<br>861       | 27661<br>861       | 27669<br>861       | 27678<br>861       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 489.0 | 27687<br>861       | 27695<br>861       | 27704<br>862       | 27712<br>862       | 27721<br>862       | 27729<br>862       | 27738<br>862       | 27747<br>862       | 27755<br>863       | 27764<br>863       |
| 489.1 | 27773<br>863       | 27781<br>863       | 27790<br>863       | 27799<br>863       | 27807<br>864       | 27816<br>864       | 27825<br>864       | 27833<br>864       | 27842<br>864       | 27850<br>864       |
| 489.2 | 27859<br>864       | 27868<br>865       | 27876<br>865       | 27885<br>865       | 27894<br>865       | 27902<br>865       | 27911<br>865       | 27919<br>866       | 27928<br>866       | 27937<br>866       |
| 489.3 | 27945<br>866       | 27954<br>866       | 27963<br>866       | 27972<br>866       | 27980<br>867       | 27989<br>867       | 27998<br>867       | 28006<br>867       | 28015<br>867       | 28024<br>867       |
| 489.4 | 28032<br>868       | 28041<br>868       | 28050<br>868       | 28058<br>868       | 28067<br>868       | 28076<br>868       | 28084<br>868       | 28093<br>869       | 28102<br>869       | 28110<br>869       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 489.5 | 28119<br>869       | 28128<br>869       | 28136<br>869       | 28145<br>870       | 28154<br>870       | 28162<br>870       | 28171<br>870       | 28180<br>870       | 28189<br>870       | 28197<br>871       |
| 489.6 | 28206<br>871       | 28215<br>871       | 28223<br>871       | 28232<br>871       | 28241<br>871       | 28250<br>871       | 28258<br>872       | 28267<br>872       | 28276<br>872       | 28285<br>872       |
| 489.7 | 28293<br>872       | 28302<br>872       | 28311<br>873       | 28319<br>873       | 28328<br>873       | 28337<br>873       | 28345<br>873       | 28354<br>873       | 28363<br>873       | 28372<br>874       |
| 489.8 | 29380<br>874       | 28389<br>874       | 28398<br>874       | 28407<br>874       | 28415<br>874       | 28424<br>875       | 28433<br>875       | 28442<br>875       | 28450<br>875       | 28459<br>875       |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 489.9 | 28468<br>875       | 28477<br>876       | 28486<br>876       | 28494<br>876       | 28503<br>876       | 28512<br>876       | 28521<br>876       | 28529<br>876       | 28538<br>877       | 28547<br>877       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 490.0 | 28556<br>877       | 28564<br>877       | 28573<br>877       | 28582<br>877       | 28591<br>878       | 28599<br>878       | 28608<br>878       | 28617<br>878       | 28626<br>878       | 28635<br>878       |
| 490.1 | 28643<br>878       | 28652<br>879       | 28661<br>879       | 28670<br>879       | 28679<br>879       | 28687<br>879       | 28696<br>879       | 28705<br>880       | 28714<br>880       | 28723<br>880       |
| 490.2 | 28731<br>880       | 28740<br>880       | 28749<br>880       | 28758<br>880       | 28767<br>881       | 28775<br>881       | 28784<br>881       | 28793<br>881       | 28802<br>881       | 28810<br>881       |
| 490.3 | 28819<br>882       | 28828<br>882       | 28837<br>882       | 28846<br>882       | 28855<br>882       | 28863<br>882       | 28872<br>883       | 28881<br>883       | 28890<br>883       | 28899<br>883       |
| 490.4 | 28908<br>883       | 28916<br>883       | 28925<br>883       | 28934<br>884       | 28943<br>884       | 28952<br>884       | 28961<br>884       | 28970<br>884       | 28978<br>884       | 28987<br>885       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 490.5 | 28996<br>885       | 29005<br>885       | 29014<br>885       | 29022<br>885       | 29031<br>885       | 29040<br>885       | 29049<br>886       | 29058<br>886       | 29067<br>886       | 29076<br>886       |
| 490.6 | 29085<br>886       | 29093<br>886       | 29102<br>887       | 29111<br>887       | 29120<br>887       | 29129<br>887       | 29138<br>887       | 29147<br>887       | 29156<br>887       | 29164<br>888       |
| 490.7 | 29173<br>888       | 29182<br>888       | 29191<br>888       | 29200<br>888       | 29209<br>888       | 29218<br>889       | 29226<br>889       | 29235<br>889       | 29244<br>889       | 29253<br>889       |
| 490.8 | 29262<br>889       | 29271<br>890       | 29280<br>890       | 29289<br>890       | 29298<br>890       | 29307<br>890       | 29315<br>890       | 29324<br>890       | 29333<br>891       | 29342<br>891       |
| 490.9 | 29351<br>891       | 29360<br>891       | 29369<br>891       | 29378<br>891       | 29387<br>892       | 29396<br>892       | 29405<br>892       | 29414<br>892       | 29423<br>892       | 29431<br>892       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 491.0 | 29440<br>892       | 29449<br>893       | 29458<br>893       | 29467<br>893       | 29476<br>893       | 29485<br>893       | 29494<br>893       | 29503<br>894       | 29512<br>894       | 29521<br>894       |
| 491.1 | 29530<br>894       | 29539<br>894       | 29547<br>894       | 29556<br>894       | 29565<br>895       | 29574<br>895       | 29583<br>895       | 29592<br>895       | 29601<br>895       | 29610<br>895       |
| 491.2 | 29619<br>896       | 29628<br>896       | 29637<br>896       | 29646<br>896       | 29655<br>896       | 29664<br>896       | 29673<br>896       | 29682<br>897       | 29691<br>897       | 29700<br>897       |
| 491.3 | 29709<br>897       | 29718<br>897       | 29727<br>897       | 29736<br>898       | 29745<br>898       | 29754<br>898       | 29763<br>898       | 29772<br>898       | 29781<br>898       | 29790<br>899       |
| 491.4 | 29799<br>899       | 29808<br>899       | 29817<br>899       | 29826<br>899       | 29835<br>899       | 29844<br>899       | 29853<br>900       | 29862<br>900       | 29871<br>900       | 29880<br>900       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 491.5 | 29889<br>900       | 29897<br>900       | 29906<br>901       | 29915<br>901       | 29924<br>901       | 29933<br>901       | 29942<br>901       | 29951<br>901       | 29960<br>901       | 29969<br>902       |
| 491.6 | 29979<br>902       | 29988<br>902       | 29997<br>902       | 30006<br>902       | 30015<br>902       | 30024<br>903       | 30033<br>903       | 30042<br>903       | 30051<br>903       | 30060<br>903       |
| 491.7 | 30069<br>903       | 30078<br>903       | 30087<br>904       | 30096<br>904       | 30105<br>904       | 30114<br>904       | 30123<br>904       | 30132<br>904       | 30141<br>905       | 30150<br>905       |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 491.8 | 30159<br>905       | 30168<br>905       | 30177<br>905       | 30186<br>905       | 30195<br>905       | 30204<br>906       | 30213<br>906       | 30223<br>906       | 30232<br>906       | 30241<br>906       |
| 491.9 | 30250<br>906       | 30259<br>907       | 30268<br>907       | 30277<br>907       | 30286<br>907       | 30295<br>907       | 30304<br>907       | 30313<br>907       | 30322<br>908       | 30331<br>908       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 492.0 | 30341<br>908       | 30349<br>908       | 30359<br>908       | 30368<br>908       | 30377<br>909       | 30386<br>909       | 30395<br>909       | 30404<br>909       | 30413<br>909       | 30422<br>909       |
| 492.1 | 30431<br>909       | 30440<br>910       | 30450<br>910       | 30459<br>910       | 30468<br>910       | 30477<br>910       | 30486<br>910       | 30495<br>911       | 30504<br>911       | 30513<br>911       |
| 492.2 | 30522<br>911       | 30532<br>911       | 30541<br>911       | 30550<br>912       | 30559<br>912       | 30568<br>912       | 30577<br>912       | 30586<br>912       | 30595<br>912       | 30604<br>912       |
| 492.3 | 30613<br>913       | 30623<br>913       | 30632<br>913       | 30641<br>913       | 30650<br>913       | 30659<br>913       | 30668<br>914       | 30677<br>914       | 30687<br>914       | 30696<br>914       |
| 492.4 | 30705<br>914       | 30714<br>914       | 30723<br>914       | 30732<br>915       | 30742<br>915       | 30751<br>915       | 30760<br>915       | 30769<br>915       | 30778<br>915       | 30787<br>916       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 492.5 | 30796<br>916       | 30805<br>916       | 30815<br>916       | 30824<br>916       | 30833<br>916       | 30842<br>916       | 30851<br>917       | 30860<br>917       | 30870<br>917       | 30879<br>917       |
| 492.6 | 30888<br>917       | 30897<br>917       | 30906<br>918       | 30916<br>918       | 30925<br>918       | 30934<br>918       | 30943<br>918       | 30952<br>918       | 30962<br>918       | 30971<br>919       |
| 492.7 | 30980<br>919       | 30989<br>919       | 30998<br>919       | 31007<br>919       | 31017<br>919       | 31026<br>920       | 31035<br>920       | 31044<br>920       | 31053<br>920       | 31063<br>920       |
| 492.8 | 31072<br>920       | 31081<br>920       | 31090<br>921       | 31099<br>921       | 31109<br>921       | 31118<br>921       | 31127<br>921       | 31136<br>921       | 31145<br>922       | 31155<br>922       |
| 492.9 | 31164<br>922       | 31173<br>922       | 31182<br>922       | 31192<br>922       | 31201<br>922       | 31210<br>923       | 31219<br>923       | 31229<br>923       | 31238<br>923       | 31247<br>923       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 493.0 | 31256<br>923       | 31265<br>924       | 31275<br>924       | 31284<br>924       | 31293<br>924       | 31302<br>924       | 31312<br>924       | 31321<br>924       | 31330<br>925       | 31339<br>925       |
| 493.1 | 31349<br>925       | 31358<br>925       | 31367<br>925       | 31376<br>925       | 31386<br>926       | 31395<br>926       | 31404<br>926       | 31413<br>926       | 31423<br>926       | 31432<br>926       |
| 493.2 | 31441<br>926       | 31450<br>927       | 31460<br>927       | 31469<br>927       | 31478<br>927       | 31488<br>927       | 31497<br>927       | 31506<br>928       | 31515<br>928       | 31525<br>928       |
| 493.3 | 31534<br>928       | 31543<br>928       | 31552<br>928       | 31562<br>928       | 31571<br>929       | 31580<br>929       | 31590<br>929       | 31599<br>929       | 31608<br>929       | 31617<br>929       |
| 493.4 | 31627<br>930       | 31636<br>930       | 31645<br>930       | 31655<br>930       | 31664<br>930       | 31673<br>930       | 31683<br>930       | 31692<br>931       | 31701<br>931       | 31711<br>931       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 493.5 | 31720<br>931       | 31729<br>931       | 31738<br>931       | 31748<br>932       | 31757<br>932       | 31766<br>932       | 31776<br>932       | 31785<br>932       | 31794<br>932       | 31804<br>932       |
| 493.6 | 31813<br>933       | 31822<br>933       | 31832<br>933       | 31841<br>933       | 31850<br>933       | 31860<br>933       | 31869<br>934       | 31878<br>934       | 31888<br>934       | 31897<br>934       |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 493.7 | 31906<br>934       | 31916<br>934       | 31925<br>934       | 31934<br>935       | 31944<br>935       | 31953<br>935       | 31962<br>935       | 31972<br>935       | 31981<br>935       | 31990<br>936       |
| 493.8 | 32000<br>936       | 32009<br>936       | 32018<br>936       | 32028<br>936       | 32037<br>936       | 32047<br>936       | 32056<br>937       | 32065<br>937       | 32075<br>937       | 32084<br>937       |
| 493.9 | 32093<br>937       | 32103<br>937       | 32112<br>938       | 32122<br>938       | 32131<br>938       | 32140<br>938       | 32150<br>938       | 32159<br>938       | 32169<br>938       | 32178<br>939       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 494.0 | 32187<br>939       | 32197<br>939       | 32206<br>939       | 32215<br>939       | 32225<br>939       | 32234<br>940       | 32244<br>940       | 32253<br>940       | 32262<br>940       | 32272<br>940       |
| 494.1 | 32281<br>940       | 32291<br>940       | 32300<br>941       | 32309<br>941       | 32319<br>941       | 32328<br>941       | 32338<br>941       | 32347<br>941       | 32357<br>942       | 32366<br>942       |
| 494.2 | 32375<br>942       | 32385<br>942       | 32394<br>942       | 32404<br>942       | 32413<br>942       | 32423<br>943       | 32432<br>943       | 32441<br>943       | 32451<br>943       | 32460<br>943       |
| 494.3 | 32469<br>943       | 32479<br>944       | 32488<br>944       | 32498<br>944       | 32507<br>944       | 32517<br>944       | 32526<br>944       | 32536<br>944       | 32545<br>945       | 32555<br>945       |
| 494.4 | 32564<br>945       | 32573<br>945       | 32583<br>945       | 32592<br>945       | 32602<br>946       | 32611<br>946       | 32621<br>946       | 32630<br>946       | 32640<br>946       | 32649<br>946       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 494.5 | 32659<br>946       | 32668<br>947       | 32677<br>947       | 32687<br>947       | 32696<br>947       | 32706<br>947       | 32715<br>947       | 32725<br>948       | 32734<br>948       | 32744<br>948       |
| 494.6 | 32753<br>948       | 32763<br>948       | 32772<br>948       | 32782<br>948       | 32791<br>949       | 32801<br>949       | 32810<br>949       | 32820<br>949       | 32829<br>949       | 32839<br>949       |
| 494.7 | 32848<br>949       | 32858<br>950       | 32867<br>950       | 32877<br>950       | 32886<br>950       | 32896<br>950       | 32905<br>950       | 32915<br>951       | 32924<br>951       | 32934<br>951       |
| 494.8 | 32943<br>951       | 32953<br>951       | 32962<br>951       | 32972<br>951       | 32981<br>952       | 32991<br>952       | 33000<br>952       | 33010<br>952       | 33019<br>952       | 33029<br>952       |
| 494.9 | 33038<br>953       | 33048<br>953       | 33057<br>953       | 33067<br>953       | 33077<br>953       | 33086<br>953       | 33096<br>953       | 33105<br>954       | 33115<br>954       | 33124<br>954       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 495.0 | 33134<br>954       | 33143<br>954       | 33153<br>954       | 33162<br>955       | 33172<br>955       | 33181<br>955       | 33191<br>955       | 33200<br>955       | 33210<br>955       | 33220<br>955       |
| 495.1 | 33229<br>956       | 33239<br>956       | 33248<br>956       | 33258<br>956       | 33267<br>956       | 33277<br>956       | 33287<br>957       | 33296<br>957       | 33306<br>957       | 33315<br>957       |
| 495.2 | 33325<br>957       | 33334<br>957       | 33344<br>957       | 33354<br>958       | 33363<br>958       | 33373<br>958       | 33382<br>958       | 33392<br>958       | 33401<br>958       | 33411<br>959       |
| 495.3 | 33421<br>959       | 33430<br>959       | 33440<br>959       | 33449<br>959       | 33459<br>959       | 33469<br>959       | 33478<br>960       | 33488<br>960       | 33497<br>960       | 33507<br>960       |
| 495.4 | 33517<br>960       | 33526<br>960       | 33536<br>960       | 33545<br>961       | 33555<br>961       | 33565<br>961       | 33574<br>961       | 33584<br>961       | 33593<br>961       | 33603<br>962       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 495.5 | 33613<br>962       | 33622<br>962       | 33632<br>962       | 33641<br>962       | 33651<br>962       | 33661<br>962       | 33670<br>963       | 33680<br>963       | 33690<br>963       | 33699<br>963       |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 495.6 | 33709<br>963       | 33718<br>963       | 33728<br>964       | 33738<br>964       | 33747<br>964       | 33757<br>964       | 33767<br>964       | 33776<br>964       | 33786<br>964       | 33796<br>965       |
| 495.7 | 33805<br>965       | 33815<br>965       | 33825<br>965       | 33834<br>965       | 33844<br>965       | 33854<br>966       | 33863<br>966       | 33873<br>966       | 33882<br>966       | 33892<br>966       |
| 495.8 | 33902<br>966       | 33911<br>966       | 33921<br>967       | 33931<br>967       | 33940<br>967       | 33950<br>967       | 33960<br>967       | 33969<br>967       | 33979<br>967       | 33989<br>968       |
| 495.9 | 33999<br>968       | 34008<br>968       | 34018<br>968       | 34028<br>968       | 34037<br>968       | 34047<br>969       | 34057<br>969       | 34066<br>969       | 34076<br>969       | 34086<br>969       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 496.0 | 34095<br>969       | 34105<br>969       | 34115<br>970       | 34124<br>970       | 34134<br>970       | 34144<br>970       | 34153<br>970       | 34163<br>970       | 34173<br>971       | 34183<br>971       |
| 496.1 | 34192<br>971       | 34202<br>971       | 34212<br>971       | 34222<br>971       | 34231<br>971       | 34241<br>972       | 34251<br>972       | 34260<br>972       | 34270<br>972       | 34280<br>972       |
| 496.2 | 34290<br>972       | 34299<br>973       | 34309<br>973       | 34319<br>973       | 34329<br>973       | 34338<br>973       | 34348<br>973       | 34358<br>973       | 34367<br>974       | 34377<br>974       |
| 496.3 | 34387<br>974       | 34397<br>974       | 34406<br>974       | 34416<br>974       | 34426<br>974       | 34436<br>975       | 34445<br>975       | 34455<br>975       | 34465<br>975       | 34475<br>975       |
| 496.4 | 34484<br>975       | 34494<br>976       | 34504<br>976       | 34514<br>976       | 34523<br>976       | 34533<br>976       | 34543<br>976       | 34553<br>976       | 34562<br>977       | 34572<br>977       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 496.5 | 34582<br>977       | 34592<br>977       | 34601<br>977       | 34611<br>977       | 34621<br>978       | 34631<br>978       | 34641<br>978       | 34650<br>978       | 34660<br>978       | 34670<br>978       |
| 496.6 | 34680<br>978       | 34689<br>979       | 34699<br>979       | 34709<br>979       | 34719<br>979       | 34729<br>979       | 34738<br>979       | 34748<br>979       | 34758<br>980       | 34768<br>980       |
| 496.7 | 34778<br>980       | 34787<br>980       | 34797<br>980       | 34807<br>980       | 34617<br>981       | 34827<br>981       | 34836<br>981       | 34846<br>981       | 34856<br>981       | 34866<br>981       |
| 496.8 | 34876<br>981       | 34885<br>982       | 34895<br>982       | 34905<br>982       | 34915<br>982       | 34925<br>982       | 34935<br>982       | 34944<br>983       | 34954<br>983       | 34964<br>983       |
| 496.9 | 34974<br>983       | 34984<br>983       | 34994<br>983       | 35003<br>983       | 35013<br>984       | 35023<br>984       | 35033<br>984       | 35043<br>984       | 35053<br>984       | 35063<br>984       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 497.0 | 35072<br>984       | 35082<br>985       | 35092<br>985       | 35102<br>985       | 35112<br>985       | 35121<br>985       | 35131<br>985       | 35141<br>986       | 35151<br>986       | 35161<br>986       |
| 497.1 | 35171<br>986       | 35181<br>986       | 35191<br>986       | 35200<br>986       | 35210<br>987       | 35220<br>987       | 35230<br>987       | 35240<br>987       | 35250<br>987       | 35260<br>987       |
| 497.2 | 35270<br>988       | 35279<br>988       | 35289<br>988       | 35299<br>988       | 35309<br>988       | 35319<br>988       | 35329<br>988       | 35339<br>989       | 35348<br>989       | 35358<br>989       |
| 497.3 | 35368<br>989       | 35378<br>989       | 35388<br>989       | 35398<br>989       | 35408<br>990       | 35418<br>990       | 35428<br>990       | 35438<br>990       | 35447<br>990       | 35457<br>990       |
| 497.4 | 35467<br>991       | 35477<br>991       | 35487<br>991       | 35497<br>991       | 35507<br>991       | 35517<br>991       | 35527<br>991       | 35537<br>992       | 35547<br>992       | 35557<br>992       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 497.5 | 35567<br>992       | 35576<br>992       | 35586<br>992       | 35596<br>992       | 35606<br>993       | 35616<br>993       | 35626<br>993       | 35636<br>993       | 35646<br>993       | 35656<br>993       |
| 497.6 | 35666<br>994       | 35676<br>994       | 35686<br>994       | 35695<br>994       | 35705<br>994       | 35715<br>994       | 35725<br>994       | 35735<br>995       | 35745<br>995       | 35755<br>995       |
| 497.7 | 35765<br>995       | 35775<br>995       | 35785<br>995       | 35795<br>995       | 35805<br>996       | 35815<br>996       | 35825<br>996       | 35835<br>996       | 35845<br>996       | 35855<br>996       |
| 497.8 | 35865<br>997       | 35875<br>997       | 35885<br>997       | 35895<br>997       | 35905<br>997       | 35915<br>997       | 35924<br>997       | 35934<br>998       | 35944<br>998       | 35954<br>998       |
| 497.9 | 35964<br>998       | 35974<br>998       | 35984<br>998       | 35994<br>999       | 36004<br>999       | 36014<br>999       | 36024<br>999       | 36034<br>999       | 36044<br>999       | 36054<br>999       |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 498.0 | 36064<br>1000      | 36074<br>1000      | 36084<br>1000      | 36094<br>1000      | 36104<br>1000      | 36114<br>1000      | 36124<br>1000      | 36134<br>1001      | 36144<br>1001      | 36154<br>1001      |
| 498.1 | 36164<br>1001      | 36174<br>1001      | 36184<br>1001      | 36194<br>1002      | 36204<br>1002      | 36214<br>1002      | 36224<br>1002      | 36234<br>1002      | 36245<br>1002      | 36255<br>1002      |
| 498.2 | 36265<br>1003      | 36275<br>1003      | 36285<br>1003      | 36295<br>1003      | 36305<br>1003      | 36315<br>1003      | 36325<br>1003      | 36335<br>1004      | 36345<br>1004      | 36355<br>1004      |
| 498.3 | 36365<br>1004      | 36375<br>1004      | 36385<br>1004      | 36395<br>1005      | 36405<br>1005      | 36415<br>1005      | 36425<br>1005      | 36435<br>1005      | 36445<br>1005      | 36455<br>1005      |
| 498.4 | 36465<br>1006      | 36475<br>1006      | 36485<br>1006      | 36496<br>1006      | 36506<br>1006      | 36516<br>1006      | 36526<br>1006      | 36536<br>1007      | 36546<br>1007      | 36556<br>1007      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 498.5 | 36566<br>1007      | 36576<br>1007      | 36586<br>1007      | 36596<br>1008      | 36606<br>1008      | 36616<br>1008      | 36626<br>1008      | 36636<br>1008      | 36647<br>1008      | 36657<br>1008      |
| 498.6 | 36667<br>1009      | 36677<br>1009      | 36687<br>1009      | 36697<br>1009      | 36707<br>1009      | 36717<br>1009      | 36727<br>1009      | 36737<br>1010      | 36748<br>1010      | 36758<br>1010      |
| 498.7 | 36768<br>1010      | 36778<br>1010      | 36788<br>1010      | 36798<br>1011      | 36808<br>1011      | 36818<br>1011      | 36828<br>1011      | 36838<br>1011      | 36848<br>1011      | 36859<br>1011      |
| 498.8 | 36869<br>1012      | 36879<br>1012      | 36889<br>1012      | 36899<br>1012      | 36909<br>1012      | 36919<br>1012      | 36929<br>1012      | 36940<br>1013      | 36950<br>1013      | 36960<br>1013      |
| 498.9 | 36970<br>1013      | 36980<br>1013      | 36990<br>1013      | 37000<br>1014      | 37011<br>1014      | 37021<br>1014      | 37031<br>1014      | 37041<br>1014      | 37051<br>1014      | 37061<br>1014      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 499.0 | 37071<br>1015      | 37081<br>1015      | 37092<br>1015      | 37102<br>1015      | 37112<br>1015      | 37122<br>1015      | 37132<br>1015      | 37142<br>1016      | 37153<br>1016      | 37163<br>1016      |
| 499.1 | 37173<br>1016      | 37183<br>1016      | 37193<br>1016      | 37203<br>1016      | 37214<br>1017      | 37224<br>1017      | 37234<br>1017      | 37244<br>1017      | 37254<br>1017      | 37264<br>1017      |
| 499.2 | 37275<br>1018      | 37285<br>1018      | 37295<br>1018      | 37305<br>1018      | 37315<br>1018      | 37326<br>1018      | 37336<br>1018      | 37346<br>1019      | 37356<br>1019      | 37366<br>1019      |
| 499.3 | 37376<br>1019      | 37387<br>1019      | 37397<br>1019      | 37407<br>1019      | 37417<br>1020      | 37427<br>1020      | 37438<br>1020      | 37448<br>1020      | 37458<br>1020      | 37468<br>1020      |

Hidden Dam and Hensley Lake, Fresno River, California  
Area - Capacity Table  
Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 499.4 | 37478<br>1021      | 37489<br>1021      | 37499<br>1021      | 37509<br>1021      | 37519<br>1021      | 37529<br>1021      | 37540<br>1021      | 37550<br>1022      | 37560<br>1022      | 37570<br>1022      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 499.5 | 37581<br>1022      | 37591<br>1022      | 37601<br>1022      | 37611<br>1022      | 37621<br>1023      | 37632<br>1023      | 37642<br>1023      | 37652<br>1023      | 37662<br>1023      | 37673<br>1023      |
| 499.6 | 37683<br>1024      | 37693<br>1024      | 37703<br>1024      | 37713<br>1024      | 37724<br>1024      | 37734<br>1024      | 37744<br>1024      | 37755<br>1025      | 37765<br>1025      | 37775<br>1025      |
| 499.7 | 37785<br>1025      | 37796<br>1025      | 37806<br>1025      | 37816<br>1025      | 37826<br>1026      | 37837<br>1026      | 37847<br>1026      | 37957<br>1026      | 37867<br>1026      | 37877<br>1026      |
| 499.8 | 37888<br>1026      | 37898<br>1027      | 37908<br>1027      | 37919<br>1027      | 37929<br>1027      | 37939<br>1027      | 37949<br>1027      | 37960<br>1028      | 37970<br>1028      | 37980<br>1028      |
| 499.9 | 37991<br>1028      | 38001<br>1028      | 38011<br>1028      | 38021<br>1028      | 38032<br>1029      | 38042<br>1029      | 38052<br>1029      | 38063<br>1029      | 38073<br>1029      | 38083<br>1029      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 500.0 | 38093<br>1029      | 38104<br>1030      | 38114<br>1030      | 38124<br>1030      | 38134<br>1030      | 38145<br>1030      | 38155<br>1030      | 38165<br>1030      | 38176<br>1031      | 38186<br>1031      |
| 500.1 | 38196<br>1031      | 38207<br>1031      | 38217<br>1031      | 38227<br>1031      | 38238<br>1032      | 38248<br>1032      | 38258<br>1032      | 38269<br>1032      | 38279<br>1032      | 38289<br>1032      |
| 500.2 | 38300<br>1032      | 38310<br>1033      | 38320<br>1033      | 38331<br>1033      | 38341<br>1033      | 38351<br>1033      | 38361<br>1033      | 38372<br>1033      | 38382<br>1034      | 38392<br>1034      |
| 500.3 | 38403<br>1034      | 38413<br>1034      | 38423<br>1034      | 38434<br>1034      | 38444<br>1035      | 38455<br>1035      | 38465<br>1035      | 38475<br>1035      | 38486<br>1035      | 38496<br>1035      |
| 500.4 | 38506<br>1035      | 38517<br>1036      | 38527<br>1036      | 38537<br>1036      | 38548<br>1036      | 38558<br>1036      | 38569<br>1036      | 38579<br>1036      | 38589<br>1037      | 38600<br>1037      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 500.5 | 38610<br>1037      | 38620<br>1037      | 38631<br>1037      | 38641<br>1037      | 38651<br>1037      | 38662<br>1038      | 38672<br>1038      | 38683<br>1038      | 38693<br>1038      | 38703<br>1038      |
| 500.6 | 38714<br>1038      | 38724<br>1039      | 38734<br>1039      | 38745<br>1039      | 38755<br>1039      | 38766<br>1039      | 38776<br>1039      | 38786<br>1039      | 38797<br>1040      | 38807<br>1040      |
| 500.7 | 38818<br>1040      | 38828<br>1040      | 38839<br>1040      | 38849<br>1040      | 38859<br>1040      | 38870<br>1041      | 38880<br>1041      | 38890<br>1041      | 38901<br>1041      | 38911<br>1041      |
| 500.8 | 38922<br>1041      | 38932<br>1041      | 38942<br>1042      | 38953<br>1042      | 38963<br>1042      | 38974<br>1042      | 38984<br>1042      | 38995<br>1042      | 39005<br>1042      | 39015<br>1043      |
| 500.9 | 39026<br>1043      | 39036<br>1043      | 39047<br>1043      | 39057<br>1043      | 39068<br>1043      | 39078<br>1044      | 39089<br>1044      | 39099<br>1044      | 39109<br>1044      | 39120<br>1044      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 501.0 | 39130<br>1044      | 39141<br>1044      | 39151<br>1045      | 39161<br>1045      | 39172<br>1045      | 39182<br>1045      | 39193<br>1045      | 39203<br>1045      | 39214<br>1045      | 39224<br>1046      |
| 501.1 | 39235<br>1046      | 39245<br>1046      | 39256<br>1046      | 39266<br>1046      | 39277<br>1046      | 39287<br>1046      | 39298<br>1047      | 39308<br>1047      | 39319<br>1047      | 39329<br>1047      |
| 501.2 | 39339<br>1047      | 39350<br>1047      | 39360<br>1048      | 39371<br>1048      | 39381<br>1048      | 39392<br>1048      | 39402<br>1048      | 39413<br>1048      | 39423<br>1048      | 39434<br>1049      |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 501.3 | 39444<br>1049      | 39455<br>1049      | 39465<br>1049      | 39476<br>1049      | 39486<br>1049      | 39497<br>1049      | 39507<br>1050      | 39518<br>1050      | 39528<br>1050      | 39539<br>1050      |
| 501.4 | 39549<br>1050      | 39560<br>1050      | 39570<br>1050      | 39581<br>1051      | 39591<br>1051      | 39602<br>1051      | 39612<br>1051      | 39623<br>1051      | 39633<br>1051      | 39644<br>1051      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 501.5 | 39654<br>1052      | 39665<br>1052      | 39675<br>1052      | 39686<br>1052      | 39696<br>1052      | 39707<br>1052      | 39717<br>1053      | 39728<br>1053      | 39738<br>1053      | 39749<br>1053      |
| 501.6 | 39759<br>1053      | 39770<br>1053      | 39781<br>1053      | 39791<br>1054      | 39802<br>1054      | 39812<br>1054      | 39823<br>1054      | 39833<br>1054      | 39844<br>1054      | 39854<br>1054      |
| 501.7 | 39865<br>1055      | 39875<br>1055      | 39886<br>1055      | 39897<br>1055      | 39907<br>1055      | 39918<br>1055      | 39928<br>1055      | 39939<br>1056      | 39949<br>1056      | 39960<br>1056      |
| 501.8 | 39970<br>1056      | 39981<br>1056      | 39991<br>1056      | 40002<br>1056      | 40013<br>1057      | 40023<br>1057      | 40034<br>1057      | 40044<br>1057      | 40055<br>1057      | 40065<br>1057      |
| 501.9 | 40076<br>1058      | 40087<br>1058      | 40097<br>1058      | 40108<br>1058      | 40118<br>1058      | 40129<br>1058      | 40140<br>1058      | 40150<br>1059      | 40161<br>1059      | 40171<br>1059      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 502.0 | 40182<br>1059      | 40192<br>1059      | 40203<br>1059      | 40214<br>1059      | 40224<br>1060      | 40235<br>1060      | 40245<br>1060      | 40256<br>1060      | 40267<br>1060      | 40277<br>1060      |
| 502.1 | 40288<br>1060      | 40298<br>1061      | 40309<br>1061      | 40320<br>1061      | 40330<br>1061      | 40341<br>1061      | 40352<br>1061      | 40362<br>1061      | 40373<br>1062      | 40383<br>1062      |
| 502.2 | 40394<br>1062      | 40405<br>1062      | 40415<br>1062      | 40426<br>1062      | 40437<br>1063      | 40447<br>1063      | 40458<br>1063      | 40468<br>1063      | 40479<br>1063      | 40490<br>1063      |
| 502.3 | 40500<br>1063      | 40511<br>1064      | 40521<br>1064      | 40532<br>1064      | 40543<br>1064      | 40553<br>1064      | 40564<br>1064      | 40575<br>1064      | 40585<br>1065      | 40596<br>1065      |
| 502.4 | 40607<br>1065      | 40617<br>1065      | 40628<br>1065      | 40639<br>1065      | 40649<br>1065      | 40660<br>1066      | 40671<br>1066      | 40681<br>1066      | 40692<br>1066      | 40703<br>1066      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 502.5 | 40713<br>1066      | 40724<br>1066      | 40734<br>1067      | 40745<br>1067      | 40756<br>1067      | 40766<br>1067      | 40777<br>1067      | 40768<br>1067      | 40798<br>1067      | 40809<br>1068      |
| 502.6 | 40820<br>1068      | 40831<br>1068      | 40841<br>1068      | 40852<br>1068      | 40863<br>1068      | 40873<br>1068      | 40884<br>1069      | 40895<br>1069      | 40905<br>1069      | 40916<br>1069      |
| 502.7 | 40927<br>1069      | 40938<br>1069      | 40948<br>1070      | 40959<br>1070      | 40970<br>1070      | 40980<br>1070      | 40991<br>1070      | 41002<br>1070      | 41012<br>1070      | 41023<br>1071      |
| 502.8 | 41034<br>1071      | 41044<br>1071      | 41055<br>1071      | 41066<br>1071      | 41077<br>1071      | 41087<br>1071      | 41098<br>1072      | 41109<br>1072      | 41119<br>1072      | 41130<br>1072      |
| 502.9 | 41141<br>1072      | 41152<br>1072      | 41162<br>1072      | 41173<br>1073      | 41184<br>1073      | 41195<br>1073      | 41205<br>1073      | 41216<br>1073      | 41227<br>1073      | 41238<br>1073      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 503.0 | 41248<br>1074      | 41259<br>1074      | 41270<br>1074      | 41280<br>1074      | 41291<br>1074      | 41302<br>1074      | 41313<br>1074      | 41323<br>1075      | 41334<br>1075      | 41345<br>1075      |
| 503.1 | 41356<br>1075      | 41366<br>1075      | 41377<br>1075      | 41388<br>1075      | 41399<br>1076      | 41409<br>1076      | 41420<br>1076      | 41431<br>1076      | 41442<br>1076      | 41452<br>1076      |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 503.2 | 41463<br>1077      | 41474<br>1077      | 41485<br>1077      | 41496<br>1077      | 41506<br>1077      | 41517<br>1077      | 41528<br>1077      | 41538<br>1078      | 41549<br>1078      | 41560<br>1078      |
| 503.3 | 41571<br>1078      | 41582<br>1078      | 41592<br>1078      | 41603<br>1078      | 41614<br>1079      | 41625<br>1079      | 41636<br>1079      | 41646<br>1079      | 41657<br>1079      | 41668<br>1079      |
| 503.4 | 41679<br>1079      | 41690<br>1080      | 41700<br>1080      | 41711<br>1080      | 41722<br>1080      | 41733<br>1080      | 41744<br>1080      | 41754<br>1080      | 41765<br>1081      | 41776<br>1081      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 503.5 | 41787<br>1081      | 41797<br>1081      | 41808<br>1081      | 41819<br>1081      | 41830<br>1081      | 41841<br>1082      | 41852<br>1082      | 41862<br>1082      | 41873<br>1082      | 41884<br>1082      |
| 503.6 | 41895<br>1082      | 41906<br>1082      | 41917<br>1083      | 41927<br>1083      | 41938<br>1083      | 41949<br>1083      | 41960<br>1083      | 41971<br>1083      | 41982<br>1083      | 41992<br>1084      |
| 503.7 | 42003<br>1084      | 42014<br>1084      | 42025<br>1084      | 42036<br>1084      | 42047<br>1084      | 42058<br>1085      | 42068<br>1085      | 42079<br>1085      | 42090<br>1085      | 42101<br>1085      |
| 503.8 | 42112<br>1085      | 42122<br>1085      | 42133<br>1086      | 42144<br>1086      | 42155<br>1086      | 42166<br>1086      | 42177<br>1086      | 42188<br>1086      | 42199<br>1086      | 42209<br>1087      |
| 503.9 | 42220<br>1087      | 42231<br>1087      | 42242<br>1087      | 42253<br>1087      | 42264<br>1087      | 42275<br>1087      | 42286<br>1088      | 42297<br>1088      | 42307<br>1088      | 42318<br>1088      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 504.0 | 42329<br>1088      | 42340<br>1088      | 42351<br>1088      | 42362<br>1089      | 42372<br>1089      | 42383<br>1089      | 42394<br>1089      | 42405<br>1089      | 42416<br>1089      | 42427<br>1089      |
| 504.1 | 42438<br>1090      | 42449<br>1090      | 42460<br>1090      | 42471<br>1090      | 42482<br>1090      | 42492<br>1090      | 42503<br>1090      | 42514<br>1091      | 42525<br>1091      | 42536<br>1091      |
| 504.2 | 42547<br>1091      | 42558<br>1091      | 42569<br>1091      | 42580<br>1091      | 42591<br>1092      | 42602<br>1092      | 42612<br>1092      | 42623<br>1092      | 42634<br>1092      | 42645<br>1092      |
| 504.3 | 42656<br>1092      | 42667<br>1093      | 42678<br>1093      | 42689<br>1093      | 42700<br>1093      | 42711<br>1093      | 42722<br>1093      | 42733<br>1093      | 42744<br>1094      | 42755<br>1094      |
| 504.4 | 42765<br>1094      | 42776<br>1094      | 42787<br>1094      | 42798<br>1094      | 42809<br>1094      | 42820<br>1095      | 42831<br>1095      | 42842<br>1095      | 42853<br>1095      | 42864<br>1095      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 504.5 | 42875<br>1095      | 42886<br>1095      | 42897<br>1096      | 42908<br>1096      | 42919<br>1096      | 42930<br>1096      | 42941<br>1096      | 42952<br>1096      | 42963<br>1097      | 42974<br>1097      |
| 504.6 | 42984<br>1097      | 42995<br>1097      | 43006<br>1097      | 43017<br>1097      | 43028<br>1097      | 43039<br>1098      | 43050<br>1098      | 43061<br>1098      | 43072<br>1098      | 43083<br>1098      |
| 504.7 | 43094<br>1098      | 43105<br>1098      | 43116<br>1099      | 43127<br>1099      | 43138<br>1099      | 43149<br>1099      | 43160<br>1099      | 43171<br>1099      | 43182<br>1099      | 43193<br>1100      |
| 504.8 | 43204<br>1100      | 43215<br>1100      | 43226<br>1100      | 43237<br>1100      | 43248<br>1100      | 43259<br>1100      | 43270<br>1101      | 43281<br>1101      | 43292<br>1101      | 43303<br>1101      |
| 504.9 | 43314<br>1101      | 43325<br>1101      | 43336<br>1101      | 43347<br>1102      | 43358<br>1102      | 43369<br>1102      | 43380<br>1102      | 43391<br>1102      | 43402<br>1102      | 43413<br>1102      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 505.0 | 43425<br>1103      | 43435<br>1103      | 43446<br>1103      | 43457<br>1103      | 43468<br>1103      | 43479<br>1103      | 43490<br>1103      | 43302<br>1104      | 43513<br>1104      | 43524<br>1104      |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 505.1 | 43535<br>1104      | 43546<br>1104      | 43557<br>1104      | 43568<br>1104      | 43579<br>1105      | 43590<br>1105      | 43601<br>1105      | 43612<br>1105      | 43623<br>1105      | 43634<br>1105      |
| 505.2 | 43645<br>1105      | 43656<br>1106      | 43667<br>1106      | 43678<br>1106      | 43690<br>1106      | 43701<br>1106      | 43711<br>1106      | 43722<br>1106      | 43734<br>1107      | 43745<br>1107      |
| 505.3 | 43756<br>1107      | 43767<br>1107      | 43778<br>1107      | 43789<br>1107      | 43800<br>1107      | 43811<br>1108      | 43822<br>1108      | 43833<br>1108      | 43844<br>1108      | 43855<br>1108      |
| 505.4 | 43867<br>1108      | 43878<br>1108      | 43889<br>1109      | 43900<br>1109      | 43911<br>1109      | 43922<br>1109      | 43933<br>1109      | 43944<br>1109      | 43955<br>1109      | 43966<br>1110      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 505.5 | 43978<br>1110      | 43988<br>1110      | 44000<br>1110      | 44011<br>1110      | 44022<br>1110      | 44033<br>1110      | 44044<br>1111      | 44055<br>1111      | 44066<br>1111      | 44077<br>1111      |
| 505.6 | 44088<br>1111      | 44100<br>1111      | 44111<br>1111      | 44122<br>1112      | 44133<br>1112      | 44144<br>1112      | 44155<br>1112      | 44166<br>1112      | 44177<br>1112      | 44189<br>1112      |
| 505.7 | 44200<br>1113      | 44211<br>1113      | 44222<br>1113      | 44233<br>1113      | 44244<br>1113      | 44255<br>1113      | 44266<br>1113      | 44277<br>1114      | 44289<br>1114      | 44300<br>1114      |
| 505.8 | 44311<br>1114      | 44322<br>1114      | 44333<br>1114      | 44344<br>1114      | 44356<br>1115      | 44367<br>1115      | 44378<br>1115      | 44389<br>1115      | 44400<br>1115      | 44411<br>1115      |
| 505.9 | 44423<br>1115      | 44434<br>1116      | 44445<br>1116      | 44456<br>1116      | 44467<br>1116      | 44478<br>1116      | 44490<br>1116      | 44501<br>1116      | 44512<br>1117      | 44523<br>1117      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 506.0 | 44534<br>1117      | 44545<br>1117      | 44556<br>1117      | 44568<br>1117      | 44579<br>1117      | 44590<br>1118      | 44601<br>1118      | 44612<br>1118      | 44623<br>1118      | 44635<br>1118      |
| 506.1 | 44646<br>1118      | 44657<br>1118      | 44668<br>1119      | 44679<br>1119      | 44691<br>1119      | 44702<br>1119      | 44713<br>1119      | 44724<br>1119      | 44735<br>1119      | 44747<br>1120      |
| 506.2 | 44758<br>1120      | 44769<br>1120      | 44780<br>1120      | 44791<br>1120      | 44803<br>1120      | 44814<br>1120      | 44825<br>1121      | 44836<br>1121      | 44847<br>1121      | 44859<br>1121      |
| 506.3 | 44870<br>1121      | 44881<br>1121      | 44892<br>1121      | 44903<br>1122      | 44915<br>1122      | 44926<br>1122      | 44937<br>1122      | 44948<br>1122      | 44960<br>1122      | 44971<br>1122      |
| 506.4 | 44982<br>1123      | 44993<br>1123      | 45004<br>1123      | 45016<br>1123      | 45027<br>1123      | 45038<br>1123      | 45049<br>1123      | 45061<br>1124      | 45072<br>1124      | 45083<br>1124      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 506.5 | 45094<br>1124      | 45105<br>1124      | 45117<br>1124      | 45128<br>1124      | 45139<br>1125      | 45150<br>1125      | 45162<br>1125      | 45173<br>1125      | 45184<br>1125      | 45195<br>1125      |
| 506.6 | 45207<br>1125      | 45218<br>1126      | 45229<br>1126      | 45241<br>1126      | 45252<br>1126      | 45263<br>1126      | 45274<br>1126      | 45286<br>1126      | 45297<br>1127      | 45308<br>1127      |
| 506.7 | 45319<br>1127      | 45331<br>1127      | 45342<br>1127      | 45353<br>1127      | 45365<br>1127      | 45376<br>1128      | 45387<br>1128      | 45398<br>1128      | 45409<br>1128      | 45421<br>1128      |
| 506.8 | 45432<br>1128      | 45443<br>1128      | 45455<br>1129      | 45466<br>1129      | 45477<br>1129      | 45489<br>1129      | 45500<br>1129      | 45511<br>1129      | 45522<br>1129      | 45534<br>1130      |
| 506.9 | 45545<br>1130      | 45556<br>1130      | 45568<br>1130      | 45579<br>1130      | 45590<br>1130      | 45602<br>1130      | 45613<br>1131      | 45624<br>1131      | 45636<br>1131      | 45647<br>1131      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 507.0 | 45658<br>1131      | 45669<br>1131      | 45681<br>1131      | 45692<br>1132      | 45703<br>1132      | 45715<br>1132      | 45726<br>1132      | 45737<br>1132      | 45749<br>1132      | 45760<br>1132      |
| 507.1 | 45771<br>1133      | 45783<br>1133      | 45794<br>1133      | 45805<br>1133      | 45817<br>1133      | 45828<br>1133      | 45839<br>1133      | 45851<br>1133      | 45862<br>1134      | 45873<br>1134      |
| 507.2 | 45885<br>1134      | 45896<br>1134      | 45907<br>1134      | 45919<br>1134      | 45930<br>1134      | 45941<br>1135      | 45953<br>1135      | 45964<br>1135      | 45975<br>1135      | 45987<br>1135      |
| 507.3 | 45998<br>1135      | 46009<br>1135      | 46021<br>1136      | 46032<br>1136      | 46043<br>1136      | 46055<br>1136      | 46066<br>1136      | 46078<br>1136      | 46089<br>1136      | 46100<br>1137      |
| 507.4 | 46112<br>1137      | 46123<br>1137      | 46134<br>1137      | 46146<br>1137      | 46157<br>1137      | 46169<br>1137      | 46180<br>1138      | 46191<br>1138      | 46203<br>1138      | 46214<br>1138      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 507.5 | 46226<br>1138      | 46237<br>1138      | 46248<br>1138      | 46259<br>1139      | 46271<br>1139      | 46282<br>1139      | 46294<br>1139      | 46305<br>1139      | 46316<br>1139      | 46328<br>1139      |
| 507.6 | 46339<br>1140      | 46351<br>1140      | 46362<br>1140      | 46373<br>1140      | 46385<br>1140      | 46396<br>1140      | 46408<br>1140      | 46419<br>1141      | 46431<br>1141      | 46442<br>1141      |
| 507.7 | 46453<br>1141      | 46465<br>1141      | 46476<br>1141      | 46488<br>1141      | 46499<br>1142      | 46511<br>1142      | 46522<br>1142      | 46533<br>1142      | 46545<br>1142      | 46556<br>1142      |
| 507.8 | 46567<br>1142      | 46579<br>1143      | 46590<br>1143      | 46602<br>1143      | 46613<br>1143      | 46625<br>1143      | 46636<br>1143      | 46647<br>1143      | 46659<br>1144      | 46670<br>1144      |
| 507.9 | 46682<br>1144      | 46693<br>1144      | 46705<br>1144      | 46716<br>1144      | 46728<br>1144      | 46739<br>1145      | 46751<br>1145      | 46762<br>1145      | 46773<br>1145      | 46785<br>1145      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 508.0 | 46796<br>1145      | 46808<br>1145      | 46819<br>1145      | 46830<br>1146      | 46842<br>1146      | 46853<br>1146      | 46865<br>1146      | 46876<br>1146      | 46888<br>1146      | 46899<br>1146      |
| 508.1 | 46911<br>1147      | 46922<br>1147      | 46934<br>1147      | 46945<br>1147      | 46957<br>1147      | 46968<br>1147      | 46980<br>1147      | 46991<br>1148      | 47003<br>1148      | 47014<br>1148      |
| 508.2 | 47026<br>1148      | 47037<br>1148      | 47049<br>1148      | 47060<br>1148      | 47072<br>1149      | 47083<br>1149      | 47094<br>1149      | 47106<br>1149      | 47117<br>1149      | 47129<br>1149      |
| 508.3 | 47140<br>1149      | 47152<br>1150      | 47163<br>1150      | 47175<br>1150      | 47186<br>1150      | 47198<br>1150      | 47209<br>1150      | 47221<br>1150      | 47232<br>1151      | 47244<br>1151      |
| 508.4 | 47255<br>1151      | 47267<br>1151      | 47279<br>1151      | 47290<br>1151      | 47302<br>1151      | 47313<br>1152      | 47325<br>1152      | 47336<br>1152      | 47348<br>1152      | 47359<br>1152      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 508.5 | 47371<br>1152      | 47382<br>1152      | 47394<br>1153      | 47405<br>1153      | 47417<br>1153      | 47428<br>1153      | 47440<br>1153      | 47451<br>1153      | 47463<br>1153      | 47474<br>1153      |
| 508.6 | 47486<br>1154      | 47497<br>1154      | 47509<br>1154      | 47521<br>1154      | 47532<br>1154      | 47544<br>1154      | 47555<br>1154      | 47567<br>1155      | 47578<br>1155      | 47590<br>1155      |
| 508.7 | 47601<br>1155      | 47613<br>1155      | 47625<br>1155      | 47636<br>1155      | 47648<br>1156      | 47659<br>1156      | 47671<br>1156      | 47682<br>1156      | 47694<br>1156      | 47705<br>1156      |
| 508.8 | 47717<br>1156      | 47728<br>1157      | 47740<br>1157      | 47752<br>1157      | 47763<br>1157      | 47775<br>1157      | 47786<br>1157      | 47798<br>1157      | 47809<br>1158      | 47821<br>1158      |
| 508.9 | 47833<br>1158      | 47844<br>1158      | 47856<br>1158      | 47867<br>1158      | 47879<br>1158      | 47891<br>1159      | 47902<br>1159      | 47914<br>1159      | 47925<br>1159      | 47937<br>1159      |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 509.0 | 47949<br>1159      | 47960<br>1159      | 47972<br>1160      | 47983<br>1160      | 47995<br>1160      | 48006<br>1160      | 48018<br>1160      | 48030<br>1160      | 48041<br>1160      | 48053<br>1160      |
| 509.1 | 48064<br>1161      | 48076<br>1161      | 48088<br>1161      | 48099<br>1161      | 48111<br>1161      | 48123<br>1161      | 48134<br>1161      | 48146<br>1162      | 48157<br>1162      | 48169<br>1162      |
| 509.2 | 48181<br>1162      | 48192<br>1162      | 48204<br>1162      | 48216<br>1162      | 48227<br>1163      | 48239<br>1163      | 48250<br>1163      | 48262<br>1163      | 48273<br>1163      | 48285<br>1163      |
| 509.3 | 48297<br>1163      | 48308<br>1164      | 48320<br>1164      | 48332<br>1164      | 48343<br>1164      | 48355<br>1164      | 48367<br>1164      | 48378<br>1164      | 48390<br>1165      | 48402<br>1165      |
| 509.4 | 48413<br>1165      | 48425<br>1165      | 48437<br>1165      | 48448<br>1165      | 48460<br>1165      | 48472<br>1166      | 48483<br>1166      | 48495<br>1166      | 48507<br>1166      | 48518<br>1166      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 509.5 | 48530<br>1166      | 48541<br>1166      | 48553<br>1166      | 48565<br>1167      | 48576<br>1167      | 48588<br>1167      | 48600<br>1167      | 48611<br>1167      | 48623<br>1167      | 48635<br>1167      |
| 509.6 | 48646<br>1168      | 48658<br>1168      | 48670<br>1168      | 48682<br>1168      | 48693<br>1168      | 48705<br>1168      | 48717<br>1168      | 48728<br>1169      | 48740<br>1169      | 48732<br>1169      |
| 509.7 | 48763<br>1169      | 48775<br>1169      | 48787<br>1169      | 48799<br>1169      | 48810<br>1170      | 48822<br>1170      | 48833<br>1170      | 48845<br>1170      | 48857<br>1170      | 48869<br>1170      |
| 509.8 | 48880<br>1170      | 48892<br>1171      | 48904<br>1171      | 48915<br>1171      | 48927<br>1171      | 48939<br>1171      | 48951<br>1171      | 48962<br>1171      | 48974<br>1171      | 48986<br>1172      |
| 509.9 | 48997<br>1172      | 49009<br>1172      | 49021<br>1172      | 49033<br>1172      | 49044<br>1172      | 49056<br>1172      | 49068<br>1173      | 49080<br>1173      | 49091<br>1173      | 49103<br>1173      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 510.0 | 49115<br>1173      | 49126<br>1173      | 49138<br>1173      | 49150<br>1174      | 49161<br>1174      | 49173<br>1174      | 49185<br>1174      | 49197<br>1174      | 49208<br>1174      | 49220<br>1174      |
| 510.1 | 49232<br>1175      | 49244<br>1175      | 49256<br>1175      | 49267<br>1175      | 49279<br>1175      | 49291<br>1175      | 49303<br>1175      | 49314<br>1176      | 49326<br>1176      | 49338<br>1176      |
| 510.2 | 49350<br>1176      | 49361<br>1176      | 49373<br>1176      | 49385<br>1176      | 49397<br>1176      | 49409<br>1177      | 49420<br>1177      | 49432<br>1177      | 49444<br>1177      | 49455<br>1177      |
| 510.3 | 49467<br>1177      | 49479<br>1177      | 49491<br>1178      | 49502<br>1178      | 49514<br>1178      | 49526<br>1178      | 49538<br>1178      | 49550<br>1178      | 49561<br>1178      | 49573<br>1179      |
| 510.4 | 49585<br>1179      | 49597<br>1179      | 49609<br>1179      | 49620<br>1179      | 49632<br>1179      | 49644<br>1179      | 49656<br>1180      | 49668<br>1180      | 49679<br>1180      | 49691<br>1180      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 510.5 | 49703<br>1180      | 49715<br>1180      | 49726<br>1180      | 49738<br>1180      | 49750<br>1181      | 49762<br>1181      | 49774<br>1181      | 49786<br>1181      | 49797<br>1181      | 49809<br>1181      |
| 510.6 | 49821<br>1181      | 49833<br>1182      | 49845<br>1182      | 49856<br>1182      | 49868<br>1182      | 49880<br>1182      | 49892<br>1182      | 49904<br>1182      | 49916<br>1183      | 49927<br>1183      |
| 510.7 | 49939<br>1183      | 49951<br>1183      | 49963<br>1183      | 49975<br>1183      | 49987<br>1183      | 49999<br>1184      | 50010<br>1184      | 50022<br>1184      | 50034<br>1184      | 50046<br>1184      |
| 510.8 | 50058<br>1184      | 50069<br>1184      | 50081<br>1184      | 50093<br>1185      | 50105<br>1185      | 50117<br>1185      | 50129<br>1185      | 50141<br>1185      | 50152<br>1185      | 50164<br>1185      |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 510.9 | 50176<br>1186      | 50188<br>1186      | 50200<br>1186      | 50212<br>1186      | 50224<br>1186      | 50235<br>1186      | 50247<br>1186      | 50259<br>1187      | 50271<br>1187      | 50283<br>1187      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 511.0 | 50295<br>1187      | 50306<br>1187      | 50318<br>1187      | 50330<br>1187      | 50342<br>1188      | 50354<br>1188      | 50366<br>1188      | 50378<br>1188      | 50390<br>1198      | 50402<br>1188      |
| 511.1 | 50413<br>1188      | 50425<br>1188      | 50437<br>1189      | 50449<br>1189      | 50461<br>1189      | 50473<br>1189      | 50485<br>1189      | 50497<br>1189      | 50509<br>1189      | 50521<br>1190      |
| 511.2 | 50532<br>1190      | 50544<br>1190      | 50556<br>1190      | 50568<br>1190      | 50580<br>1190      | 50592<br>1190      | 50604<br>1191      | 50616<br>1191      | 50627<br>1191      | 50639<br>1191      |
| 511.3 | 50651<br>1191      | 50663<br>1191      | 50675<br>1191      | 50687<br>1192      | 50699<br>1192      | 50711<br>1192      | 50723<br>1192      | 50735<br>1192      | 50747<br>1192      | 50759<br>1192      |
| 511.4 | 50771<br>1192      | 50783<br>1193      | 50795<br>1193      | 50806<br>1193      | 50818<br>1193      | 50830<br>1193      | 50842<br>1193      | 50854<br>1193      | 50866<br>1194      | 50878<br>1194      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 511.5 | 50890<br>1194      | 50902<br>1194      | 50914<br>1194      | 50926<br>1194      | 50938<br>1194      | 50950<br>1195      | 50961<br>1195      | 50973<br>1195      | 50985<br>1195      | 50997<br>1195      |
| 511.6 | 51009<br>1195      | 51021<br>1195      | 51033<br>1195      | 51045<br>1196      | 51057<br>1196      | 51069<br>1196      | 51081<br>1196      | 51093<br>1196      | 51105<br>1196      | 51117<br>1196      |
| 511.7 | 51129<br>1197      | 51141<br>1197      | 51153<br>1197      | 51165<br>1197      | 51177<br>1197      | 51189<br>1197      | 51201<br>1197      | 51213<br>1198      | 51225<br>1198      | 51237<br>1198      |
| 511.8 | 51249<br>1198      | 51261<br>1198      | 51273<br>1198      | 51285<br>1198      | 51297<br>1199      | 51309<br>1199      | 51321<br>1199      | 51333<br>1199      | 51345<br>1199      | 51357<br>1199      |
| 511.9 | 51369<br>1199      | 51381<br>1199      | 51393<br>1200      | 51405<br>1200      | 51417<br>1200      | 51429<br>1200      | 51441<br>1200      | 51453<br>1200      | 51465<br>1200      | 51477<br>1201      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 512.0 | 51489<br>1201      | 51500<br>1201      | 51512<br>1201      | 51524<br>1201      | 51536<br>1201      | 51549<br>1201      | 51561<br>1202      | 51573<br>1202      | 51585<br>1202      | 51597<br>1202      |
| 512.1 | 51609<br>1202      | 51621<br>1202      | 51633<br>1202      | 51645<br>1202      | 51657<br>1203      | 51669<br>1203      | 51681<br>1203      | 51693<br>1203      | 51705<br>1203      | 51717<br>1203      |
| 512.2 | 51729<br>1203      | 51741<br>1204      | 51753<br>1204      | 51765<br>1204      | 51777<br>1204      | 51789<br>1204      | 51801<br>1204      | 51813<br>1204      | 51825<br>1205      | 51837<br>1205      |
| 512.3 | 51849<br>1205      | 51861<br>1205      | 51873<br>1205      | 51885<br>1205      | 51898<br>1205      | 51910<br>1205      | 51922<br>1206      | 51934<br>1206      | 51946<br>1206      | 51958<br>1206      |
| 512.4 | 51970<br>1206      | 51982<br>1206      | 51994<br>1206      | 52006<br>1207      | 52018<br>1207      | 52030<br>1207      | 52042<br>1207      | 52055<br>1207      | 52067<br>1207      | 52079<br>1207      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 512.5 | 52091<br>1208      | 52103<br>1208      | 52115<br>1208      | 52127<br>1208      | 52139<br>1208      | 52151<br>1208      | 52163<br>1208      | 52175<br>1208      | 52187<br>1209      | 52199<br>1209      |
| 512.6 | 52211<br>1209      | 52224<br>1209      | 52236<br>1209      | 52248<br>1209      | 52260<br>1209      | 52272<br>1210      | 52284<br>1210      | 52296<br>1210      | 52308<br>1210      | 52320<br>1210      |
| 512.7 | 52332<br>1210      | 52345<br>1210      | 52357<br>1211      | 52369<br>1211      | 52381<br>1211      | 52393<br>1211      | 52405<br>1211      | 52417<br>1211      | 52429<br>1211      | 52441<br>1211      |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 512.8 | 52453<br>1212      | 52466<br>1212      | 52478<br>1212      | 52490<br>1212      | 52502<br>1212      | 52514<br>1212      | 52526<br>1212      | 52538<br>1213      | 52550<br>1213      | 52563<br>1213      |
| 512.9 | 52575<br>1213      | 52587<br>1213      | 52599<br>1213      | 52611<br>1213      | 52623<br>1214      | 52635<br>1214      | 52648<br>1214      | 52660<br>1214      | 52672<br>1214      | 52684<br>1214      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 513.0 | 52696<br>1214      | 52708<br>1214      | 52720<br>1215      | 52732<br>1215      | 52745<br>1215      | 52757<br>1215      | 52769<br>1215      | 52781<br>1215      | 52793<br>1215      | 52805<br>1216      |
| 513.1 | 52818<br>1216      | 52830<br>1216      | 52842<br>1216      | 52854<br>1216      | 52866<br>1216      | 52878<br>1216      | 52891<br>1217      | 52903<br>1217      | 52915<br>1217      | 52927<br>1217      |
| 513.2 | 52939<br>1217      | 52951<br>1217      | 52964<br>1217      | 52976<br>1217      | 52988<br>1218      | 53000<br>1218      | 53012<br>1218      | 53024<br>1218      | 53037<br>1218      | 53049<br>1218      |
| 513.3 | 53061<br>1218      | 53073<br>1219      | 53085<br>1219      | 53097<br>1219      | 53110<br>1219      | 53122<br>1219      | 53134<br>1219      | 53146<br>1219      | 53159<br>1219      | 53171<br>1220      |
| 513.4 | 53183<br>1220      | 53195<br>1220      | 53207<br>1220      | 53220<br>1220      | 53232<br>1220      | 53244<br>1220      | 53256<br>1221      | 53268<br>1221      | 53281<br>1221      | 53293<br>1221      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 513.5 | 53305<br>1221      | 53317<br>1221      | 53329<br>1221      | 53341<br>1222      | 53354<br>1222      | 53366<br>1222      | 53378<br>1222      | 53390<br>1222      | 53403<br>1222      | 53415<br>1222      |
| 513.6 | 53427<br>1222      | 53439<br>1223      | 53452<br>1223      | 53464<br>1223      | 53476<br>1223      | 53488<br>1223      | 53501<br>1223      | 53513<br>1223      | 53525<br>1224      | 53537<br>1224      |
| 513.7 | 53550<br>1224      | 53562<br>1224      | 53574<br>1224      | 53586<br>1224      | 53599<br>1224      | 53611<br>1224      | 53623<br>1225      | 53635<br>1225      | 53647<br>1225      | 53660<br>1225      |
| 513.8 | 53672<br>1225      | 53684<br>1225      | 53696<br>1225      | 53709<br>1226      | 53721<br>1226      | 53733<br>1226      | 53745<br>1226      | 53758<br>1226      | 53770<br>1226      | 53782<br>1226      |
| 513.9 | 53794<br>1227      | 53807<br>1227      | 53819<br>1227      | 53831<br>1227      | 53844<br>1227      | 53856<br>1227      | 53868<br>1227      | 53880<br>1227      | 53893<br>1228      | 53905<br>1228      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 514.0 | 53917<br>1228      | 53929<br>1228      | 53942<br>1228      | 53954<br>1228      | 53966<br>1228      | 53979<br>1229      | 53991<br>1229      | 54003<br>1229      | 54015<br>1229      | 54028<br>1229      |
| 514.1 | 54040<br>1229      | 54052<br>1229      | 54065<br>1229      | 54077<br>1230      | 54089<br>1230      | 54102<br>1230      | 54114<br>1230      | 54126<br>1230      | 54138<br>1230      | 54151<br>1230      |
| 514.2 | 54163<br>1231      | 54175<br>1231      | 54188<br>1231      | 54200<br>1231      | 54212<br>1231      | 54225<br>1231      | 54237<br>1231      | 54249<br>1232      | 54261<br>1232      | 54274<br>1232      |
| 514.3 | 54286<br>1232      | 54298<br>1232      | 54311<br>1232      | 54323<br>1232      | 54335<br>1232      | 54348<br>1233      | 54360<br>1233      | 54372<br>1233      | 54385<br>1233      | 54397<br>1233      |
| 514.4 | 54409<br>1233      | 54422<br>1233      | 54434<br>1234      | 54446<br>1234      | 54459<br>1234      | 54471<br>1234      | 54484<br>1234      | 54496<br>1234      | 54508<br>1234      | 54521<br>1234      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 514.5 | 54533<br>1235      | 54545<br>1235      | 54557<br>1235      | 54570<br>1235      | 54582<br>1235      | 54594<br>1235      | 54607<br>1235      | 54619<br>1236      | 54632<br>1236      | 54644<br>1236      |
| 514.6 | 54656<br>1236      | 54669<br>1236      | 54681<br>1236      | 54693<br>1236      | 54706<br>1236      | 54718<br>1237      | 54731<br>1237      | 54743<br>1237      | 54755<br>1237      | 54768<br>1237      |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 514.7 | 54780<br>1237      | 54792<br>1237      | 54805<br>1238      | 54817<br>1238      | 54830<br>1238      | 54842<br>1238      | 54854<br>1238      | 54867<br>1238      | 54879<br>1238      | 54891<br>1239      |
| 514.8 | 54904<br>1239      | 54916<br>1239      | 54929<br>1239      | 54941<br>1239      | 54953<br>1239      | 54966<br>1239      | 54978<br>1239      | 54991<br>1240      | 55003<br>1240      | 55015<br>1240      |
| 514.9 | 55028<br>1240      | 55040<br>1240      | 55053<br>1240      | 55065<br>1240      | 55077<br>1241      | 55090<br>1241      | 55102<br>1241      | 55115<br>1241      | 55127<br>1241      | 55140<br>1241      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 515.0 | 55152<br>1241      | 55164<br>1241      | 55176<br>1242      | 55189<br>1242      | 55201<br>1242      | 55214<br>1242      | 55226<br>1242      | 55239<br>1242      | 55251<br>1242      | 55264<br>1243      |
| 515.1 | 55276<br>1243      | 55288<br>1243      | 55301<br>1243      | 55313<br>1243      | 55326<br>1243      | 55338<br>1243      | 55351<br>1243      | 55363<br>1244      | 55376<br>1244      | 55388<br>1244      |
| 515.2 | 55400<br>1244      | 55413<br>1244      | 55425<br>1244      | 55438<br>1244      | 55450<br>1245      | 55463<br>1245      | 55475<br>1245      | 55487<br>1245      | 55500<br>1245      | 55512<br>1245      |
| 515.3 | 55525<br>1245      | 55537<br>1245      | 55550<br>1246      | 55562<br>1246      | 55575<br>1246      | 55587<br>1246      | 55600<br>1246      | 55612<br>1246      | 55624<br>1246      | 55637<br>1247      |
| 515.4 | 55649<br>1247      | 55662<br>1247      | 55674<br>1247      | 55687<br>1247      | 55699<br>1247      | 55712<br>1247      | 55724<br>1247      | 55737<br>1248      | 55749<br>1248      | 55762<br>1248      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 515.5 | 55774<br>1248      | 55786<br>1248      | 55799<br>1248      | 55811<br>1248      | 55824<br>1249      | 55836<br>1249      | 55849<br>1249      | 55861<br>1249      | 55874<br>1249      | 55886<br>1249      |
| 515.6 | 55899<br>1249      | 55911<br>1250      | 55924<br>1250      | 55936<br>1250      | 55949<br>1250      | 55962<br>1250      | 55974<br>1250      | 55987<br>1250      | 55999<br>1250      | 56012<br>1251      |
| 515.7 | 56024<br>1251      | 56037<br>1251      | 56049<br>1251      | 56062<br>1251      | 56074<br>1251      | 56087<br>1251      | 56099<br>1252      | 56111<br>1252      | 56124<br>1252      | 56137<br>1252      |
| 515.8 | 56149<br>1252      | 56162<br>1252      | 56174<br>1252      | 56187<br>1252      | 56199<br>1253      | 56212<br>1253      | 56224<br>1253      | 56237<br>1253      | 56249<br>1253      | 56262<br>1253      |
| 515.9 | 56274<br>1253      | 56287<br>1254      | 56300<br>1254      | 56312<br>1254      | 56325<br>1254      | 56337<br>1254      | 56350<br>1254      | 56362<br>1254      | 56375<br>1254      | 56387<br>1255      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 516.0 | 56400<br>1255      | 56412<br>1255      | 56425<br>1255      | 56437<br>1255      | 56450<br>1255      | 56462<br>1255      | 56475<br>1256      | 56488<br>1256      | 56500<br>1256      | 56513<br>1256      |
| 516.1 | 56525<br>1256      | 56538<br>1256      | 56550<br>1256      | 56563<br>1256      | 56576<br>1257      | 56588<br>1257      | 56601<br>1257      | 56613<br>1257      | 56626<br>1257      | 56639<br>1257      |
| 516.2 | 56651<br>1257      | 56664<br>1258      | 56676<br>1258      | 56689<br>1258      | 56701<br>1258      | 56714<br>1258      | 56726<br>1258      | 56739<br>1258      | 56752<br>1258      | 56764<br>1259      |
| 516.3 | 56777<br>1259      | 56789<br>1259      | 56802<br>1259      | 56815<br>1259      | 56827<br>1259      | 56840<br>1259      | 56852<br>1260      | 56865<br>1260      | 56878<br>1260      | 56890<br>1260      |
| 516.4 | 56903<br>1260      | 56915<br>1260      | 56928<br>1260      | 56941<br>1260      | 56953<br>1261      | 56966<br>1261      | 56979<br>1261      | 56991<br>1261      | 57004<br>1261      | 57016<br>1261      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 516.5 | 57029<br>1261      | 57041<br>1262      | 57054<br>1262      | 57067<br>1262      | 57079<br>1262      | 57092<br>1262      | 57104<br>1262      | 57117<br>1262      | 57130<br>1262      | 57142<br>1263      |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 516.6 | 57155<br>1263      | 57168<br>1263      | 57180<br>1263      | 57193<br>1263      | 57206<br>1263      | 57218<br>1263      | 57231<br>1263      | 57244<br>1264      | 57256<br>1264      | 57269<br>1264      |
| 516.7 | 57281<br>1264      | 57294<br>1264      | 57307<br>1264      | 57319<br>1264      | 57332<br>1265      | 57345<br>1265      | 57357<br>1265      | 57370<br>1265      | 57382<br>1265      | 57395<br>1265      |
| 516.8 | 57408<br>1265      | 57420<br>1265      | 57433<br>1266      | 57446<br>1266      | 57458<br>1266      | 57471<br>1266      | 57484<br>1266      | 57496<br>1266      | 57509<br>1266      | 57522<br>1267      |
| 516.9 | 57534<br>1267      | 57547<br>1267      | 57560<br>1267      | 57573<br>1267      | 57585<br>1267      | 57598<br>1267      | 57611<br>1267      | 57623<br>1268      | 57636<br>1268      | 57649<br>1268      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 517.0 | 57661<br>1268      | 57674<br>1268      | 57686<br>1268      | 57699<br>1268      | 57712<br>1269      | 57725<br>1269      | 57737<br>1269      | 57750<br>1269      | 57763<br>1269      | 57775<br>1269      |
| 517.1 | 57788<br>1269      | 57801<br>1269      | 57813<br>1270      | 57826<br>1270      | 57839<br>1270      | 57852<br>1270      | 57864<br>1270      | 57877<br>1270      | 57890<br>1270      | 57902<br>1271      |
| 517.2 | 57915<br>1271      | 57928<br>1271      | 57941<br>1271      | 57953<br>1271      | 57966<br>1271      | 57979<br>1271      | 57991<br>1271      | 58004<br>1272      | 58017<br>1272      | 58029<br>1272      |
| 517.3 | 58042<br>1272      | 58055<br>1272      | 58068<br>1272      | 58080<br>1272      | 58093<br>1273      | 58106<br>1273      | 58119<br>1273      | 58131<br>1273      | 58144<br>1273      | 58157<br>1273      |
| 517.4 | 58169<br>1273      | 58182<br>1273      | 58195<br>1274      | 58208<br>1274      | 58220<br>1274      | 58233<br>1274      | 58246<br>1274      | 58259<br>1274      | 58271<br>1274      | 58284<br>1275      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 517.5 | 58297<br>1275      | 58309<br>1275      | 58322<br>1275      | 58335<br>1275      | 58348<br>1275      | 58361<br>1275      | 58373<br>1275      | 58386<br>1276      | 58399<br>1276      | 58412<br>1276      |
| 517.6 | 58424<br>1276      | 58437<br>1276      | 58450<br>1276      | 58463<br>1276      | 58475<br>1276      | 58488<br>1277      | 58501<br>1277      | 58514<br>1277      | 58527<br>1277      | 58539<br>1277      |
| 517.7 | 58552<br>1277      | 58565<br>1277      | 58578<br>1278      | 58591<br>1278      | 58603<br>1278      | 58616<br>1278      | 58629<br>1278      | 58641<br>1278      | 58654<br>1278      | 58667<br>1278      |
| 517.8 | 58680<br>1279      | 58693<br>1279      | 58705<br>1279      | 58718<br>1279      | 58731<br>1279      | 58744<br>1279      | 58757<br>1279      | 58769<br>1280      | 58782<br>1280      | 58795<br>1280      |
| 517.9 | 58808<br>1280      | 58821<br>1280      | 58833<br>1280      | 58846<br>1280      | 58859<br>1280      | 58872<br>1281      | 58885<br>1281      | 58898<br>1281      | 58910<br>1281      | 58923<br>1281      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 518.0 | 58936<br>1281      | 58948<br>1281      | 58961<br>1282      | 58974<br>1282      | 58987<br>1282      | 59000<br>1282      | 59013<br>1282      | 59025<br>1282      | 59038<br>1282      | 59051<br>1282      |
| 518.1 | 59064<br>1283      | 59077<br>1283      | 59090<br>1283      | 59103<br>1283      | 59115<br>1283      | 59128<br>1283      | 59141<br>1283      | 59154<br>1283      | 59167<br>1284      | 59180<br>1284      |
| 518.2 | 59192<br>1284      | 59205<br>1284      | 59218<br>1284      | 59231<br>1284      | 59244<br>1284      | 59257<br>1285      | 59269<br>1285      | 59282<br>1285      | 59295<br>1285      | 59308<br>1285      |
| 518.3 | 59321<br>1285      | 59334<br>1285      | 59346<br>1285      | 59359<br>1286      | 59372<br>1286      | 59385<br>1286      | 59398<br>1286      | 59411<br>1286      | 59424<br>1286      | 59437<br>1286      |
| 518.4 | 59449<br>1287      | 59462<br>1287      | 59475<br>1287      | 59488<br>1287      | 59501<br>1287      | 59514<br>1287      | 59527<br>1287      | 59540<br>1287      | 59552<br>1288      | 59565<br>1288      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 518.5 | 59578<br>1288      | 59591<br>1288      | 59604<br>1288      | 59617<br>1288      | 59630<br>1288      | 59642<br>1288      | 59655<br>1289      | 59668<br>1289      | 59691<br>1289      | 59694<br>1289      |
| 518.6 | 59707<br>1289      | 59720<br>1289      | 59733<br>1289      | 59746<br>1290      | 59759<br>1290      | 59771<br>1290      | 59784<br>1290      | 59797<br>1290      | 59810<br>1290      | 59823<br>1290      |
| 518.7 | 59836<br>1290      | 59849<br>1291      | 59862<br>1291      | 59875<br>1291      | 59888<br>1291      | 59901<br>1291      | 59913<br>1291      | 59926<br>1291      | 59939<br>1292      | 59952<br>1292      |
| 518.8 | 59965<br>1292      | 59978<br>1292      | 59991<br>1292      | 60004<br>1292      | 60017<br>1292      | 60030<br>1292      | 60043<br>1293      | 60055<br>1293      | 60068<br>1293      | 60081<br>1293      |
| 518.9 | 60094<br>1293      | 60107<br>1293      | 60120<br>1293      | 60133<br>1293      | 60146<br>1294      | 60159<br>1294      | 60172<br>1294      | 60185<br>1294      | 60198<br>1294      | 60211<br>1294      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 519.0 | 60224<br>1294      | 60236<br>1295      | 60249<br>1295      | 60262<br>1295      | 60275<br>1295      | 60288<br>1295      | 60301<br>1295      | 60314<br>1295      | 60327<br>1295      | 60340<br>1296      |
| 519.1 | 60353<br>1296      | 60366<br>1296      | 60379<br>1296      | 60392<br>1296      | 60405<br>1296      | 60418<br>1296      | 60431<br>1297      | 60444<br>1297      | 60457<br>1297      | 60470<br>1297      |
| 519.2 | 60483<br>1297      | 60496<br>1297      | 60509<br>1297      | 60522<br>1297      | 60535<br>1298      | 60548<br>1298      | 60560<br>1298      | 60573<br>1298      | 60586<br>1298      | 60599<br>1298      |
| 519.3 | 60612<br>1298      | 60625<br>1298      | 60638<br>1299      | 60651<br>1299      | 60664<br>1299      | 60677<br>1299      | 60690<br>1299      | 60703<br>1299      | 60716<br>1299      | 60729<br>1300      |
| 519.4 | 60742<br>1300      | 60756<br>1300      | 60769<br>1300      | 60782<br>1300      | 60795<br>1300      | 60808<br>1300      | 60821<br>1300      | 60834<br>1301      | 60847<br>1301      | 60860<br>1301      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 519.5 | 60873<br>1301      | 60885<br>1301      | 60898<br>1301      | 60911<br>1301      | 60924<br>1301      | 60937<br>1302      | 60950<br>1302      | 60964<br>1302      | 60977<br>1302      | 60990<br>1302      |
| 519.6 | 61003<br>1302      | 61016<br>1302      | 61029<br>1303      | 61042<br>1303      | 61055<br>1303      | 61068<br>1303      | 61081<br>1303      | 61094<br>1303      | 61107<br>1303      | 61120<br>1303      |
| 519.7 | 61133<br>1304      | 61146<br>1304      | 61159<br>1304      | 61172<br>1304      | 61185<br>1304      | 61198<br>1304      | 61211<br>1304      | 61224<br>1304      | 61237<br>1305      | 61250<br>1305      |
| 519.8 | 61263<br>1305      | 61276<br>1305      | 61289<br>1305      | 61302<br>1305      | 61316<br>1305      | 61329<br>1306      | 61342<br>1306      | 61355<br>1306      | 61368<br>1306      | 61381<br>1306      |
| 519.9 | 61394<br>1306      | 61407<br>1306      | 61420<br>1306      | 61433<br>1307      | 61446<br>1307      | 61459<br>1307      | 61472<br>1307      | 61486<br>1307      | 61499<br>1307      | 61512<br>1307      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 520.0 | 61525<br>1308      | 61538<br>1308      | 61551<br>1308      | 61564<br>1308      | 61577<br>1308      | 61590<br>1308      | 61603<br>1308      | 61616<br>1308      | 61629<br>1309      | 61642<br>1309      |
| 520.1 | 61655<br>1309      | 61668<br>1309      | 61682<br>1309      | 61695<br>1309      | 61708<br>1309      | 61721<br>1309      | 61734<br>1310      | 61747<br>1310      | 61760<br>1310      | 61773<br>1310      |
| 520.2 | 61786<br>1310      | 61800<br>1310      | 61813<br>1310      | 61826<br>1311      | 61839<br>1311      | 61852<br>1311      | 61865<br>1311      | 61878<br>1311      | 61891<br>1311      | 61904<br>1311      |
| 520.3 | 61917<br>1311      | 61930<br>1312      | 61944<br>1312      | 61957<br>1312      | 61970<br>1312      | 61983<br>1312      | 61996<br>1312      | 62009<br>1312      | 62022<br>1312      | 62036<br>1313      |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 520.4 | 62049<br>1313      | 62062<br>1313      | 62075<br>1313      | 62088<br>1313      | 62101<br>1313      | 62114<br>1313      | 62128<br>1314      | 62141<br>1314      | 62154<br>1314      | 62167<br>1314      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 520.5 | 62180<br>1314      | 62193<br>1314      | 62206<br>1314      | 62219<br>1314      | 62232<br>1315      | 62246<br>1315      | 62259<br>1315      | 62272<br>1315      | 62265<br>1315      | 62298<br>1315      |
| 520.6 | 62311<br>1315      | 62325<br>1315      | 62338<br>1316      | 62351<br>1316      | 62364<br>1316      | 62377<br>1316      | 62390<br>1316      | 62404<br>1316      | 62417<br>1316      | 62430<br>1317      |
| 520.7 | 62443<br>1317      | 62456<br>1317      | 62470<br>1317      | 62483<br>1317      | 62496<br>1317      | 62509<br>1317      | 62522<br>1317      | 62535<br>1318      | 62548<br>1318      | 62561<br>1318      |
| 520.8 | 62575<br>1318      | 62588<br>1318      | 62601<br>1318      | 62614<br>1318      | 62627<br>1318      | 62641<br>1319      | 62654<br>1319      | 62667<br>1319      | 62680<br>1319      | 62693<br>1319      |
| 520.9 | 62707<br>1319      | 62720<br>1319      | 62733<br>1320      | 62746<br>1320      | 62760<br>1320      | 62773<br>1320      | 62786<br>1320      | 62799<br>1320      | 62812<br>1320      | 62826<br>1320      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 521.0 | 62839<br>1321      | 62852<br>1321      | 62865<br>1321      | 62878<br>1321      | 62891<br>1321      | 62905<br>1321      | 62918<br>1321      | 62931<br>1321      | 62944<br>1322      | 62957<br>1322      |
| 521.1 | 62971<br>1322      | 62984<br>1322      | 62997<br>1322      | 63010<br>1322      | 63024<br>1322      | 63037<br>1322      | 63050<br>1323      | 63063<br>1323      | 63077<br>1323      | 63090<br>1323      |
| 521.2 | 63103<br>1323      | 63116<br>1323      | 63130<br>1323      | 63143<br>1324      | 63156<br>1324      | 63169<br>1324      | 63182<br>1324      | 63196<br>1324      | 63209<br>1324      | 63222<br>1324      |
| 521.3 | 63235<br>1324      | 63249<br>1325      | 63262<br>1325      | 63275<br>1325      | 63288<br>1325      | 63302<br>1325      | 63315<br>1325      | 63328<br>1325      | 63341<br>1325      | 63355<br>1326      |
| 521.4 | 63368<br>1326      | 63381<br>1326      | 63394<br>1326      | 63408<br>1326      | 63421<br>1326      | 63434<br>1326      | 63448<br>1327      | 63461<br>1327      | 63474<br>1327      | 63487<br>1327      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 521.5 | 63501<br>1327      | 63514<br>1327      | 63527<br>1327      | 63540<br>1327      | 63554<br>1328      | 63567<br>1328      | 63580<br>1328      | 63593<br>1328      | 63607<br>1328      | 63620<br>1328      |
| 521.6 | 63633<br>1328      | 63647<br>1328      | 63660<br>1329      | 63673<br>1329      | 63686<br>1329      | 63700<br>1329      | 63713<br>1329      | 63726<br>1329      | 63740<br>1329      | 63753<br>1330      |
| 521.7 | 63766<br>1330      | 63780<br>1330      | 63793<br>1330      | 63806<br>1330      | 63820<br>1330      | 63833<br>1330      | 63846<br>1330      | 63859<br>1331      | 63872<br>1331      | 63886<br>1331      |
| 521.8 | 63899<br>1331      | 63912<br>1331      | 63926<br>1331      | 63939<br>1331      | 63952<br>1331      | 63966<br>1332      | 63979<br>1332      | 63992<br>1332      | 64006<br>1332      | 64019<br>1332      |
| 521.9 | 64032<br>1332      | 64046<br>1332      | 64059<br>1333      | 64072<br>1333      | 64086<br>1333      | 64099<br>1333      | 64112<br>1333      | 64126<br>1333      | 64139<br>1333      | 64152<br>1333      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 522.0 | 64166<br>1334      | 64179<br>1334      | 64192<br>1334      | 64206<br>1334      | 64219<br>1334      | 64232<br>1334      | 64246<br>1334      | 64259<br>1334      | 64272<br>1335      | 64286<br>1335      |
| 522.1 | 64299<br>1335      | 64312<br>1335      | 64326<br>1335      | 64339<br>1335      | 64353<br>1335      | 64366<br>1353      | 64379<br>1336      | 64393<br>1336      | 64406<br>1336      | 64419<br>1336      |
| 522.2 | 64433<br>1336      | 64446<br>1336      | 64459<br>1336      | 64473<br>1337      | 64486<br>1337      | 64500<br>1337      | 64513<br>1337      | 64526<br>1337      | 64539<br>1337      | 64553<br>1337      |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 522.3 | 64566<br>1337      | 64580<br>1338      | 64593<br>1338      | 64606<br>1338      | 64620<br>1338      | 64633<br>1338      | 64647<br>1338      | 64660<br>1338      | 64673<br>1338      | 64687<br>1339      |
| 522.4 | 64700<br>1339      | 64714<br>1339      | 64727<br>1339      | 64740<br>1339      | 64754<br>1339      | 64767<br>1339      | 64781<br>1340      | 64794<br>1340      | 64807<br>1340      | 64821<br>1340      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 522.5 | 64834<br>1340      | 64847<br>1340      | 64861<br>1340      | 64874<br>1340      | 64888<br>1341      | 64901<br>1341      | 64914<br>1341      | 64928<br>1341      | 64941<br>1341      | 64955<br>1341      |
| 522.6 | 64968<br>1341      | 64982<br>1341      | 64995<br>1342      | 65008<br>1342      | 65022<br>1342      | 65035<br>1342      | 65049<br>1342      | 65062<br>1342      | 65076<br>1342      | 65089<br>1342      |
| 522.7 | 65102<br>1343      | 65116<br>1343      | 65129<br>1343      | 65143<br>1343      | 65156<br>1343      | 65170<br>1343      | 65183<br>1343      | 65196<br>1344      | 63210<br>1344      | 65223<br>1344      |
| 522.8 | 65237<br>1344      | 65250<br>1344      | 65263<br>1344      | 65277<br>1344      | 65290<br>1344      | 65304<br>1345      | 65317<br>1345      | 65331<br>1345      | 65344<br>1345      | 65358<br>1345      |
| 522.9 | 65371<br>1345      | 65385<br>1345      | 65398<br>1345      | 65412<br>1346      | 65425<br>1346      | 65438<br>1346      | 65452<br>1346      | 65465<br>1346      | 65479<br>1346      | 65492<br>1346      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 523.0 | 65506<br>1346      | 65519<br>1347      | 65532<br>1347      | 65546<br>1347      | 65559<br>1347      | 65573<br>1347      | 65586<br>1347      | 65600<br>1347      | 65613<br>1348      | 65627<br>1348      |
| 523.1 | 65640<br>1348      | 65654<br>1348      | 65667<br>1348      | 65681<br>1348      | 65694<br>1348      | 65708<br>1348      | 65721<br>1349      | 65735<br>1349      | 65748<br>1349      | 65762<br>1349      |
| 523.2 | 65775<br>1349      | 65789<br>1349      | 65802<br>1349      | 65816<br>1349      | 65829<br>1350      | 65843<br>1350      | 65856<br>1350      | 65870<br>1350      | 65883<br>1350      | 65897<br>1350      |
| 523.3 | 65910<br>1350      | 65924<br>1350      | 65937<br>1351      | 65951<br>1351      | 65964<br>1351      | 65978<br>1351      | 65991<br>1351      | 66005<br>1351      | 66018<br>1351      | 66032<br>1352      |
| 523.4 | 66045<br>1352      | 66059<br>1352      | 66072<br>1352      | 66086<br>1352      | 66099<br>1352      | 66113<br>1352      | 66127<br>1352      | 66140<br>1353      | 66154<br>1353      | 66167<br>1353      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 523.5 | 66181<br>1353      | 66194<br>1353      | 66207<br>1353      | 66221<br>1353      | 66235<br>1353      | 66248<br>1354      | 66262<br>1354      | 66275<br>1354      | 66289<br>1354      | 66302<br>1354      |
| 523.6 | 66316<br>1354      | 66329<br>1354      | 66343<br>1354      | 66357<br>1355      | 66370<br>1355      | 66384<br>1355      | 66397<br>1355      | 66411<br>1355      | 66424<br>1355      | 66438<br>1355      |
| 523.7 | 66452<br>1356      | 66465<br>1356      | 66479<br>1356      | 66492<br>1356      | 66506<br>1356      | 66519<br>1356      | 66533<br>1356      | 66546<br>1356      | 66560<br>1357      | 66573<br>1357      |
| 523.8 | 66587<br>1357      | 66601<br>1357      | 66614<br>1357      | 66628<br>1357      | 66641<br>1357      | 66655<br>1357      | 66668<br>1358      | 66682<br>1358      | 66696<br>1358      | 66709<br>1358      |
| 523.9 | 66723<br>1358      | 66736<br>1358      | 66750<br>1358      | 66764<br>1358      | 66777<br>1359      | 66791<br>1359      | 66804<br>1359      | 66818<br>1359      | 66832<br>1359      | 66845<br>1359      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 524.0 | 66859<br>1359      | 66872<br>1360      | 66886<br>1360      | 66899<br>1360      | 66913<br>1360      | 66927<br>1360      | 66940<br>1360      | 66954<br>1360      | 66967<br>1360      | 66981<br>1361      |
| 524.1 | 66995<br>1361      | 67008<br>1361      | 67022<br>1361      | 67035<br>1361      | 67049<br>1361      | 67063<br>1361      | 67076<br>1361      | 67090<br>1362      | 67104<br>1362      | 67117<br>1362      |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 524.2 | 67131<br>1362      | 67145<br>1362      | 67158<br>1362      | 67172<br>1362      | 67185<br>1362      | 67199<br>1363      | 67212<br>1363      | 67226<br>1363      | 67240<br>1363      | 67253<br>1363      |
| 524.3 | 67267<br>1363      | 67281<br>1363      | 67294<br>1364      | 67308<br>1364      | 67322<br>1364      | 67335<br>1364      | 67349<br>1364      | 67362<br>1364      | 67376<br>1364      | 67390<br>1364      |
| 524.4 | 67403<br>1365      | 67417<br>1365      | 67431<br>1365      | 67444<br>1365      | 67458<br>1365      | 67472<br>1365      | 67485<br>1365      | 67499<br>1365      | 67513<br>1366      | 67526<br>1366      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 524.5 | 67540<br>1366      | 67553<br>1366      | 67567<br>1366      | 67581<br>1366      | 67594<br>1366      | 67608<br>1366      | 67622<br>1367      | 67636<br>1367      | 67649<br>1367      | 67663<br>1367      |
| 524.6 | 67677<br>1367      | 67690<br>1367      | 67704<br>1367      | 67718<br>1368      | 67731<br>1368      | 67745<br>1368      | 67759<br>1368      | 67772<br>1368      | 67786<br>1368      | 67600<br>1368      |
| 524.7 | 67813<br>1368      | 67827<br>1369      | 67841<br>1369      | 67855<br>1369      | 67868<br>1369      | 67882<br>1369      | 67895<br>1369      | 67909<br>1369      | 67923<br>1369      | 67936<br>1370      |
| 524.8 | 67950<br>1370      | 67964<br>1370      | 67978<br>1370      | 67991<br>1370      | 68005<br>1370      | 68019<br>1370      | 68032<br>1370      | 68046<br>1371      | 69060<br>1371      | 66074<br>1371      |
| 524.9 | 68087<br>1371      | 69101<br>1371      | 68115<br>1371      | 68129<br>1371      | 68142<br>1372      | 68156<br>1372      | 68170<br>1372      | 68183<br>1372      | 68197<br>1372      | 68211<br>1372      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 525.0 | 68225<br>1372      | 68238<br>1372      | 68252<br>1373      | 68266<br>1373      | 68279<br>1373      | 68293<br>1373      | 68307<br>1373      | 68321<br>1373      | 68334<br>1373      | 68348<br>1373      |
| 525.1 | 68362<br>1374      | 68375<br>1374      | 68389<br>1374      | 68403<br>1374      | 68417<br>1374      | 68431<br>1374      | 68444<br>1374      | 68458<br>1374      | 68472<br>1375      | 68486<br>1375      |
| 525.2 | 68499<br>1375      | 68513<br>1375      | 68527<br>1375      | 68541<br>1375      | 68554<br>1375      | 68568<br>1376      | 68582<br>1376      | 68595<br>1376      | 68609<br>1376      | 68623<br>1376      |
| 525.3 | 68637<br>1376      | 68650<br>1376      | 68664<br>1376      | 68678<br>1377      | 68692<br>1377      | 68706<br>1377      | 68719<br>1377      | 68733<br>1377      | 68747<br>1377      | 68761<br>1377      |
| 525.4 | 68774<br>1377      | 68788<br>1378      | 68802<br>1378      | 68816<br>1378      | 68830<br>1378      | 68843<br>1378      | 68857<br>1378      | 68871<br>1378      | 68885<br>1378      | 68899<br>1379      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 525.5 | 68912<br>1379      | 68926<br>1379      | 68940<br>1379      | 68953<br>1379      | 68967<br>1379      | 68981<br>1379      | 68995<br>1379      | 69009<br>1380      | 69023<br>1380      | 69036<br>1380      |
| 525.6 | 69050<br>1380      | 69064<br>1380      | 69078<br>1380      | 69092<br>1380      | 69105<br>1381      | 69119<br>1381      | 69133<br>1381      | 69147<br>1381      | 69161<br>1381      | 69175<br>1381      |
| 525.7 | 69188<br>1381      | 69202<br>1381      | 69216<br>1382      | 69230<br>1382      | 69244<br>1382      | 69257<br>1382      | 69271<br>1382      | 69285<br>1382      | 69299<br>1382      | 69312<br>1382      |
| 525.8 | 69326<br>1383      | 69340<br>1383      | 69354<br>1383      | 69368<br>1383      | 69382<br>1383      | 69396<br>1383      | 69409<br>1383      | 69423<br>1383      | 69437<br>1384      | 69451<br>1384      |
| 525.9 | 69465<br>1384      | 69479<br>1384      | 69492<br>1384      | 69506<br>1384      | 69520<br>1384      | 69534<br>1385      | 69548<br>1385      | 69562<br>1385      | 69576<br>1385      | 69590<br>1385      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 526.0 | 69603<br>1385      | 69617<br>1385      | 69631<br>1385      | 69645<br>1386      | 69659<br>1386      | 69672<br>1386      | 69686<br>1386      | 69700<br>1386      | 69714<br>1386      | 69728<br>1386      |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 526.1 | 69742<br>1386      | 69756<br>1387      | 69770<br>1387      | 69783<br>1387      | 69797<br>1387      | 69811<br>1387      | 69825<br>1387      | 69839<br>1387      | 69853<br>1387      | 69867<br>1388      |
| 526.2 | 69881<br>1388      | 69894<br>1388      | 69908<br>1388      | 69922<br>1388      | 69936<br>1388      | 69950<br>1388      | 69964<br>1388      | 69978<br>1389      | 69991<br>1389      | 70005<br>1389      |
| 526.3 | 70019<br>1389      | 70033<br>1389      | 70047<br>1389      | 70061<br>1389      | 70075<br>1390      | 70089<br>1390      | 70103<br>1390      | 70117<br>1390      | 70130<br>1390      | 70144<br>1390      |
| 526.4 | 70158<br>1390      | 70172<br>1390      | 70186<br>1391      | 70200<br>1391      | 70214<br>1391      | 70228<br>1391      | 70242<br>1391      | 70256<br>1391      | 70270<br>1391      | 70284<br>1391      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 526.5 | 70299<br>1392      | 70311<br>1392      | 70325<br>1392      | 70339<br>1392      | 70353<br>1392      | 70367<br>1392      | 70381<br>1392      | 70395<br>1392      | 70409<br>1393      | 70423<br>1393      |
| 526.6 | 70437<br>1393      | 70451<br>1393      | 70464<br>1393      | 70476<br>1393      | 70492<br>1393      | 70506<br>1393      | 70520<br>1394      | 70534<br>1394      | 70548<br>1394      | 70562<br>1394      |
| 526.7 | 70576<br>1394      | 70590<br>1394      | 70604<br>1394      | 70618<br>1395      | 70632<br>1395      | 70646<br>1395      | 70659<br>1395      | 70673<br>1395      | 70687<br>1395      | 70701<br>1395      |
| 526.8 | 70715<br>1395      | 70729<br>1396      | 70743<br>1396      | 70757<br>1396      | 70771<br>1396      | 70785<br>1396      | 70799<br>1396      | 70813<br>1396      | 70827<br>1396      | 70841<br>1397      |
| 526.9 | 70855<br>1397      | 70869<br>1397      | 70883<br>1397      | 70897<br>1397      | 70911<br>1397      | 70925<br>1397      | 70939<br>1397      | 70953<br>1398      | 70967<br>1398      | 70981<br>1398      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 527.0 | 70995<br>1398      | 71009<br>1398      | 71023<br>1398      | 71037<br>1398      | 71051<br>1399      | 71065<br>1399      | 71079<br>1399      | 71093<br>1399      | 71107<br>1399      | 71121<br>1399      |
| 527.1 | 71135<br>1399      | 71149<br>1399      | 71163<br>1400      | 71177<br>1400      | 71191<br>1400      | 71205<br>1400      | 71219<br>1400      | 71233<br>1400      | 71247<br>1400      | 71261<br>1400      |
| 527.2 | 71275<br>1401      | 71289<br>1401      | 71303<br>1401      | 71317<br>1401      | 71331<br>1401      | 71345<br>1401      | 71359<br>1401      | 71373<br>1401      | 71387<br>1402      | 71401<br>1402      |
| 527.3 | 71415<br>1402      | 71429<br>1402      | 71443<br>1402      | 71457<br>1402      | 71471<br>1402      | 71485<br>1402      | 71499<br>1403      | 71513<br>1403      | 71527<br>1403      | 71541<br>1403      |
| 527.4 | 71555<br>1403      | 71569<br>1403      | 71583<br>1403      | 71597<br>1404      | 71611<br>1404      | 71623<br>1404      | 71639<br>1404      | 71653<br>1404      | 71667<br>1404      | 71681<br>1404      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 527.5 | 71696<br>1404      | 71709<br>1405      | 71723<br>1405      | 71737<br>1405      | 71751<br>1405      | 71766<br>1405      | 71780<br>1405      | 71794<br>1405      | 71808<br>1405      | 71822<br>1406      |
| 527.6 | 71836<br>1406      | 71850<br>1406      | 71864<br>1406      | 71878<br>1406      | 71892<br>1406      | 71906<br>1406      | 71920<br>1406      | 71934<br>1407      | 71948<br>1407      | 71963<br>1407      |
| 527.7 | 71977<br>1407      | 71991<br>1407      | 72005<br>1407      | 72019<br>1407      | 72033<br>1407      | 72047<br>1408      | 72061<br>1408      | 72075<br>1408      | 72089<br>1408      | 72103<br>1408      |
| 527.8 | 72117<br>1408      | 72131<br>1408      | 72145<br>1409      | 72159<br>1409      | 72174<br>1409      | 72188<br>1409      | 72202<br>1409      | 72216<br>1409      | 72230<br>1409      | 72244<br>1409      |
| 527.9 | 72258<br>1410      | 72272<br>1410      | 72286<br>1410      | 72301<br>1410      | 72315<br>1410      | 72329<br>1410      | 72343<br>1410      | 72357<br>1410      | 72371<br>1411      | 72385<br>1411      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 528.0 | 72399<br>1411      | 72413<br>1411      | 72427<br>1411      | 72441<br>1411      | 72456<br>1411      | 72470<br>1411      | 72484<br>1412      | 72498<br>1412      | 72512<br>1412      | 72526<br>1412      |
| 528.1 | 72540<br>1412      | 72554<br>1412      | 72569<br>1412      | 72583<br>1412      | 72597<br>1413      | 72611<br>1413      | 72625<br>1413      | 72639<br>1413      | 72653<br>1413      | 72668<br>1413      |
| 528.2 | 72682<br>1413      | 72696<br>1414      | 72710<br>1414      | 72724<br>1414      | 72738<br>1414      | 72752<br>1414      | 72766<br>1414      | 72780<br>1414      | 72795<br>1414      | 72809<br>1415      |
| 528.3 | 72823<br>1415      | 72837<br>1415      | 72851<br>1415      | 72865<br>1415      | 72880<br>1415      | 72894<br>1415      | 72908<br>1415      | 72922<br>1416      | 72936<br>1416      | 72950<br>1416      |
| 528.4 | 72965<br>1416      | 72979<br>1416      | 72993<br>1416      | 73007<br>1416      | 73021<br>1416      | 73035<br>1417      | 73050<br>1417      | 73064<br>1417      | 73078<br>1417      | 73092<br>1417      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 528.5 | 73106<br>1417      | 73120<br>1417      | 73134<br>1418      | 73149<br>1418      | 73163<br>1418      | 73177<br>1418      | 73191<br>1418      | 73205<br>1418      | 73220<br>1418      | 73234<br>1418      |
| 528.6 | 73248<br>1419      | 73262<br>1419      | 73276<br>1419      | 73291<br>1419      | 73305<br>1419      | 73319<br>1419      | 73333<br>1419      | 73347<br>1419      | 73362<br>1420      | 73376<br>1420      |
| 528.7 | 73390<br>1420      | 73404<br>1420      | 73418<br>1420      | 73433<br>1420      | 73447<br>1420      | 73461<br>1420      | 73475<br>1421      | 73489<br>1421      | 73503<br>1421      | 73518<br>1421      |
| 528.8 | 73532<br>1421      | 73546<br>1421      | 73560<br>1421      | 73575<br>1421      | 73589<br>1422      | 73603<br>1422      | 73617<br>1422      | 73631<br>1422      | 73646<br>1422      | 73660<br>1422      |
| 529.9 | 73674<br>1422      | 73688<br>1423      | 73703<br>1423      | 73717<br>1423      | 73731<br>1423      | 73745<br>1423      | 73760<br>1423      | 73774<br>1423      | 73788<br>1423      | 73802<br>1424      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 529.0 | 73817<br>1424      | 73831<br>1424      | 73845<br>1424      | 73859<br>1424      | 73873<br>1424      | 73888<br>1424      | 73902<br>1424      | 73916<br>1425      | 73930<br>1425      | 73945<br>1425      |
| 529.1 | 73959<br>1425      | 73973<br>1425      | 73987<br>1425      | 74002<br>1425      | 74016<br>1425      | 74030<br>1426      | 74044<br>1426      | 74059<br>1426      | 74073<br>1426      | 74087<br>1426      |
| 529.2 | 74102<br>1426      | 74116<br>1426      | 74130<br>1426      | 74144<br>1427      | 74159<br>1427      | 74173<br>1427      | 74187<br>1427      | 74201<br>1427      | 74215<br>1427      | 74230<br>1427      |
| 529.3 | 74244<br>1428      | 74258<br>1428      | 74273<br>1428      | 74287<br>1428      | 74301<br>1428      | 74315<br>1428      | 74330<br>1428      | 74344<br>1428      | 74358<br>1429      | 74373<br>1429      |
| 529.4 | 74387<br>1429      | 74401<br>1429      | 74416<br>1429      | 74430<br>1429      | 74444<br>1429      | 74458<br>1429      | 74473<br>1430      | 74487<br>1430      | 74501<br>1430      | 74516<br>1430      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 529.5 | 74530<br>1430      | 74544<br>1430      | 74558<br>1430      | 74573<br>1430      | 74587<br>1431      | 74601<br>1431      | 74616<br>1431      | 74630<br>1431      | 74644<br>1431      | 74659<br>1431      |
| 529.6 | 74673<br>1431      | 74687<br>1431      | 74702<br>1432      | 74716<br>1432      | 74730<br>1432      | 74745<br>1432      | 74759<br>1432      | 74773<br>1432      | 74788<br>1432      | 74802<br>1433      |
| 529.7 | 74816<br>1433      | 74831<br>1433      | 74845<br>1433      | 74859<br>1433      | 74874<br>1433      | 74888<br>1433      | 74902<br>1433      | 74916<br>1434      | 74931<br>1434      | 74945<br>1434      |
| 529.8 | 74959<br>1434      | 74974<br>1434      | 74988<br>1434      | 75002<br>1434      | 75017<br>1434      | 75031<br>1435      | 75046<br>1435      | 75060<br>1435      | 75074<br>1435      | 75089<br>1435      |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 529.9 | 75103<br>1435      | 75117<br>1435      | 75132<br>1435      | 75146<br>1436      | 75160<br>1436      | 75175<br>1436      | 75189<br>1436      | 75204<br>1436      | 75218<br>1436      | 75232<br>1436      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 530.0 | 75247<br>1437      | 75261<br>1437      | 75275<br>1437      | 75289<br>1437      | 75304<br>1437      | 75318<br>1437      | 75333<br>1437      | 75347<br>1437      | 75361<br>1438      | 75376<br>1438      |
| 530.1 | 75390<br>1438      | 75405<br>1438      | 75419<br>1438      | 75433<br>1438      | 75448<br>1438      | 75462<br>1438      | 75477<br>1439      | 75491<br>1439      | 75505<br>1439      | 75520<br>1439      |
| 530.2 | 75534<br>1439      | 75549<br>1439      | 75563<br>1439      | 75577<br>1439      | 75592<br>1440      | 75606<br>1440      | 75620<br>1440      | 75635<br>1440      | 75649<br>1440      | 75664<br>1440      |
| 530.3 | 75678<br>1440      | 75692<br>1440      | 75707<br>1441      | 75721<br>1441      | 75736<br>1441      | 75750<br>1441      | 75764<br>1441      | 75779<br>1441      | 75793<br>1441      | 75808<br>1442      |
| 530.4 | 75822<br>1442      | 75837<br>1442      | 75851<br>1442      | 75865<br>1442      | 75880<br>1442      | 75894<br>1442      | 75909<br>1442      | 75923<br>1443      | 75938<br>1443      | 75952<br>1443      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 530.5 | 75967<br>1443      | 75981<br>1443      | 75995<br>1443      | 76010<br>1443      | 76024<br>1443      | 76038<br>1444      | 76053<br>1444      | 76067<br>1444      | 76082<br>1444      | 76096<br>1444      |
| 530.6 | 76111<br>1444      | 76125<br>1444      | 76140<br>1444      | 76154<br>1445      | 76169<br>1445      | 76183<br>1445      | 76197<br>1445      | 76212<br>1445      | 76226<br>1445      | 76241<br>1445      |
| 530.7 | 76255<br>1446      | 76270<br>1446      | 76284<br>1446      | 76299<br>1446      | 76313<br>1446      | 76328<br>1446      | 76342<br>1446      | 76356<br>1446      | 76371<br>1447      | 76385<br>1447      |
| 530.8 | 76400<br>1447      | 76414<br>1447      | 76429<br>1447      | 76443<br>1447      | 76458<br>1447      | 76472<br>1447      | 76487<br>1448      | 76501<br>1448      | 76516<br>1448      | 76530<br>1448      |
| 530.9 | 76545<br>1448      | 76559<br>1448      | 76574<br>1448      | 76588<br>1448      | 76603<br>1449      | 76617<br>1449      | 76632<br>1449      | 76646<br>1449      | 76661<br>1449      | 76675<br>1449      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 531.0 | 76690<br>1449      | 76704<br>1449      | 76718<br>1450      | 76733<br>1450      | 76747<br>1450      | 76762<br>1450      | 76776<br>1450      | 76791<br>1450      | 76805<br>1450      | 76820<br>1451      |
| 531.1 | 76834<br>1451      | 76849<br>1451      | 76863<br>1451      | 76878<br>1451      | 76893<br>1451      | 76907<br>1451      | 76922<br>1451      | 76936<br>1452      | 76951<br>1452      | 76965<br>1452      |
| 531.2 | 76980<br>1452      | 76994<br>1452      | 77009<br>1452      | 77023<br>1452      | 77038<br>1452      | 77052<br>1453      | 77067<br>1453      | 77081<br>1453      | 77096<br>1453      | 77110<br>1453      |
| 531.3 | 77125<br>1453      | 77139<br>1453      | 77154<br>1453      | 77168<br>1454      | 77183<br>1454      | 77197<br>1454      | 77212<br>1454      | 77227<br>1454      | 77241<br>1454      | 77256<br>1454      |
| 531.4 | 77270<br>1455      | 77285<br>1455      | 77299<br>1455      | 77314<br>1455      | 77329<br>1455      | 77343<br>1455      | 77358<br>1455      | 77372<br>1455      | 77387<br>1456      | 77401<br>1456      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 531.5 | 77416<br>1456      | 77430<br>1456      | 77445<br>1456      | 77459<br>1456      | 77474<br>1456      | 77488<br>1456      | 77503<br>1457      | 77518<br>1457      | 77532<br>1457      | 77547<br>1457      |
| 531.6 | 77561<br>1457      | 77576<br>1457      | 77591<br>1457      | 77605<br>1457      | 77620<br>1458      | 77634<br>1458      | 77649<br>1458      | 77663<br>1458      | 77678<br>1458      | 77693<br>1458      |
| 531.7 | 77707<br>1458      | 77722<br>1459      | 77736<br>1459      | 77751<br>1459      | 77766<br>1459      | 77780<br>1459      | 77795<br>1459      | 77809<br>1459      | 77824<br>1459      | 77838<br>1460      |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 531.8 | 77853<br>1460      | 77868<br>1460      | 77882<br>1460      | 77897<br>1460      | 77911<br>1460      | 77926<br>1460      | 77941<br>1460      | 77955<br>1461      | 77970<br>1461      | 77985<br>1461      |
| 531.9 | 77999<br>1461      | 78014<br>1461      | 78028<br>1461      | 78043<br>1461      | 78058<br>1461      | 78072<br>1462      | 78087<br>1462      | 78102<br>1462      | 78116<br>1462      | 78131<br>1462      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 532.0 | 78145<br>1462      | 78160<br>1462      | 78174<br>1462      | 78189<br>1463      | 78204<br>1463      | 78218<br>1463      | 78233<br>1463      | 78248<br>1463      | 78262<br>1463      | 78277<br>1463      |
| 532.1 | 78292<br>1464      | 78306<br>1464      | 78321<br>1464      | 78335<br>1464      | 78350<br>1464      | 78365<br>1464      | 78379<br>1464      | 78394<br>1464      | 78409<br>1465      | 78423<br>1465      |
| 532.2 | 78438<br>1465      | 78453<br>1465      | 78467<br>1465      | 78482<br>1465      | 78497<br>1465      | 78511<br>1465      | 78526<br>1466      | 78540<br>1466      | 78555<br>1466      | 78570<br>1466      |
| 532.3 | 78584<br>1466      | 78599<br>1466      | 78614<br>1466      | 78628<br>1466      | 78643<br>1467      | 78658<br>1467      | 78672<br>1467      | 78687<br>1467      | 78702<br>1467      | 78717<br>1467      |
| 532.4 | 78731<br>1467      | 78746<br>1468      | 78761<br>1468      | 78775<br>1468      | 78790<br>1468      | 78805<br>1468      | 78819<br>1468      | 78834<br>1468      | 78849<br>1468      | 78863<br>1469      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 532.5 | 78878<br>1469      | 78893<br>1469      | 78907<br>1469      | 78922<br>1469      | 78937<br>1469      | 78951<br>1469      | 78966<br>1469      | 78981<br>1470      | 78995<br>1470      | 79010<br>1470      |
| 532.6 | 79025<br>1470      | 79040<br>1470      | 79054<br>1470      | 79069<br>1470      | 79084<br>1470      | 79098<br>1471      | 79113<br>1471      | 79128<br>1471      | 79143<br>1471      | 79157<br>1471      |
| 532.7 | 79172<br>1471      | 79187<br>1471      | 79202<br>1472      | 79216<br>1472      | 79231<br>1472      | 79246<br>1472      | 79260<br>1472      | 79275<br>1472      | 79290<br>1472      | 79304<br>1472      |
| 532.8 | 79319<br>1473      | 79334<br>1473      | 79349<br>1473      | 79363<br>1473      | 79378<br>1473      | 79393<br>1473      | 79408<br>1473      | 79422<br>1473      | 79437<br>1474      | 79452<br>1474      |
| 532.9 | 79467<br>1474      | 79481<br>1474      | 79496<br>1474      | 79511<br>1474      | 79526<br>1474      | 79540<br>1475      | 79555<br>1475      | 79570<br>1475      | 79585<br>1475      | 79599<br>1475      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 533.0 | 79614<br>1475      | 79629<br>1475      | 79643<br>1475      | 79658<br>1476      | 79673<br>1476      | 79688<br>1476      | 79702<br>1476      | 79717<br>1476      | 79732<br>1476      | 79747<br>1476      |
| 533.1 | 79761<br>1476      | 79776<br>1477      | 79791<br>1477      | 79806<br>1477      | 79821<br>1477      | 79835<br>1477      | 79850<br>1477      | 79865<br>1477      | 79880<br>1477      | 79895<br>1478      |
| 533.2 | 79909<br>1478      | 79924<br>1478      | 79939<br>1478      | 79954<br>1478      | 79969<br>1478      | 79983<br>1478      | 79998<br>1479      | 80013<br>1479      | 80027<br>1479      | 80042<br>1479      |
| 533.3 | 80057<br>1479      | 80072<br>1479      | 80087<br>1479      | 80101<br>1479      | 80116<br>1480      | 80131<br>1480      | 80146<br>1480      | 80161<br>1480      | 80175<br>1480      | 80190<br>1480      |
| 533.4 | 80205<br>1480      | 80220<br>1480      | 80235<br>1481      | 80250<br>1481      | 80264<br>1481      | 80279<br>1481      | 80294<br>1481      | 80309<br>1481      | 80324<br>1481      | 80338<br>1481      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 533.5 | 80353<br>1482      | 80368<br>1482      | 80383<br>1482      | 80397<br>1482      | 80412<br>1482      | 80427<br>1482      | 80442<br>1482      | 80457<br>1483      | 80472<br>1483      | 80486<br>1483      |
| 533.6 | 80501<br>1483      | 80516<br>1483      | 80531<br>1483      | 80546<br>1483      | 80561<br>1483      | 80576<br>1484      | 80590<br>1484      | 80605<br>1484      | 80620<br>1484      | 80635<br>1484      |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 533.7 | 80650<br>1484      | 80665<br>1484      | 80680<br>1484      | 80694<br>1485      | 80709<br>1485      | 80724<br>1485      | 80739<br>1485      | 80753<br>1485      | 80768<br>1485      | 80783<br>1485      |
| 533.8 | 80798<br>1485      | 80813<br>1486      | 80828<br>1486      | 80843<br>1486      | 80858<br>1486      | 80872<br>1486      | 80887<br>1486      | 80902<br>1486      | 80917<br>1487      | 80932<br>1487      |
| 533.9 | 80947<br>1487      | 80962<br>1487      | 80977<br>1487      | 80992<br>1487      | 81006<br>1487      | 81021<br>1487      | 81036<br>1488      | 81051<br>1488      | 81066<br>1488      | 81081<br>1488      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 534.0 | 81096<br>1488      | 81110<br>1488      | 81125<br>1488      | 81140<br>1488      | 81155<br>1489      | 81170<br>1489      | 81185<br>1489      | 81200<br>1489      | 81215<br>1489      | 81229<br>1489      |
| 534.1 | 81244<br>1489      | 81259<br>1490      | 81274<br>1490      | 81289<br>1490      | 81304<br>1490      | 81319<br>1490      | 81334<br>1490      | 81349<br>1490      | 81364<br>1490      | 81379<br>1491      |
| 534.2 | 81394<br>1491      | 81408<br>1491      | 81423<br>1491      | 81438<br>1491      | 81453<br>1491      | 81468<br>1491      | 81493<br>1491      | 81498<br>1492      | 81513<br>1492      | 81528<br>1492      |
| 534.3 | 81542<br>1492      | 81557<br>1492      | 81572<br>1492      | 81587<br>1492      | 81602<br>1492      | 81617<br>1493      | 81632<br>1493      | 81647<br>1493      | 81662<br>1493      | 81677<br>1493      |
| 534.4 | 81692<br>1493      | 81707<br>1493      | 81722<br>1494      | 81737<br>1494      | 81752<br>1494      | 81767<br>1494      | 81782<br>1494      | 81797<br>1494      | 81811<br>1494      | 81826<br>1494      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 534.5 | 81841<br>1495      | 81856<br>1495      | 81871<br>1495      | 81886<br>1495      | 81901<br>1495      | 81916<br>1495      | 81931<br>1495      | 81946<br>1495      | 81961<br>1496      | 81976<br>1496      |
| 534.6 | 81991<br>1496      | 82006<br>1496      | 82021<br>1496      | 82036<br>1496      | 82051<br>1496      | 82066<br>1497      | 82081<br>1497      | 82096<br>1497      | 82111<br>1497      | 82126<br>1497      |
| 534.7 | 82141<br>1497      | 82155<br>1497      | 82170<br>1497      | 82185<br>1498      | 82200<br>1498      | 82215<br>1498      | 82230<br>1498      | 82245<br>1498      | 82260<br>1498      | 82275<br>1498      |
| 534.8 | 82290<br>1498      | 82305<br>1499      | 82320<br>1499      | 82335<br>1499      | 82350<br>1499      | 82365<br>1499      | 82380<br>1499      | 82395<br>1499      | 82410<br>1500      | 82425<br>1500      |
| 534.9 | 82440<br>1500      | 82455<br>1500      | 82470<br>1500      | 82485<br>1500      | 82500<br>1500      | 82515<br>1500      | 82530<br>1501      | 82545<br>1501      | 82560<br>1501      | 82575<br>1501      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 535.0 | 82590<br>1501      | 82605<br>1501      | 82620<br>1501      | 82635<br>1501      | 82650<br>1502      | 82665<br>1502      | 82680<br>1502      | 82695<br>1502      | 82710<br>1502      | 82725<br>1502      |
| 535.1 | 82740<br>1502      | 82755<br>1503      | 82770<br>1503      | 82785<br>1503      | 82800<br>1503      | 82815<br>1503      | 82831<br>1503      | 82846<br>1503      | 82861<br>1503      | 82876<br>1504      |
| 535.2 | 82891<br>1504      | 82906<br>1504      | 82921<br>1504      | 82936<br>1504      | 82951<br>1504      | 82966<br>1504      | 82981<br>1504      | 82996<br>1505      | 83011<br>1505      | 83026<br>1505      |
| 535.3 | 83041<br>1505      | 83056<br>1505      | 83071<br>1505      | 83086<br>1505      | 83101<br>1505      | 83116<br>1506      | 83131<br>1506      | 83146<br>1506      | 83161<br>1506      | 83177<br>1506      |
| 535.4 | 83192<br>1506      | 83207<br>1506      | 83222<br>1507      | 83237<br>1507      | 83252<br>1507      | 83267<br>1507      | 83282<br>1507      | 93297<br>1507      | 83312<br>1507      | 83327<br>1507      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 535.5 | 83342<br>1508      | 83357<br>1508      | 83372<br>1508      | 83387<br>1508      | 83402<br>1508      | 83418<br>1508      | 83433<br>1508      | 83448<br>1508      | 83463<br>1509      | 83478<br>1509      |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 535.6 | 83493<br>1509      | 83508<br>1509      | 83523<br>1509      | 83538<br>1509      | 83554<br>1509      | 83569<br>1510      | 83584<br>1510      | 83599<br>1510      | 83614<br>1510      | 83629<br>1510      |
| 535.7 | 83644<br>1510      | 83659<br>1510      | 83674<br>1510      | 83690<br>1511      | 83705<br>1511      | 83720<br>1511      | 83735<br>1511      | 83750<br>1511      | 83765<br>1511      | 83780<br>1511      |
| 535.8 | 83795<br>1511      | 83810<br>1512      | 83825<br>1512      | 83840<br>1512      | 83856<br>1512      | 83871<br>1512      | 83886<br>1512      | 83901<br>1512      | 83916<br>1513      | 83931<br>1513      |
| 535.9 | 83946<br>1513      | 83962<br>1513      | 83977<br>1513      | 83992<br>1513      | 84007<br>1513      | 84022<br>1513      | 84037<br>1514      | 84052<br>1514      | 84068<br>1514      | 84083<br>1514      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 536.0 | 84098<br>1514      | 84113<br>1514      | 84128<br>1514      | 84143<br>1514      | 84158<br>1515      | 84173<br>1515      | 84188<br>1515      | 84204<br>1515      | 84219<br>1515      | 84234<br>1515      |
| 536.1 | 84249<br>1515      | 84264<br>1516      | 84279<br>1516      | 84295<br>1516      | 84310<br>1516      | 84325<br>1516      | 84340<br>1516      | 84355<br>1516      | 84371<br>1516      | 84386<br>1517      |
| 536.2 | 84401<br>1517      | 84416<br>1517      | 84431<br>1517      | 84446<br>1517      | 84462<br>1517      | 84477<br>1517      | 84492<br>1517      | 84507<br>1518      | 84522<br>1518      | 84537<br>1518      |
| 536.3 | 84552<br>1518      | 84568<br>1518      | 84583<br>1518      | 84598<br>1518      | 84613<br>1519      | 84628<br>1519      | 84644<br>1519      | 84659<br>1519      | 84674<br>1519      | 84689<br>1519      |
| 536.4 | 84704<br>1519      | 84720<br>1519      | 84735<br>1520      | 84750<br>1520      | 84765<br>1520      | 84780<br>1520      | 84796<br>1520      | 84811<br>1520      | 84826<br>1520      | 84841<br>1521      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 536.5 | 84857<br>1521      | 84871<br>1521      | 84987<br>1521      | 84902<br>1521      | 84917<br>1521      | 84932<br>1521      | 84948<br>1521      | 84963<br>1522      | 84978<br>1522      | 84993<br>1522      |
| 536.6 | 85008<br>1522      | 85024<br>1522      | 85039<br>1522      | 85054<br>1522      | 85069<br>1522      | 85085<br>1523      | 85100<br>1523      | 85115<br>1523      | 85130<br>1523      | 85146<br>1523      |
| 536.7 | 85161<br>1523      | 85176<br>1523      | 85191<br>1524      | 85207<br>1524      | 85222<br>1524      | 85237<br>1524      | 85252<br>1524      | 85267<br>1524      | 85283<br>1524      | 85298<br>1524      |
| 536.8 | 85313<br>1525      | 85328<br>1525      | 85344<br>1525      | 85359<br>1525      | 85374<br>1525      | 85389<br>1525      | 85405<br>1525      | 85420<br>1525      | 85435<br>1526      | 85450<br>1526      |
| 536.9 | 85466<br>1526      | 85481<br>1526      | 85496<br>1526      | 85512<br>1526      | 85527<br>1526      | 85542<br>1527      | 85557<br>1527      | 85573<br>1527      | 85588<br>1527      | 85603<br>1527      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 537.0 | 85619<br>1527      | 85633<br>1527      | 85649<br>1527      | 85664<br>1528      | 85679<br>1528      | 85695<br>1528      | 85710<br>1528      | 85725<br>1528      | 85741<br>1528      | 85756<br>1528      |
| 537.1 | 85771<br>1528      | 85786<br>1529      | 85802<br>1529      | 85817<br>1529      | 85832<br>1529      | 85848<br>1529      | 85863<br>1529      | 85878<br>1529      | 85894<br>1530      | 85909<br>1530      |
| 537.2 | 85924<br>1530      | 85939<br>1530      | 85955<br>1530      | 85970<br>1530      | 85985<br>1530      | 86001<br>1530      | 86016<br>1531      | 86031<br>1531      | 86046<br>1531      | 86062<br>1531      |
| 537.3 | 86077<br>1531      | 86092<br>1531      | 86108<br>1531      | 86123<br>1532      | 86138<br>1532      | 86154<br>1532      | 86169<br>1532      | 86184<br>1532      | 86200<br>1532      | 86215<br>1532      |
| 537.4 | 86230<br>1532      | 86246<br>1533      | 86261<br>1533      | 86276<br>1533      | 86292<br>1533      | 86307<br>1533      | 86322<br>1533      | 86338<br>1533      | 86353<br>1533      | 86368<br>1534      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 537.5 | 86384<br>1534      | 86399<br>1534      | 86414<br>1534      | 86429<br>1534      | 86445<br>1534      | 86460<br>1534      | 86476<br>1535      | 86491<br>1535      | 86506<br>1535      | 86522<br>1535      |
| 537.6 | 86537<br>1535      | 86552<br>1535      | 86568<br>1535      | 86583<br>1535      | 86598<br>1536      | 86614<br>1536      | 86629<br>1536      | 86645<br>1536      | 86660<br>1536      | 86675<br>1536      |
| 537.7 | 86691<br>1536      | 86706<br>1537      | 86721<br>1537      | 86737<br>1537      | 86752<br>1537      | 86768<br>1537      | 86783<br>1537      | 86798<br>1537      | 86813<br>1537      | 86829<br>1538      |
| 537.8 | 86844<br>1538      | 86860<br>1538      | 86875<br>1538      | 86890<br>1538      | 86906<br>1538      | 66921<br>1538      | 86937<br>1538      | 86952<br>1539      | 86967<br>1539      | 86983<br>1539      |
| 537.9 | 86998<br>1539      | 87014<br>1539      | 87029<br>1539      | 87044<br>1539      | 87060<br>1540      | 87075<br>1540      | 87091<br>1540      | 87106<br>1540      | 87121<br>1540      | 87137<br>1540      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 538.0 | 87152<br>1540      | 87167<br>1540      | 87183<br>1541      | 87198<br>1541      | 87214<br>1541      | 87229<br>1541      | 87244<br>1541      | 87260<br>1541      | 87275<br>1541      | 87291<br>1542      |
| 538.1 | 87306<br>1542      | 87322<br>1542      | 87337<br>1542      | 87352<br>1542      | 87368<br>1542      | 87383<br>1542      | 87399<br>1542      | 87414<br>1543      | 87430<br>1543      | 87445<br>1543      |
| 538.2 | 87461<br>1543      | 87476<br>1543      | 87491<br>1543      | 87507<br>1543      | 87522<br>1543      | 87538<br>1544      | 87553<br>1544      | 87568<br>1544      | 87584<br>1544      | 87599<br>1544      |
| 538.3 | 87615<br>1544      | 87630<br>1544      | 87646<br>1545      | 87661<br>1545      | 87677<br>1545      | 87692<br>1545      | 87707<br>1545      | 87723<br>1545      | 87738<br>1545      | 87754<br>1545      |
| 538.4 | 87769<br>1546      | 87785<br>1546      | 87800<br>1546      | 87816<br>1546      | 87831<br>1546      | 87847<br>1546      | 87862<br>1546      | 87878<br>1547      | 87893<br>1547      | 87909<br>1547      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 538.5 | 87924<br>1547      | 87939<br>1547      | 87955<br>1547      | 87970<br>1547      | 87986<br>1547      | 88001<br>1548      | 88017<br>1548      | 88032<br>1548      | 88048<br>1548      | 88063<br>1548      |
| 538.6 | 88079<br>1548      | 88094<br>1548      | 88110<br>1548      | 88125<br>1549      | 88141<br>1549      | 88156<br>1549      | 88172<br>1549      | 88187<br>1549      | 88203<br>1549      | 88218<br>1549      |
| 538.7 | 88234<br>1550      | 88249<br>1550      | 88265<br>1550      | 88280<br>1550      | 88296<br>1550      | 88311<br>1550      | 88326<br>1550      | 88342<br>1550      | 88357<br>1551      | 88373<br>1551      |
| 538.8 | 88388<br>1551      | 88404<br>1551      | 88420<br>1551      | 88435<br>1551      | 88451<br>1551      | 88466<br>1552      | 88482<br>1552      | 88497<br>1552      | 88513<br>1552      | 88528<br>1552      |
| 538.9 | 88544<br>1552      | 88559<br>1552      | 88575<br>1552      | 88590<br>1553      | 88606<br>1553      | 88621<br>1553      | 88637<br>1553      | 88653<br>1553      | 88668<br>1553      | 88684<br>1553      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 539.0 | 88699<br>1554      | 88714<br>1554      | 88730<br>1554      | 88745<br>1554      | 88761<br>1554      | 88777<br>1554      | 88792<br>1554      | 88808<br>1554      | 88823<br>1555      | 88839<br>1555      |
| 539.1 | 88854<br>1555      | 88870<br>1555      | 88886<br>1555      | 88901<br>1555      | 88917<br>1555      | 88932<br>1556      | 88948<br>1556      | 88963<br>1556      | 88979<br>1556      | 88995<br>1556      |
| 539.2 | 89010<br>1556      | 89026<br>1556      | 89041<br>1556      | 89057<br>1557      | 89072<br>1557      | 89088<br>1557      | 89103<br>1557      | 89119<br>1557      | 89134<br>1557      | 89150<br>1557      |
| 539.3 | 89166<br>1557      | 89181<br>1558      | 89197<br>1558      | 89212<br>1558      | 89228<br>1558      | 89244<br>1558      | 89259<br>1558      | 89275<br>1558      | 89290<br>1559      | 89306<br>1559      |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 539.4 | 89322<br>1559      | 89337<br>1559      | 89353<br>1559      | 89368<br>1559      | 89384<br>1559      | 89400<br>1559      | 89415<br>1560      | 89431<br>1560      | 89446<br>1560      | 89462<br>1560      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 539.5 | 89478<br>1560      | 89493<br>1560      | 89508<br>1560      | 89524<br>1561      | 89540<br>1561      | 89555<br>1561      | 89571<br>1561      | 89587<br>1561      | 89602<br>1561      | 89618<br>1561      |
| 539.6 | 89633<br>1561      | 89649<br>1562      | 89665<br>1562      | 89680<br>1562      | 89696<br>1562      | 89712<br>1562      | 89727<br>1562      | 89743<br>1562      | 89759<br>1563      | 89774<br>1563      |
| 539.7 | 89790<br>1563      | 89805<br>1563      | 89821<br>1563      | 89837<br>1563      | 89852<br>1563      | 89868<br>1563      | 89883<br>1564      | 89899<br>1564      | 89915<br>1564      | 89930<br>1564      |
| 539.8 | 89946<br>1564      | 89962<br>1564      | 89977<br>1564      | 89993<br>1565      | 90009<br>1565      | 90024<br>1565      | 90040<br>1565      | 90056<br>1565      | 90071<br>1565      | 90087<br>1565      |
| 539.9 | 90103<br>1565      | 90118<br>1566      | 90134<br>1566      | 90150<br>1566      | 90165<br>1566      | 90181<br>1566      | 90197<br>1566      | 90212<br>1566      | 90228<br>1567      | 90244<br>1567      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 540.0 | 90259<br>1567      | 90275<br>1567      | 90290<br>1567      | 90306<br>1567      | 90322<br>1567      | 90337<br>1567      | 90353<br>1568      | 90369<br>1568      | 90384<br>1568      | 90400<br>1568      |
| 540.1 | 90416<br>1568      | 90432<br>1568      | 90447<br>1568      | 90463<br>1569      | 90479<br>1569      | 90494<br>1569      | 90510<br>1569      | 90526<br>1569      | 90541<br>1569      | 90557<br>1569      |
| 540.2 | 90573<br>1569      | 90589<br>1570      | 90604<br>1570      | 90620<br>1570      | 90636<br>1570      | 90651<br>1570      | 90667<br>1570      | 90683<br>1570      | 90698<br>1571      | 90714<br>1571      |
| 540.3 | 90730<br>1571      | 90745<br>1571      | 90761<br>1571      | 90777<br>1571      | 90793<br>1571      | 90808<br>1571      | 90824<br>1572      | 90840<br>1572      | 90856<br>1572      | 90871<br>1572      |
| 540.4 | 90887<br>1572      | 90903<br>1572      | 90918<br>1572      | 90934<br>1573      | 90950<br>1573      | 90966<br>1573      | 90981<br>1573      | 90997<br>1573      | 91013<br>1573      | 91029<br>1573      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 540.5 | 91044<br>1573      | 91060<br>1574      | 91076<br>1574      | 91091<br>1574      | 91107<br>1574      | 91123<br>1574      | 91139<br>1574      | 91154<br>1574      | 91170<br>1575      | 91186<br>1575      |
| 540.6 | 91202<br>1575      | 91217<br>1575      | 91233<br>1575      | 91249<br>1575      | 91265<br>1575      | 91280<br>1575      | 91296<br>1576      | 91312<br>1576      | 91328<br>1576      | 91344<br>1576      |
| 540.7 | 91359<br>1576      | 91375<br>1576      | 91391<br>1576      | 91407<br>1577      | 91422<br>1577      | 91438<br>1577      | 91454<br>1577      | 91469<br>1577      | 91485<br>1577      | 91501<br>1577      |
| 540.8 | 91517<br>1577      | 91533<br>1578      | 91548<br>1578      | 91564<br>1578      | 91580<br>1578      | 91596<br>1578      | 91612<br>1578      | 91627<br>1578      | 91643<br>1579      | 91659<br>1579      |
| 540.9 | 91675<br>1579      | 91691<br>1579      | 91706<br>1579      | 91722<br>1579      | 91738<br>1579      | 91754<br>1579      | 91770<br>1580      | 91785<br>1580      | 91801<br>1580      | 91817<br>1580      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 541.0 | 91933<br>1580      | 91848<br>1580      | 91864<br>1580      | 91880<br>1581      | 91896<br>1581      | 91912<br>1581      | 91927<br>1581      | 91943<br>1581      | 91959<br>1581      | 91975<br>1581      |
| 541.1 | 91991<br>1581      | 92006<br>1582      | 92022<br>1582      | 92038<br>1582      | 92054<br>1582      | 92070<br>1582      | 92086<br>1582      | 92102<br>1582      | 92117<br>1583      | 92133<br>1583      |
| 541.2 | 92149<br>1583      | 92165<br>1583      | 92181<br>1583      | 92197<br>1583      | 92212<br>1583      | 92228<br>1583      | 92244<br>1584      | 92260<br>1584      | 92275<br>1584      | 92291<br>1584      |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 541.3 | 92307<br>1584      | 92323<br>1584      | 92339<br>1584      | 92355<br>1585      | 92371<br>1585      | 92386<br>1585      | 92402<br>1585      | 92418<br>1585      | 92434<br>1585      | 92450<br>1585      |
| 541.4 | 92466<br>1585      | 92482<br>1586      | 92498<br>1586      | 92513<br>1586      | 92529<br>1586      | 92545<br>1586      | 92561<br>1586      | 92577<br>1586      | 92593<br>1587      | 92609<br>1587      |
| 541.5 | 92625<br>1587      | 92640<br>1587      | 92656<br>1587      | 92672<br>1587      | 92688<br>1587      | 92704<br>1587      | 92719<br>1588      | 92735<br>1588      | 92751<br>1588      | 92767<br>1588      |
| 541.6 | 92783<br>1588      | 92799<br>1588      | 92815<br>1588      | 92831<br>1589      | 92847<br>1589      | 92863<br>1589      | 92878<br>1589      | 92894<br>1589      | 92910<br>1589      | 92926<br>1589      |
| 541.7 | 92942<br>1590      | 92958<br>1590      | 92974<br>1590      | 92990<br>1590      | 93006<br>1590      | 93022<br>1590      | 93037<br>1590      | 93053<br>1590      | 93069<br>1591      | 93085<br>1591      |
| 541.8 | 93101<br>1591      | 93117<br>1591      | 93133<br>1591      | 93149<br>1591      | 93165<br>1591      | 93181<br>1592      | 93196<br>1592      | 93212<br>1592      | 93226<br>1592      | 93244<br>1592      |
| 541.9 | 93260<br>1592      | 93276<br>1592      | 93292<br>1592      | 93308<br>1593      | 93324<br>1593      | 93340<br>1593      | 93356<br>1593      | 93372<br>1593      | 93388<br>1593      | 93404<br>1593      |
| 542.0 | 93420<br>1594      | 93435<br>1594      | 93451<br>1594      | 93467<br>1594      | 93483<br>1594      | 93499<br>1594      | 93515<br>1594      | 93531<br>1594      | 93547<br>1595      | 93563<br>1595      |
| 542.1 | 93579<br>1595      | 93595<br>1595      | 93611<br>1595      | 93627<br>1595      | 93643<br>1595      | 93659<br>1596      | 93675<br>1596      | 93691<br>1596      | 93707<br>1596      | 93723<br>1596      |
| 542.2 | 93739<br>1596      | 93755<br>1596      | 93771<br>1596      | 93786<br>1597      | 93802<br>1597      | 93818<br>1597      | 93834<br>1597      | 93850<br>1597      | 93866<br>1597      | 93882<br>1597      |
| 542.3 | 93898<br>1598      | 93914<br>1598      | 93930<br>1598      | 93946<br>1598      | 93962<br>1598      | 93978<br>1598      | 93994<br>1598      | 94010<br>1599      | 94026<br>1599      | 94042<br>1599      |
| 542.4 | 94058<br>1599      | 94074<br>1599      | 94090<br>1599      | 94106<br>1599      | 94122<br>1599      | 94138<br>1600      | 94154<br>1600      | 94170<br>1600      | 94186<br>1600      | 94202<br>1600      |
| 542.5 | 94218<br>1600      | 94234<br>1600      | 94250<br>1601      | 94266<br>1601      | 94282<br>1601      | 94298<br>1601      | 94314<br>1601      | 94330<br>1601      | 94346<br>1601      | 94362<br>1601      |
| 542.6 | 94378<br>1602      | 94394<br>1602      | 94410<br>1602      | 94426<br>1602      | 94442<br>1602      | 94458<br>1602      | 94474<br>1602      | 94490<br>1603      | 94506<br>1603      | 94522<br>1603      |
| 542.7 | 94538<br>1603      | 94554<br>1603      | 94570<br>1603      | 94586<br>1603      | 94603<br>1604      | 94619<br>1604      | 94634<br>1604      | 94650<br>1604      | 94666<br>1604      | 94682<br>1604      |
| 542.8 | 94698<br>1604      | 94715<br>1604      | 94731<br>1605      | 94747<br>1605      | 94763<br>1605      | 94779<br>1605      | 94795<br>1605      | 94811<br>1605      | 94827<br>1605      | 94843<br>1606      |
| 542.9 | 94859<br>1606      | 94875<br>1606      | 94991<br>1606      | 94907<br>1606      | 94923<br>1606      | 94940<br>1606      | 94956<br>1606      | 94972<br>1607      | 94988<br>1607      | 95004<br>1607      |
| 543.0 | 95020<br>1607      | 95036<br>1607      | 95052<br>1607      | 95068<br>1607      | 95084<br>1608      | 95100<br>1608      | 95116<br>1608      | 95132<br>1608      | 95148<br>1608      | 95164<br>1608      |
| 543.1 | 95180<br>1608      | 95197<br>1609      | 95213<br>1609      | 95229<br>1609      | 95245<br>1609      | 95261<br>1609      | 95277<br>1609      | 95293<br>1609      | 95309<br>1609      | 95325<br>1610      |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 543.2 | 95342<br>1610      | 95358<br>1610      | 95374<br>1610      | 95390<br>1610      | 95406<br>1610      | 95422<br>1610      | 95438<br>1611      | 95454<br>1611      | 95470<br>1611      | 95486<br>1611      |
| 543.3 | 95502<br>1611      | 95518<br>1611      | 95535<br>1611      | 95551<br>1611      | 95567<br>1612      | 95583<br>1612      | 95599<br>1612      | 95615<br>1612      | 95631<br>1612      | 95648<br>1612      |
| 543.4 | 95664<br>1612      | 95680<br>1613      | 95696<br>1613      | 95712<br>1613      | 95728<br>1613      | 95744<br>1613      | 95761<br>1613      | 95777<br>1613      | 95793<br>1614      | 95809<br>1614      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 543.5 | 95825<br>1614      | 95841<br>1614      | 95857<br>1614      | 95873<br>1614      | 95889<br>1614      | 95906<br>1614      | 95922<br>1615      | 95938<br>1615      | 95954<br>1615      | 95970<br>1615      |
| 543.6 | 95986<br>1615      | 96003<br>1615      | 96019<br>1615      | 96035<br>1616      | 96051<br>1616      | 96067<br>1616      | 96083<br>1616      | 96100<br>1616      | 96116<br>1616      | 96132<br>1616      |
| 543.7 | 96148<br>1617      | 96164<br>1617      | 96180<br>1617      | 96197<br>1617      | 96213<br>1617      | 96229<br>1617      | 96245<br>1617      | 96261<br>1617      | 96277<br>1618      | 96293<br>1618      |
| 543.8 | 96310<br>1618      | 96326<br>1618      | 96342<br>1618      | 96358<br>1618      | 96374<br>1618      | 96391<br>1619      | 96407<br>1619      | 96423<br>1619      | 96439<br>1619      | 96455<br>1619      |
| 543.9 | 96472<br>1619      | 96488<br>1619      | 96504<br>1619      | 96520<br>1620      | 96536<br>1620      | 96553<br>1620      | 96569<br>1620      | 96585<br>1620      | 96601<br>1620      | 96617<br>1620      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 544.0 | 96634<br>1621      | 96650<br>1621      | 96666<br>1621      | 96682<br>1621      | 96698<br>1621      | 96714<br>1621      | 96731<br>1621      | 96747<br>1622      | 96763<br>1622      | 96779<br>1622      |
| 544.1 | 96796<br>1622      | 96912<br>1622      | 96828<br>1622      | 96844<br>1622      | 96861<br>1622      | 96877<br>1623      | 96893<br>1623      | 96909<br>1623      | 96926<br>1623      | 96942<br>1623      |
| 544.2 | 96958<br>1623      | 96974<br>1623      | 96991<br>1624      | 97007<br>1624      | 97023<br>1624      | 97039<br>1624      | 97055<br>1624      | 97071<br>1624      | 97088<br>1624      | 97104<br>1625      |
| 544.3 | 97120<br>1625      | 97136<br>1625      | 97153<br>1625      | 97169<br>1625      | 97185<br>1625      | 97202<br>1625      | 97218<br>1625      | 97234<br>1626      | 97250<br>1626      | 97267<br>1626      |
| 544.4 | 97283<br>1626      | 97299<br>1626      | 97315<br>1626      | 97332<br>1626      | 97348<br>1627      | 97364<br>1627      | 97381<br>1627      | 97397<br>1627      | 97413<br>1627      | 97429<br>1627      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 544.5 | 97446<br>1627      | 97462<br>1628      | 97478<br>1628      | 97494<br>1628      | 97510<br>1628      | 97527<br>1628      | 97543<br>1628      | 97559<br>1628      | 97576<br>1628      | 97592<br>1629      |
| 544.6 | 97608<br>1629      | 97625<br>1629      | 97641<br>1629      | 97657<br>1629      | 97673<br>1629      | 97690<br>1629      | 97706<br>1630      | 97722<br>1630      | 97739<br>1630      | 97755<br>1630      |
| 544.7 | 97771<br>1630      | 97788<br>1630      | 97804<br>1630      | 97820<br>1631      | 97837<br>1631      | 97853<br>1631      | 97869<br>1631      | 97885<br>1631      | 97902<br>1631      | 97918<br>1631      |
| 544.8 | 97934<br>1631      | 97951<br>1632      | 97967<br>1632      | 97983<br>1632      | 98000<br>1632      | 98016<br>1632      | 98032<br>1632      | 98049<br>1632      | 98065<br>1633      | 98081<br>1633      |
| 544.9 | 98098<br>1633      | 98114<br>1633      | 98130<br>1633      | 98147<br>1633      | 98163<br>1633      | 98179<br>1634      | 98196<br>1634      | 98212<br>1634      | 98228<br>1634      | 98245<br>1634      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 545.0 | 98261<br>1634      | 98277<br>1634      | 98293<br>1634      | 98310<br>1635      | 98326<br>1635      | 98343<br>1635      | 98359<br>1635      | 98375<br>1635      | 98392<br>1635      | 98408<br>1635      |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 545.1 | 98424<br>1636      | 98441<br>1636      | 98457<br>1636      | 98473<br>1636      | 98490<br>1636      | 98506<br>1636      | 98523<br>1636      | 98539<br>1637      | 98555<br>1637      | 98572<br>1637      |
| 545.2 | 98588<br>1637      | 98605<br>1637      | 98621<br>1637      | 98637<br>1637      | 98654<br>1637      | 98670<br>1638      | 98686<br>1638      | 98702<br>1638      | 98719<br>1638      | 98735<br>1638      |
| 545.3 | 98752<br>1638      | 98768<br>1638      | 98784<br>1639      | 98801<br>1639      | 98817<br>1639      | 98834<br>1639      | 98850<br>1639      | 98866<br>1639      | 98883<br>1639      | 98899<br>1640      |
| 545.4 | 98916<br>1640      | 98932<br>1640      | 98949<br>1640      | 98965<br>1640      | 98981<br>1640      | 98998<br>1640      | 99014<br>1640      | 99031<br>1641      | 99047<br>1641      | 99063<br>1641      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 545.5 | 99080<br>1641      | 99096<br>1641      | 99112<br>1641      | 99129<br>1641      | 99145<br>1642      | 99162<br>1642      | 99178<br>1642      | 99195<br>1642      | 99211<br>1642      | 99227<br>1642      |
| 545.6 | 99244<br>1642      | 99260<br>1643      | 99277<br>1643      | 99293<br>1643      | 99310<br>1643      | 99326<br>1643      | 99343<br>1643      | 99359<br>1643      | 99375<br>1644      | 99392<br>1644      |
| 545.7 | 99408<br>1644      | 99425<br>1644      | 99441<br>1644      | 99458<br>1644      | 99474<br>1644      | 99491<br>1644      | 99507<br>1645      | 99523<br>1645      | 99540<br>1645      | 99556<br>1645      |
| 545.8 | 99573<br>1645      | 99589<br>1645      | 99605<br>1645      | 99622<br>1646      | 99638<br>1646      | 99655<br>1646      | 99671<br>1646      | 99688<br>1646      | 99704<br>1646      | 99721<br>1646      |
| 545.9 | 99737<br>1647      | 99754<br>1647      | 99770<br>1647      | 99787<br>1647      | 99803<br>1647      | 99820<br>1647      | 99836<br>1647      | 99853<br>1647      | 99869<br>1648      | 99886<br>1648      |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 546.0 | 99902<br>1648      | 99918<br>1648      | 99935<br>1648      | 99951<br>1648      | 99968<br>1648      | 99984<br>1649      | 100001<br>1649     | 100017<br>1649     | 100034<br>1649     | 100050<br>1649     |
| 546.1 | 100067<br>1649     | 100083<br>1649     | 100100<br>1650     | 100116<br>1650     | 100133<br>1650     | 100149<br>1650     | 100166<br>1650     | 100182<br>1650     | 100199<br>1650     | 100215<br>1651     |
| 546.2 | 100232<br>1651     | 100248<br>1651     | 100265<br>1651     | 100281<br>1651     | 100298<br>1651     | 100315<br>1651     | 100331<br>1651     | 100347<br>1652     | 100364<br>1652     | 100380<br>1652     |
| 546.3 | 100397<br>1652     | 100413<br>1652     | 100430<br>1652     | 100446<br>1652     | 100463<br>1653     | 100480<br>1653     | 100496<br>1653     | 100513<br>1653     | 100529<br>1653     | 100546<br>1653     |
| 546.4 | 100562<br>1653     | 100579<br>1654     | 100595<br>1654     | 100612<br>1654     | 100628<br>1654     | 100645<br>1654     | 100662<br>1654     | 100678<br>1654     | 100695<br>1654     | 100711<br>1655     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 546.5 | 100728<br>1655     | 100744<br>1655     | 100761<br>1655     | 100777<br>1655     | 100794<br>1655     | 100810<br>1655     | 100827<br>1656     | 100843<br>1656     | 100860<br>1656     | 100877<br>1656     |
| 546.6 | 100893<br>1656     | 100910<br>1656     | 100926<br>1656     | 100943<br>1657     | 100959<br>1657     | 100976<br>1657     | 100993<br>1657     | 101009<br>1657     | 101026<br>1657     | 101042<br>1657     |
| 546.7 | 101059<br>1658     | 101076<br>1658     | 101092<br>1658     | 101109<br>1658     | 101125<br>1658     | 101142<br>1658     | 101158<br>1658     | 101175<br>1658     | 101191<br>1659     | 101208<br>1659     |
| 546.8 | 101225<br>1659     | 101241<br>1659     | 101258<br>1659     | 101274<br>1659     | 101291<br>1659     | 101308<br>1660     | 101324<br>1660     | 101341<br>1660     | 101357<br>1660     | 101374<br>1660     |
| 546.9 | 101391<br>1660     | 101407<br>1660     | 101424<br>1661     | 101441<br>1661     | 101457<br>1661     | 101474<br>1661     | 101490<br>1661     | 101507<br>1661     | 101524<br>1661     | 101540<br>1662     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 547.0 | 101557<br>1662     | 101573<br>1662     | 101590<br>1662     | 101606<br>1662     | 101623<br>1662     | 101640<br>1662     | 101656<br>1662     | 101673<br>1663     | 101690<br>1663     | 101706<br>1663     |
| 547.1 | 101723<br>1663     | 101740<br>1663     | 101756<br>1663     | 101773<br>1663     | 101790<br>1664     | 101806<br>1664     | 101823<br>1664     | 101839<br>1664     | 101856<br>1664     | 101873<br>1664     |
| 547.2 | 101889<br>1664     | 101906<br>1665     | 101923<br>1665     | 101939<br>1665     | 101956<br>1665     | 101973<br>1665     | 101989<br>1665     | 102006<br>1665     | 102022<br>1666     | 102039<br>1666     |
| 547.3 | 102056<br>1666     | 102072<br>1666     | 102089<br>1666     | 102106<br>1666     | 102122<br>1666     | 102139<br>1666     | 102156<br>1667     | 102172<br>1667     | 102189<br>1667     | 102206<br>1667     |
| 547.4 | 102223<br>1667     | 102239<br>1667     | 102256<br>1667     | 102273<br>1668     | 102289<br>1668     | 102306<br>1668     | 102323<br>1668     | 102339<br>1668     | 102356<br>1668     | 102373<br>1668     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 547.5 | 102389<br>1669     | 102406<br>1669     | 102422<br>1669     | 102439<br>1669     | 102456<br>1669     | 102473<br>1669     | 102489<br>1669     | 102506<br>1670     | 102523<br>1670     | 102539<br>1670     |
| 547.6 | 102556<br>1670     | 102573<br>1670     | 102590<br>1670     | 102606<br>1670     | 102623<br>1671     | 102640<br>1671     | 102656<br>1671     | 102673<br>1671     | 102690<br>1671     | 102707<br>1671     |
| 547.7 | 102723<br>1671     | 102740<br>1671     | 102757<br>1672     | 102774<br>1672     | 102790<br>1672     | 102807<br>1672     | 102823<br>1672     | 102840<br>1672     | 102857<br>1672     | 102874<br>1673     |
| 547.8 | 102890<br>1673     | 102907<br>1673     | 102924<br>1673     | 102941<br>1673     | 102957<br>1673     | 102974<br>1673     | 102991<br>1674     | 103008<br>1674     | 103024<br>1674     | 103041<br>1674     |
| 547.9 | 103058<br>1674     | 103075<br>1674     | 103091<br>1674     | 103108<br>1675     | 103125<br>1675     | 103142<br>1675     | 103158<br>1675     | 103175<br>1675     | 103192<br>1675     | 103209<br>1675     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 548.0 | 103225<br>1675     | 103242<br>1676     | 103259<br>1676     | 103275<br>1676     | 103292<br>1676     | 103309<br>1676     | 103326<br>1676     | 103343<br>1676     | 103359<br>1677     | 103376<br>1677     |
| 548.1 | 103393<br>1677     | 103410<br>1677     | 103426<br>1677     | 103443<br>1677     | 103460<br>1677     | 103477<br>1678     | 103494<br>1678     | 103510<br>1678     | 103527<br>1678     | 103544<br>1678     |
| 548.2 | 103561<br>1678     | 103578<br>1678     | 103594<br>1679     | 103611<br>1679     | 103628<br>1679     | 103645<br>1679     | 103661<br>1679     | 103678<br>1679     | 103695<br>1679     | 103712<br>1680     |
| 548.3 | 103728<br>1680     | 103745<br>1680     | 103762<br>1680     | 103779<br>1680     | 103796<br>1680     | 103813<br>1680     | 103829<br>1680     | 103846<br>1681     | 103863<br>1681     | 103880<br>1681     |
| 548.4 | 103897<br>1681     | 103913<br>1681     | 103930<br>1681     | 103947<br>1681     | 103964<br>1682     | 103981<br>1682     | 103998<br>1682     | 104014<br>1682     | 104031<br>1682     | 104048<br>1682     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 548.5 | 104065<br>1682     | 104081<br>1683     | 104098<br>1683     | 104115<br>1683     | 104132<br>1683     | 104149<br>1683     | 104166<br>1683     | 104182<br>1683     | 104199<br>1684     | 104216<br>1684     |
| 548.6 | 104233<br>1684     | 104250<br>1684     | 104267<br>1684     | 104284<br>1684     | 104300<br>1684     | 104317<br>1685     | 104334<br>1685     | 104351<br>1685     | 104368<br>1685     | 104385<br>1685     |
| 548.7 | 104402<br>1685     | 104419<br>1685     | 104435<br>1685     | 104452<br>1686     | 104469<br>1686     | 104486<br>1686     | 104502<br>1686     | 104519<br>1686     | 104536<br>1686     | 104553<br>1686     |
| 548.8 | 104570<br>1687     | 104587<br>1687     | 104604<br>1687     | 104621<br>1687     | 104638<br>1687     | 104654<br>1687     | 104671<br>1687     | 104688<br>1688     | 104705<br>1688     | 104722<br>1688     |
| 548.9 | 104739<br>1688     | 104756<br>1688     | 104773<br>1688     | 104790<br>1688     | 104806<br>1689     | 104823<br>1689     | 104840<br>1689     | 104857<br>1689     | 104874<br>1669     | 104891<br>1689     |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 549.0 | 104908<br>1689     | 104924<br>1690     | 104941<br>1690     | 104958<br>1690     | 104975<br>1690     | 104992<br>1690     | 105009<br>1690     | 105026<br>1690     | 105043<br>1690     | 105060<br>1691     |
| 549.1 | 105077<br>1691     | 105094<br>1691     | 105111<br>1691     | 105127<br>1691     | 105144<br>1691     | 105161<br>1691     | 105178<br>1692     | 105195<br>1692     | 105212<br>1692     | 105229<br>1692     |
| 549.2 | 105246<br>1692     | 105263<br>1692     | 105280<br>1692     | 105297<br>1693     | 105314<br>1693     | 105331<br>1693     | 105347<br>1693     | 105364<br>1693     | 105381<br>1693     | 105398<br>1693     |
| 549.3 | 105415<br>1694     | 105432<br>1694     | 105449<br>1694     | 105466<br>1694     | 105483<br>1694     | 105500<br>1694     | 105517<br>1694     | 105534<br>1695     | 105551<br>1695     | 105568<br>1695     |
| 549.4 | 105585<br>1695     | 105602<br>1695     | 105619<br>1695     | 105636<br>1695     | 105652<br>1695     | 105669<br>1696     | 105686<br>1696     | 105703<br>1696     | 105720<br>1696     | 105737<br>1696     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 549.5 | 105754<br>1696     | 105771<br>1696     | 105788<br>1697     | 105805<br>1697     | 105822<br>1697     | 105839<br>1697     | 105856<br>1697     | 105873<br>1697     | 105890<br>1697     | 105907<br>1698     |
| 549.6 | 105924<br>1698     | 105941<br>1698     | 105958<br>1698     | 105975<br>1698     | 105992<br>1698     | 106009<br>1698     | 106026<br>1699     | 106043<br>1699     | 106060<br>1699     | 106077<br>1699     |
| 549.7 | 106094<br>1699     | 106111<br>1699     | 106128<br>1699     | 106145<br>1700     | 106162<br>1700     | 106179<br>1700     | 106195<br>1700     | 106212<br>1700     | 106229<br>1700     | 106247<br>1700     |
| 549.8 | 106264<br>1700     | 106281<br>1701     | 106298<br>1701     | 106315<br>1701     | 106332<br>1701     | 106349<br>1701     | 106366<br>1701     | 106383<br>1701     | 106400<br>1702     | 106417<br>1702     |
| 549.9 | 106434<br>1702     | 106451<br>1702     | 106468<br>1702     | 106485<br>1702     | 106502<br>1702     | 106519<br>1703     | 106536<br>1703     | 106553<br>1703     | 106570<br>1703     | 106587<br>1703     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 550.0 | 106604<br>1703     | 106621<br>1703     | 106638<br>1704     | 106655<br>1704     | 106672<br>1704     | 106689<br>1704     | 106706<br>1704     | 106723<br>1704     | 106740<br>1704     | 106757<br>1705     |
| 550.1 | 106774<br>1705     | 106791<br>1705     | 106809<br>1705     | 106826<br>1705     | 106843<br>1705     | 106860<br>1705     | 106877<br>1706     | 106894<br>1706     | 106911<br>1706     | 106928<br>1706     |
| 550.2 | 106945<br>1706     | 106962<br>1706     | 106979<br>1706     | 106996<br>1706     | 107013<br>1707     | 107030<br>1707     | 107047<br>1707     | 107064<br>1707     | 107081<br>1707     | 107098<br>1707     |
| 550.3 | 107116<br>1707     | 107133<br>1708     | 107150<br>1708     | 107167<br>1708     | 107184<br>1708     | 107201<br>1708     | 107218<br>1708     | 107235<br>1708     | 107252<br>1709     | 107269<br>1709     |
| 550.4 | 107287<br>1709     | 107304<br>1709     | 107321<br>1709     | 107338<br>1709     | 107355<br>1709     | 107372<br>1710     | 107389<br>1710     | 107406<br>1710     | 107423<br>1710     | 107441<br>1710     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 550.5 | 107458<br>1710     | 107474<br>1710     | 107491<br>1711     | 107509<br>1711     | 107526<br>1711     | 107543<br>1711     | 107560<br>1711     | 107577<br>1711     | 107594<br>1711     | 107611<br>1712     |
| 550.6 | 107628<br>1712     | 107646<br>1712     | 107663<br>1712     | 107680<br>1712     | 107697<br>1712     | 107714<br>1712     | 107731<br>1712     | 107748<br>1713     | 107766<br>1713     | 107783<br>1713     |
| 550.7 | 107800<br>1713     | 107817<br>1713     | 107834<br>1713     | 107851<br>1713     | 107868<br>1714     | 107886<br>1714     | 107902<br>1714     | 107920<br>1714     | 107937<br>1714     | 107954<br>1714     |
| 550.8 | 107971<br>1714     | 107988<br>1715     | 108005<br>1715     | 108022<br>1715     | 108040<br>1715     | 108057<br>1715     | 108074<br>1715     | 108091<br>1715     | 108108<br>1716     | 108126<br>1716     |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 550.9 | 108143<br>1716     | 108160<br>1716     | 108177<br>1716     | 108194<br>1716     | 108211<br>1716     | 108229<br>1717     | 108246<br>1717     | 108263<br>1717     | 108280<br>1717     | 108297<br>1717     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 551.0 | 108315<br>1717     | 108331<br>1717     | 108348<br>1718     | 108366<br>1718     | 108383<br>1718     | 108400<br>1718     | 108417<br>1718     | 108434<br>1718     | 108452<br>1718     | 108469<br>1719     |
| 551.1 | 108486<br>1719     | 108503<br>1719     | 108520<br>1719     | 108538<br>1719     | 108555<br>1719     | 108572<br>1719     | 108589<br>1719     | 108607<br>1720     | 108624<br>1720     | 108641<br>1720     |
| 551.2 | 108658<br>1720     | 108675<br>1720     | 108693<br>1720     | 108710<br>1720     | 108727<br>1721     | 108744<br>1721     | 108761<br>1721     | 108778<br>1721     | 108796<br>1721     | 108813<br>1721     |
| 551.3 | 108830<br>1721     | 108847<br>1722     | 108864<br>1722     | 108882<br>1722     | 108899<br>1722     | 108916<br>1722     | 108933<br>1722     | 108951<br>1722     | 108968<br>1723     | 108985<br>1723     |
| 551.4 | 109002<br>1723     | 109020<br>1723     | 109037<br>1723     | 109054<br>1723     | 109071<br>1723     | 109089<br>1724     | 109106<br>1724     | 109123<br>1724     | 109140<br>1724     | 109158<br>1724     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 551.5 | 109175<br>1724     | 109192<br>1724     | 109209<br>1725     | 109226<br>1725     | 109244<br>1725     | 109261<br>1725     | 109278<br>1725     | 109295<br>1725     | 109313<br>1725     | 109330<br>1725     |
| 551.6 | 109347<br>1726     | 109364<br>1726     | 109382<br>1726     | 109399<br>1726     | 109416<br>1726     | 109434<br>1726     | 109451<br>1726     | 109468<br>1727     | 109485<br>1727     | 109503<br>1727     |
| 551.7 | 109520<br>1727     | 109537<br>1727     | 109554<br>1727     | 109572<br>1727     | 109589<br>1728     | 109606<br>1728     | 109623<br>1728     | 109641<br>1728     | 109658<br>1728     | 109675<br>1728     |
| 551.8 | 109692<br>1728     | 109710<br>1729     | 109727<br>1729     | 109744<br>1729     | 109762<br>1729     | 109779<br>1729     | 109796<br>1729     | 109814<br>1729     | 109831<br>1730     | 109848<br>1730     |
| 551.9 | 109866<br>1730     | 109883<br>1730     | 109900<br>1730     | 109917<br>1730     | 109935<br>1730     | 109952<br>1731     | 109969<br>1731     | 109987<br>1731     | 110004<br>1731     | 110021<br>1731     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 552.0 | 110039<br>1731     | 110056<br>1731     | 110073<br>1732     | 110090<br>1732     | 110108<br>1732     | 110125<br>1732     | 110142<br>1732     | 110160<br>1732     | 110177<br>1732     | 110194<br>1732     |
| 552.1 | 110212<br>1733     | 110229<br>1733     | 110246<br>1733     | 110264<br>1733     | 110281<br>1733     | 110298<br>1733     | 110316<br>1733     | 110333<br>1734     | 110350<br>1734     | 110368<br>1734     |
| 552.2 | 110385<br>1734     | 110403<br>1734     | 110420<br>1734     | 110437<br>1734     | 110455<br>1735     | 110472<br>1735     | 110489<br>1735     | 110506<br>1735     | 110524<br>1735     | 110541<br>1735     |
| 552.3 | 110558<br>1735     | 110576<br>1736     | 110593<br>1736     | 110611<br>1736     | 110628<br>1736     | 110645<br>1736     | 110663<br>1736     | 110680<br>1736     | 110697<br>1737     | 110715<br>1737     |
| 552.4 | 110732<br>1737     | 110750<br>1737     | 110767<br>1737     | 110784<br>1737     | 110802<br>1737     | 110819<br>1738     | 110837<br>1738     | 110854<br>1738     | 110871<br>1738     | 110889<br>1738     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 552.5 | 110906<br>1738     | 110923<br>1738     | 110940<br>1739     | 110958<br>1739     | 110975<br>1739     | 110993<br>1739     | 111010<br>1739     | 111028<br>1739     | 111045<br>1739     | 111062<br>1739     |
| 552.6 | 111080<br>1740     | 111097<br>1740     | 111115<br>1740     | 111132<br>1740     | 111149<br>1740     | 111167<br>1740     | 111184<br>1740     | 111202<br>1741     | 111219<br>1741     | 111237<br>1741     |
| 552.7 | 111254<br>1741     | 111271<br>1741     | 111289<br>1741     | 111306<br>1741     | 111324<br>1742     | 111341<br>1742     | 111358<br>1742     | 111376<br>1742     | 111393<br>1742     | 111410<br>1742     |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 552.8 | 111428<br>1742     | 111445<br>1743     | 111463<br>1743     | 111480<br>1743     | 111498<br>1743     | 111515<br>1743     | 111533<br>1743     | 111550<br>1743     | 111567<br>1744     | 111585<br>1744     |
| 552.9 | 111602<br>1744     | 111620<br>1744     | 111637<br>1744     | 111655<br>1744     | 111672<br>1744     | 111690<br>1745     | 111707<br>1745     | 111725<br>1745     | 111742<br>1745     | 111760<br>1745     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 553.0 | 111777<br>1745     | 111794<br>1745     | 111811<br>1746     | 111829<br>1746     | 111846<br>1746     | 111864<br>1746     | 111881<br>1746     | 111899<br>1746     | 111916<br>1746     | 111934<br>1746     |
| 553.1 | 111951<br>1747     | 111969<br>1747     | 111986<br>1747     | 112004<br>1747     | 112021<br>1747     | 112039<br>1747     | 112056<br>1747     | 112074<br>1748     | 112091<br>1748     | 112109<br>1748     |
| 553.2 | 112126<br>1748     | 112144<br>1748     | 112161<br>1748     | 112179<br>1748     | 112196<br>1749     | 112214<br>1749     | 112231<br>1749     | 112248<br>1749     | 112266<br>1749     | 112283<br>1749     |
| 553.3 | 112301<br>1749     | 112318<br>1750     | 112336<br>1750     | 112353<br>1750     | 112371<br>1750     | 112388<br>1750     | 112406<br>1750     | 112423<br>1750     | 112441<br>1751     | 112458<br>1751     |
| 553.4 | 112476<br>1751     | 112494<br>1751     | 112511<br>1751     | 112529<br>1751     | 112546<br>1751     | 112564<br>1752     | 112581<br>1752     | 112599<br>1752     | 112616<br>1752     | 112634<br>1752     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 553.5 | 112651<br>1752     | 112668<br>1752     | 112686<br>1752     | 112704<br>1753     | 112721<br>1753     | 112739<br>1753     | 112756<br>1753     | 112774<br>1753     | 112791<br>1753     | 112809<br>1753     |
| 553.6 | 112826<br>1754     | 112844<br>1754     | 112861<br>1754     | 112879<br>1754     | 112897<br>1754     | 112914<br>1754     | 112932<br>1754     | 112949<br>1755     | 112967<br>1755     | 112984<br>1755     |
| 553.7 | 113002<br>1755     | 113020<br>1755     | 113037<br>1755     | 113055<br>1755     | 113072<br>1756     | 113090<br>1756     | 113107<br>1756     | 113125<br>1756     | 113142<br>1756     | 113160<br>1756     |
| 553.8 | 113177<br>1756     | 113195<br>1757     | 113212<br>1757     | 113230<br>1757     | 113248<br>1757     | 113265<br>1757     | 113283<br>1757     | 113300<br>1757     | 113318<br>1758     | 113336<br>1758     |
| 553.9 | 113353<br>1758     | 113371<br>1758     | 113388<br>1758     | 113406<br>1758     | 113424<br>1758     | 113441<br>1759     | 113459<br>1759     | 113476<br>1759     | 113494<br>1759     | 113512<br>1759     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 554.0 | 113529<br>1759     | 113546<br>1759     | 113564<br>1759     | 113582<br>1760     | 113599<br>1760     | 113617<br>1760     | 113634<br>1760     | 113652<br>1760     | 113670<br>1760     | 113687<br>1760     |
| 554.1 | 113705<br>1761     | 113723<br>1761     | 113740<br>1761     | 113758<br>1761     | 113775<br>1761     | 113793<br>1761     | 113811<br>1761     | 113828<br>1762     | 113846<br>1762     | 113864<br>1762     |
| 554.2 | 113881<br>1762     | 113899<br>1762     | 113917<br>1762     | 113934<br>1762     | 113952<br>1763     | 113969<br>1763     | 113987<br>1763     | 114004<br>1763     | 114022<br>1763     | 114046<br>1763     |
| 554.3 | 114057<br>1763     | 114075<br>1764     | 114093<br>1764     | 114110<br>1764     | 114128<br>1764     | 114146<br>1764     | 114163<br>1764     | 114181<br>1764     | 114198<br>1765     | 114216<br>1765     |
| 554.4 | 114234<br>1765     | 114251<br>1765     | 114269<br>1765     | 114297<br>1765     | 114304<br>1765     | 114322<br>1765     | 114340<br>1766     | 114358<br>1766     | 114375<br>1766     | 114393<br>1766     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 554.5 | 114411<br>1766     | 114428<br>1766     | 114445<br>1766     | 114463<br>1767     | 114481<br>1767     | 114499<br>1767     | 114516<br>1767     | 114534<br>1767     | 114552<br>1767     | 114569<br>1767     |
| 554.6 | 114587<br>1768     | 114605<br>1768     | 114622<br>1768     | 114640<br>1768     | 114658<br>1762     | 114675<br>1768     | 114693<br>1768     | 114711<br>1769     | 114729<br>1769     | 114746<br>1769     |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 554.7 | 114764<br>1769     | 114782<br>1769     | 114799<br>1769     | 114817<br>1769     | 114835<br>1770     | 114853<br>1770     | 114870<br>1770     | 114888<br>1770     | 114905<br>1770     | 114923<br>1770     |
| 554.8 | 114941<br>1770     | 114958<br>1771     | 114976<br>1771     | 114994<br>1771     | 115012<br>1771     | 115029<br>1771     | 115047<br>1771     | 115065<br>1771     | 115082<br>1771     | 115100<br>1772     |
| 554.9 | 115118<br>1772     | 115136<br>1772     | 115153<br>1772     | 115171<br>1772     | 115189<br>1772     | 115207<br>1772     | 115224<br>1773     | 115242<br>1773     | 115260<br>1773     | 115278<br>1773     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 555.0 | 115295<br>1773     | 115313<br>1773     | 115330<br>1773     | 115348<br>1774     | 115366<br>1774     | 115384<br>1774     | 115401<br>1774     | 115419<br>1774     | 115437<br>1774     | 115455<br>1774     |
| 555.1 | 115473<br>1775     | 115490<br>1775     | 115508<br>1775     | 115526<br>1775     | 115544<br>1775     | 115561<br>1775     | 115579<br>1775     | 115597<br>1776     | 115615<br>1776     | 115632<br>1776     |
| 555.2 | 115650<br>1776     | 115668<br>1776     | 115686<br>1776     | 115704<br>1776     | 115721<br>1777     | 115739<br>1777     | 115756<br>1777     | 115774<br>1777     | 115792<br>1777     | 115810<br>1777     |
| 555.3 | 115828<br>1777     | 115845<br>1777     | 115863<br>1778     | 115881<br>1778     | 115899<br>1778     | 115917<br>1778     | 115934<br>1778     | 115952<br>1778     | 115970<br>1778     | 115998<br>1779     |
| 555.4 | 116006<br>1779     | 116023<br>1779     | 116041<br>1779     | 116059<br>1779     | 116077<br>1779     | 116095<br>1779     | 116112<br>1780     | 116130<br>1780     | 116148<br>1780     | 116166<br>1780     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 555.5 | 116184<br>1780     | 116201<br>1780     | 116219<br>1780     | 116237<br>1781     | 116255<br>1781     | 116272<br>1781     | 116290<br>1781     | 116308<br>1781     | 116326<br>1781     | 116344<br>1781     |
| 555.6 | 116362<br>1782     | 116379<br>1782     | 116397<br>1782     | 116415<br>1782     | 116433<br>1782     | 116451<br>1782     | 116469<br>1782     | 116486<br>1782     | 116504<br>1783     | 116522<br>1783     |
| 555.7 | 116540<br>1783     | 116558<br>1783     | 116576<br>1783     | 116593<br>1783     | 116611<br>1783     | 116629<br>1784     | 116647<br>1784     | 116664<br>1784     | 116682<br>1784     | 116700<br>1784     |
| 555.8 | 116718<br>1784     | 116736<br>1784     | 116754<br>1785     | 116772<br>1785     | 116789<br>1785     | 116807<br>1785     | 116825<br>1785     | 116843<br>1785     | 116861<br>1785     | 116879<br>1786     |
| 555.9 | 116897<br>1786     | 116915<br>1786     | 116932<br>1786     | 116950<br>1786     | 116968<br>1786     | 116986<br>1786     | 117004<br>1787     | 117022<br>1787     | 117040<br>1787     | 117058<br>1787     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 556.0 | 117076<br>1787     | 117093<br>1787     | 117111<br>1787     | 117129<br>1787     | 117147<br>1788     | 117165<br>1788     | 117182<br>1788     | 117200<br>1788     | 117218<br>1788     | 117236<br>1788     |
| 556.1 | 117254<br>1788     | 117272<br>1789     | 117290<br>1789     | 117308<br>1789     | 117326<br>1789     | 117344<br>1789     | 117361<br>1789     | 117379<br>1789     | 117397<br>1790     | 117415<br>1790     |
| 556.2 | 117433<br>1790     | 117451<br>1790     | 117469<br>1790     | 117487<br>1790     | 117505<br>1790     | 117523<br>1791     | 117540<br>1791     | 117558<br>1791     | 117576<br>1791     | 117594<br>1791     |
| 556.3 | 117612<br>1791     | 117630<br>1791     | 117648<br>1792     | 117666<br>1792     | 117684<br>1792     | 117702<br>1792     | 117720<br>1792     | 117737<br>1792     | 117755<br>1792     | 117773<br>1792     |
| 556.4 | 117791<br>1793     | 117809<br>1793     | 117827<br>1793     | 117845<br>1793     | 117863<br>1793     | 117881<br>1793     | 117899<br>1793     | 117917<br>1794     | 117935<br>1794     | 117953<br>1794     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 556.5 | 117971<br>1794     | 117988<br>1794     | 118006<br>1794     | 118024<br>1794     | 118042<br>1795     | 118060<br>1795     | 118078<br>1795     | 118096<br>1795     | 118114<br>1795     | 118132<br>1795     |

Hidden Dam and Hensley Lake, Fresno River, California

Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 556.6 | 118150<br>1795     | 118168<br>1796     | 118186<br>1796     | 118204<br>1796     | 118222<br>1796     | 118240<br>1796     | 118258<br>1796     | 118276<br>1796     | 118294<br>1796     | 118312<br>1797     |
| 556.7 | 118330<br>1797     | 118348<br>1797     | 118366<br>1797     | 118384<br>1797     | 118402<br>1797     | 118420<br>1797     | 118437<br>1798     | 118455<br>1798     | 118473<br>1798     | 118491<br>1798     |
| 556.8 | 118509<br>1798     | 118527<br>1798     | 118545<br>1798     | 118563<br>1799     | 118581<br>1799     | 118599<br>1799     | 118617<br>1799     | 118635<br>1799     | 118653<br>1799     | 118671<br>1799     |
| 556.9 | 118689<br>1800     | 118707<br>1800     | 118725<br>1800     | 118743<br>1800     | 118761<br>1800     | 118779<br>1800     | 118797<br>1800     | 118815<br>1800     | 118833<br>1801     | 118851<br>1801     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 557.0 | 118870<br>1801     | 118887<br>1801     | 118905<br>1801     | 118923<br>1801     | 118941<br>1801     | 118959<br>1802     | 118977<br>1802     | 118995<br>1802     | 119013<br>1802     | 119031<br>1802     |
| 557.1 | 119049<br>1802     | 119067<br>1802     | 119085<br>1803     | 119104<br>1803     | 119122<br>1803     | 119140<br>1803     | 119158<br>1803     | 119176<br>1803     | 119194<br>1803     | 119212<br>1804     |
| 557.2 | 119230<br>1804     | 119248<br>1804     | 119266<br>1804     | 119284<br>1804     | 119302<br>1804     | 119320<br>1804     | 119338<br>1804     | 119356<br>1805     | 119374<br>1805     | 119392<br>1805     |
| 557.3 | 119410<br>1805     | 119428<br>1805     | 119446<br>1805     | 119464<br>1805     | 119482<br>1806     | 119500<br>1806     | 119518<br>1806     | 119537<br>1806     | 119555<br>1806     | 119573<br>1806     |
| 557.4 | 119591<br>1806     | 119609<br>1807     | 119627<br>1807     | 119645<br>1807     | 119663<br>1807     | 119681<br>1807     | 119699<br>1807     | 119717<br>1807     | 119735<br>1808     | 119754<br>1808     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 557.5 | 119772<br>1808     | 119789<br>1808     | 119807<br>1808     | 119826<br>1808     | 119844<br>1808     | 119862<br>1808     | 119880<br>1809     | 119898<br>1809     | 119916<br>1809     | 119934<br>1809     |
| 557.6 | 119952<br>1809     | 119970<br>1809     | 119988<br>1809     | 120007<br>1810     | 120025<br>1810     | 120043<br>1810     | 120061<br>1810     | 120079<br>1810     | 120097<br>1810     | 120115<br>1810     |
| 557.7 | 120133<br>1811     | 120152<br>1811     | 120170<br>1811     | 120188<br>1811     | 120206<br>1811     | 120224<br>1811     | 120242<br>1811     | 120260<br>1811     | 120278<br>1812     | 120296<br>1812     |
| 557.8 | 120314<br>1812     | 120332<br>1812     | 120351<br>1812     | 120369<br>1812     | 120387<br>1812     | 120405<br>1813     | 120423<br>1813     | 120441<br>1813     | 120459<br>1813     | 120478<br>1813     |
| 557.9 | 120496<br>1813     | 120514<br>1813     | 120532<br>1814     | 120550<br>1814     | 120568<br>1814     | 120586<br>1814     | 120605<br>1814     | 120623<br>1814     | 120641<br>1814     | 120659<br>1815     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 558.0 | 120677<br>1815     | 120695<br>1815     | 120713<br>1815     | 120731<br>1815     | 120750<br>1816     | 120768<br>1815     | 120786<br>1815     | 120804<br>1816     | 120822<br>1816     | 120840<br>1816     |
| 558.1 | 120859<br>1816     | 120877<br>1816     | 120895<br>1816     | 120913<br>1816     | 120931<br>1817     | 120949<br>1817     | 120968<br>1817     | 120986<br>1817     | 121004<br>1817     | 121022<br>1817     |
| 558.2 | 121040<br>1817     | 121059<br>1818     | 121077<br>1818     | 121095<br>1818     | 121113<br>1818     | 121131<br>1818     | 121149<br>1818     | 121167<br>1818     | 121186<br>1818     | 121204<br>1819     |
| 558.3 | 121222<br>1819     | 121240<br>1819     | 121258<br>1819     | 121277<br>1819     | 121295<br>1819     | 121313<br>1819     | 121331<br>1820     | 121349<br>1820     | 121368<br>1820     | 121386<br>1820     |
| 558.4 | 121404<br>1820     | 121422<br>1820     | 121441<br>1820     | 121459<br>1821     | 121477<br>1821     | 121495<br>1821     | 121513<br>1821     | 121532<br>1821     | 121550<br>1821     | 121568<br>1821     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |

# Hidden Dam and Hensley Lake, Fresno River, California

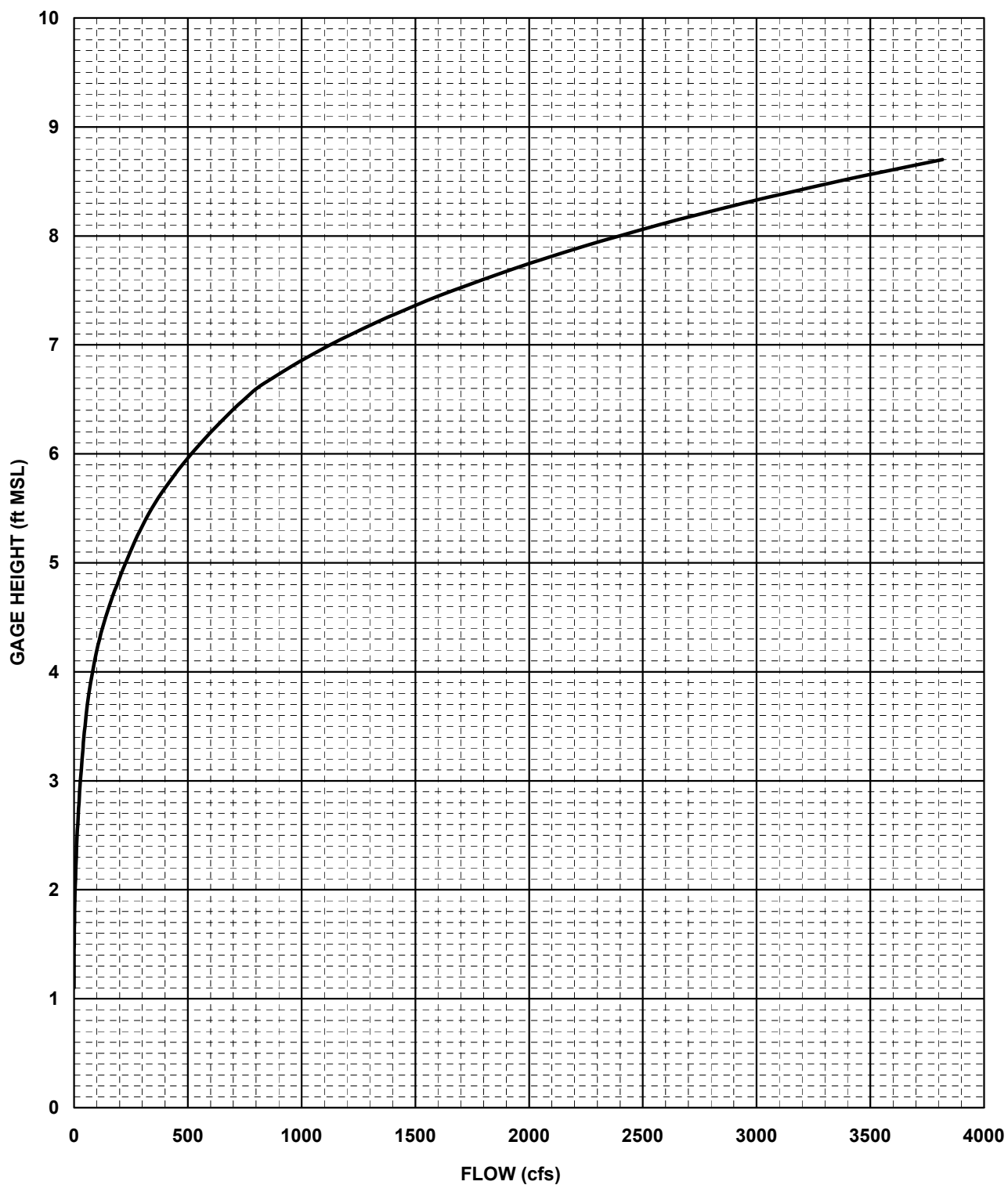
## Area - Capacity Table

Surveyed September 1967

| Elev  | CAP<br>AREA<br>.00 | CAP<br>AREA<br>.01 | CAP<br>AREA<br>.02 | CAP<br>AREA<br>.03 | CAP<br>AREA<br>.04 | CAP<br>AREA<br>.05 | CAP<br>AREA<br>.06 | CAP<br>AREA<br>.07 | CAP<br>AREA<br>.08 | CAP<br>AREA<br>.09 |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 558.5 | 121586<br>1821     | 121604<br>1822     | 121622<br>1822     | 121641<br>1822     | 121659<br>1822     | 121677<br>1822     | 121695<br>1822     | 121714<br>1822     | 121732<br>1823     | 121750<br>1823     |
| 558.6 | 121768<br>1823     | 121787<br>1823     | 121805<br>1823     | 121823<br>1823     | 121841<br>1823     | 121860<br>1824     | 121878<br>1824     | 121896<br>1824     | 121914<br>1824     | 121933<br>1824     |
| 558.7 | 121951<br>1824     | 121969<br>1824     | 121987<br>1824     | 122006<br>1825     | 122024<br>1825     | 122042<br>1825     | 122060<br>1825     | 122078<br>1825     | 122096<br>1825     | 122115<br>1825     |
| 558.8 | 122133<br>1826     | 122151<br>1826     | 122170<br>1826     | 122188<br>1826     | 122206<br>1826     | 122224<br>1826     | 122243<br>1826     | 122261<br>1826     | 122279<br>1827     | 122298<br>1827     |
| 558.9 | 122316<br>1827     | 122334<br>1827     | 122352<br>1827     | 122371<br>1827     | 122389<br>1827     | 122407<br>1828     | 122426<br>1828     | 122444<br>1828     | 122462<br>1828     | 122480<br>1828     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 559.0 | 122499<br>1828     | 122517<br>1828     | 122535<br>1829     | 122553<br>1829     | 122572<br>1829     | 122590<br>1829     | 122608<br>1829     | 122626<br>1829     | 122645<br>1829     | 122663<br>1829     |
| 559.1 | 122681<br>1830     | 122700<br>1830     | 122718<br>1830     | 122736<br>1830     | 122755<br>1830     | 122773<br>1830     | 122791<br>1830     | 122810<br>1831     | 122828<br>1831     | 122846<br>1831     |
| 559.2 | 122865<br>1831     | 122883<br>1831     | 122901<br>1831     | 122920<br>1831     | 122938<br>1832     | 122956<br>1832     | 122974<br>1832     | 122992<br>1832     | 123011<br>1832     | 123029<br>1832     |
| 559.3 | 123047<br>1832     | 123066<br>1832     | 123084<br>1833     | 123103<br>1833     | 123121<br>1833     | 123139<br>1833     | 123158<br>1833     | 123176<br>1833     | 123194<br>1833     | 123213<br>1834     |
| 559.4 | 123231<br>1834     | 123249<br>1834     | 123268<br>1834     | 123286<br>1834     | 123304<br>1834     | 123323<br>1834     | 123341<br>1834     | 123359<br>1835     | 123378<br>1835     | 123396<br>1835     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |
| 559.5 | 123415<br>1835     | 123433<br>1835     | 123451<br>1835     | 123469<br>1835     | 123488<br>1836     | 123506<br>1836     | 123524<br>1836     | 123543<br>1836     | 123561<br>1836     | 123580<br>1836     |
| 559.6 | 123598<br>1836     | 123616<br>1836     | 123635<br>1837     | 123653<br>1837     | 123671<br>1837     | 123690<br>1837     | 123708<br>1837     | 123727<br>1837     | 123745<br>1837     | 123763<br>1838     |
| 559.7 | 123782<br>1838     | 123800<br>1838     | 123819<br>1838     | 123837<br>1838     | 123855<br>1838     | 123874<br>1838     | 123892<br>1838     | 123910<br>1839     | 123929<br>1839     | 123947<br>1839     |
| 559.8 | 123965<br>1839     | 123984<br>1839     | 124002<br>1839     | 124021<br>1839     | 124039<br>1840     | 124057<br>1840     | 124076<br>1840     | 124094<br>1840     | 124113<br>1840     | 124131<br>1840     |
| 559.9 | 124149<br>1840     | 124168<br>1841     | 124186<br>1841     | 124205<br>1841     | 124223<br>1841     | 124242<br>1841     | 124260<br>1841     | 124278<br>1841     | 124297<br>1841     | 124315<br>1842     |
| ----- | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              | -----              |

Example: Elev .00 .01  
 -----  
 431.6 1631 1632 » This is the capacity in ac-ft at elev 431.61  
 135 136 » This is the corresponding area in acres

- Notes: 1. This area-capacity table is based on data obtained from composite of Corps of Engineers topographic survey map, File No. SJ-7-13-23, sheets 1 thru 11. Elevations given are USGS datum.  
 2. Inactive storage 5,000 ac-ft at elevation 448.0 ft.  
 3. Gross Pool elevation 540.0 ft.  
 4. Top of dam elevation 561.0 ft.  
 5. Areas are in acres; capacities are ac-ft.



1. From Rating Table 7 dated 7/9/1990
2. Scale offset = 1.11
3. See PLATE A-4 for tabulated values

Prepared by JLB

HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

**DISCHARGE RATING CURVE  
FRESNO RIVER BELOW  
HIDDEN DAM**

U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

Revised Oct 2004

PLATE A-3

## HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA

## DISCHARGE RATING TABLE

## FRESNO RIVER BELOW HIDDEN DAM (SEE PLATE A-3)

Rating Table 7 from 07/09/90 00

Scale Offset = 1.11

Table is expanded rectilinearly from 1.11 to 1.13 feet

| DISCHARGE IN CUBIC FEET PER SECOND |       |       |       |       |       |       |       |       |       |       |
|------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| ELEV. (FT)                         | 0.00  | 0.01  | 0.02  | 0.03  | 0.04  | 0.05  | 0.06  | 0.07  | 0.08  | 0.09  |
| 1.1                                |       | 0.0   | 0.005 | 0.010 | 0.015 | 0.019 | 0.023 | 0.028 | 0.032 | 0.036 |
| 1.2                                | 0.040 | 0.044 | 0.048 | 0.052 | 0.056 | 0.060 | 0.064 | 0.068 | 0.072 | 0.076 |
| 1.3                                | 0.080 | 0.090 | 0.107 | 0.122 | 0.139 | 0.157 | 0.176 | 0.197 | 0.220 | 0.244 |
| 1.4                                | 0.270 | 0.305 | 0.344 | 0.385 | 0.431 | 0.480 | 0.519 | 0.560 | 0.603 | 0.647 |
| 1.5                                | 0.694 | 0.743 | 0.794 | 0.847 | 0.902 | 0.960 | 1.01  | 1.06  | 1.11  | 1.17  |
| 1.6                                | 1.22  | 1.280 | 1.34  | 1.40  | 1.46  | 1.53  | 1.59  | 1.66  | 1.73  | 1.80  |
| 1.7                                | 1.88  | 1.95  | 2.03  | 2.10  | 2.18  | 2.27  | 2.35  | 2.43  | 2.52  | 2.61  |
| 1.8                                | 2.70  | 2.79  | 2.88  | 2.98  | 3.07  | 3.17  | 3.27  | 3.37  | 3.48  | 3.58  |
| 1.9                                | 3.69  | 3.80  | 3.91  | 4.02  | 4.14  | 4.25  | 4.37  | 4.49  | 4.61  | 4.74  |
| <b>2.0</b>                         | 4.86  | 4.99  | 5.12  | 5.25  | 5.39  | 5.52  | 5.66  | 5.80  | 5.94  | 6.08  |
| 2.1                                | 6.23  | 6.37  | 6.52  | 6.67  | 6.82  | 6.98  | 7.14  | 7.29  | 7.45  | 7.62  |
| 2.2                                | 7.78  | 7.95  | 8.12  | 8.29  | 8.46  | 8.63  | 8.81  | 8.99  | 9.17  | 9.35  |
| 2.3                                | 9.54  | 9.72  | 9.91  | 10.1  | 10.3  | 10.5  | 10.7  | 10.9  | 11.1  | 11.3  |
| 2.4                                | 11.5  | 11.7  | 11.9  | 12.1  | 12.3  | 12.6  | 12.8  | 13.0  | 13.2  | 13.4  |
| 2.5                                | 13.7  | 13.9  | 14.1  | 14.4  | 14.6  | 14.9  | 15.1  | 15.3  | 15.6  | 15.8  |
| 2.6                                | 16.1  | 16.3  | 16.6  | 16.9  | 17.1  | 17.3  | 17.6  | 17.9  | 18.1  | 18.4  |
| 2.7                                | 18.7  | 18.9  | 19.3  | 19.5  | 19.8  | 20.1  | 20.3  | 20.6  | 20.9  | 21.2  |
| 2.8                                | 21.5  | 21.8  | 22.1  | 22.4  | 22.7  | 23.1  | 23.3  | 23.6  | 23.9  | 24.2  |
| 2.9                                | 24.6  | 24.9  | 25.3  | 25.5  | 25.9  | 26.2  | 26.5  | 26.8  | 27.2  | 27.5  |
| <b>3.0</b>                         | 27.9  | 28.2  | 28.5  | 28.9  | 29.2  | 29.6  | 30.0  | 30.3  | 30.7  | 30.1  |
| 3.1                                | 31.4  | 31.8  | 32.1  | 32.5  | 32.9  | 33.3  | 33.6  | 34.0  | 34.4  | 34.8  |
| 3.2                                | 35.2  | 35.6  | 36.0  | 36.4  | 36.8  | 37.2  | 37.6  | 38.0  | 38.4  | 38.8  |
| 3.3                                | 39.2  | 39.6  | 40.0  | 40.5  | 40.9  | 41.3  | 41.7  | 42.2  | 42.6  | 43.0  |
| 3.4                                | 43.5  | 43.9  | 44.4  | 44.8  | 45.3  | 45.7  | 46.2  | 46.6  | 47.1  | 47.5  |
| 3.5                                | 48.0  | 48.5  | 49.0  | 49.5  | 50.0  | 50.5  | 51.0  | 51.5  | 52.1  | 52.6  |
| 3.6                                | 53.1  | 53.6  | 54.2  | 54.7  | 55.2  | 55.8  | 56.3  | 56.8  | 57.4  | 57.9  |
| 3.7                                | 58.5  | 59.1  | 59.8  | 60.4  | 61.0  | 61.7  | 62.3  | 63.0  | 63.7  | 64.3  |
| 3.8                                | 65.0  | 65.7  | 66.5  | 67.3  | 68.0  | 68.8  | 69.6  | 70.3  | 71.1  | 71.9  |
| 3.9                                | 72.7  | 73.5  | 74.3  | 75.1  | 75.9  | 76.8  | 77.6  | 78.4  | 79.3  | 80.1  |
| <b>4.0</b>                         | 81.0  | 81.9  | 82.8  | 83.7  | 84.6  | 85.5  | 86.4  | 87.3  | 88.3  | 89.2  |
| 4.1                                | 90.2  | 91.1  | 92.1  | 93.0  | 94.0  | 95.0  | 96.0  | 97.0  | 98.0  | 99.0  |
| 4.2                                | 100.0 | 101.2 | 102.3 | 103.5 | 104.7 | 105.9 | 107.1 | 108.3 | 109.5 | 110.7 |
| 4.3                                | 112.0 | 113.3 | 114.5 | 115.8 | 117.1 | 118.3 | 119.7 | 121.0 | 122.3 | 123.6 |
| 4.4                                | 125.0 | 126.4 | 127.7 | 129.1 | 130.5 | 131.9 | 133.3 | 134.7 | 136.1 | 137.5 |
| 4.5                                | 139.0 | 140.5 | 142.0 | 143.5 | 145.0 | 146.6 | 148.1 | 149.7 | 151.3 | 152.8 |
| 4.6                                | 154.4 | 156.1 | 157.7 | 159.3 | 161.0 | 162.6 | 164.3 | 166.0 | 167.7 | 169.4 |
| 4.7                                | 171.1 | 172.8 | 174.6 | 176.3 | 178.1 | 179.9 | 181.7 | 183.5 | 185.3 | 187.2 |
| 4.8                                | 189.0 | 190.8 | 192.5 | 194.3 | 196.1 | 197.9 | 199.7 | 201.6 | 203.4 | 205.3 |
| 4.9                                | 207.1 | 209.0 | 210.9 | 212.8 | 214.7 | 216.6 | 218.6 | 220.5 | 222.5 | 224.5 |
| <b>5.0</b>                         | 226.4 | 228.4 | 230.5 | 232.5 | 234.5 | 236.6 | 238.6 | 240.7 | 242.8 | 244.9 |
| 5.1                                | 247.0 | 249.0 | 251.1 | 253.2 | 255.3 | 257.4 | 259.5 | 261.6 | 263.7 | 265.8 |
| 5.2                                | 268.0 | 270.2 | 272.5 | 274.7 | 277.0 | 279.3 | 281.6 | 283.9 | 286.3 | 288.6 |
| 5.3                                | 291.0 | 293.3 | 295.7 | 298.1 | 300.5 | 302.9 | 305.4 | 307.8 | 310.3 | 312.8 |
| 5.4                                | 315.3 | 317.8 | 320.3 | 322.8 | 325.4 | 328.0 | 330.5 | 333.1 | 335.9 | 338.4 |
| 5.5                                | 341.0 | 344.0 | 347.0 | 350.0 | 353.1 | 356.1 | 359.2 | 362.3 | 365.4 | 368.6 |
| 5.6                                | 371.7 | 374.9 | 378.1 | 381.3 | 384.6 | 387.8 | 391.1 | 394.4 | 397.7 | 401.1 |
| 5.7                                | 404.5 | 407.8 | 411.2 | 414.7 | 418.1 | 421.6 | 425.1 | 428.6 | 432.1 | 435.7 |
| 5.8                                | 439.3 | 442.9 | 446.5 | 450.1 | 453.8 | 457.5 | 461.2 | 464.9 | 468.7 | 472.4 |
| 5.9                                | 476.2 | 480.0 | 483.9 | 487.8 | 491.6 | 495.6 | 499.5 | 503.4 | 507.4 | 511.4 |

## HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA

## DISCHARGE RATING TABLE

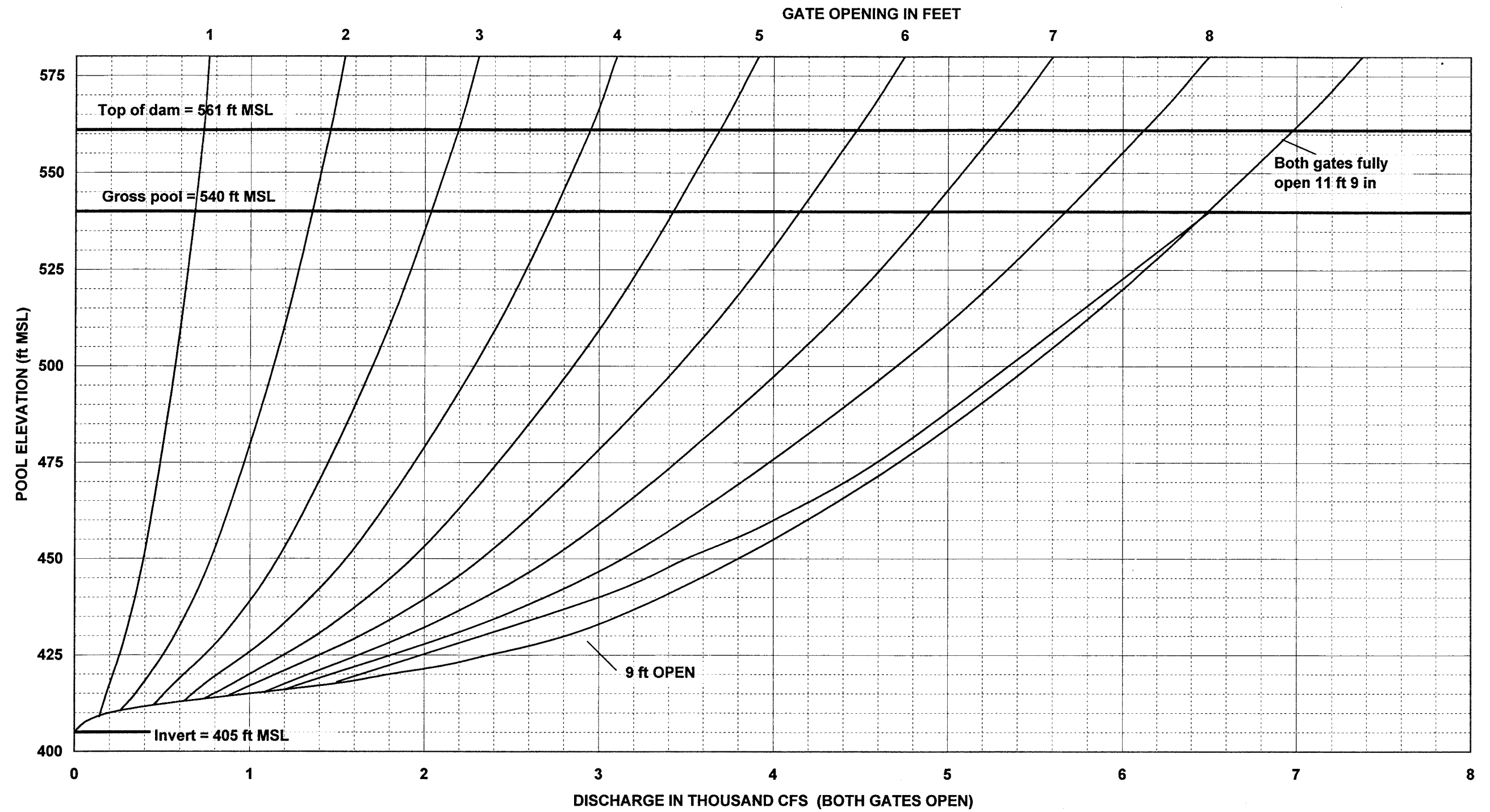
## FRESNO RIVER BELOW HIDDEN DAM (SEE PLATE A-3)

Rating Table 7 from 07/09/90 00

Scale Offset = 1.11

Table is expanded rectilinearly from 1.11 to 1.13 feet

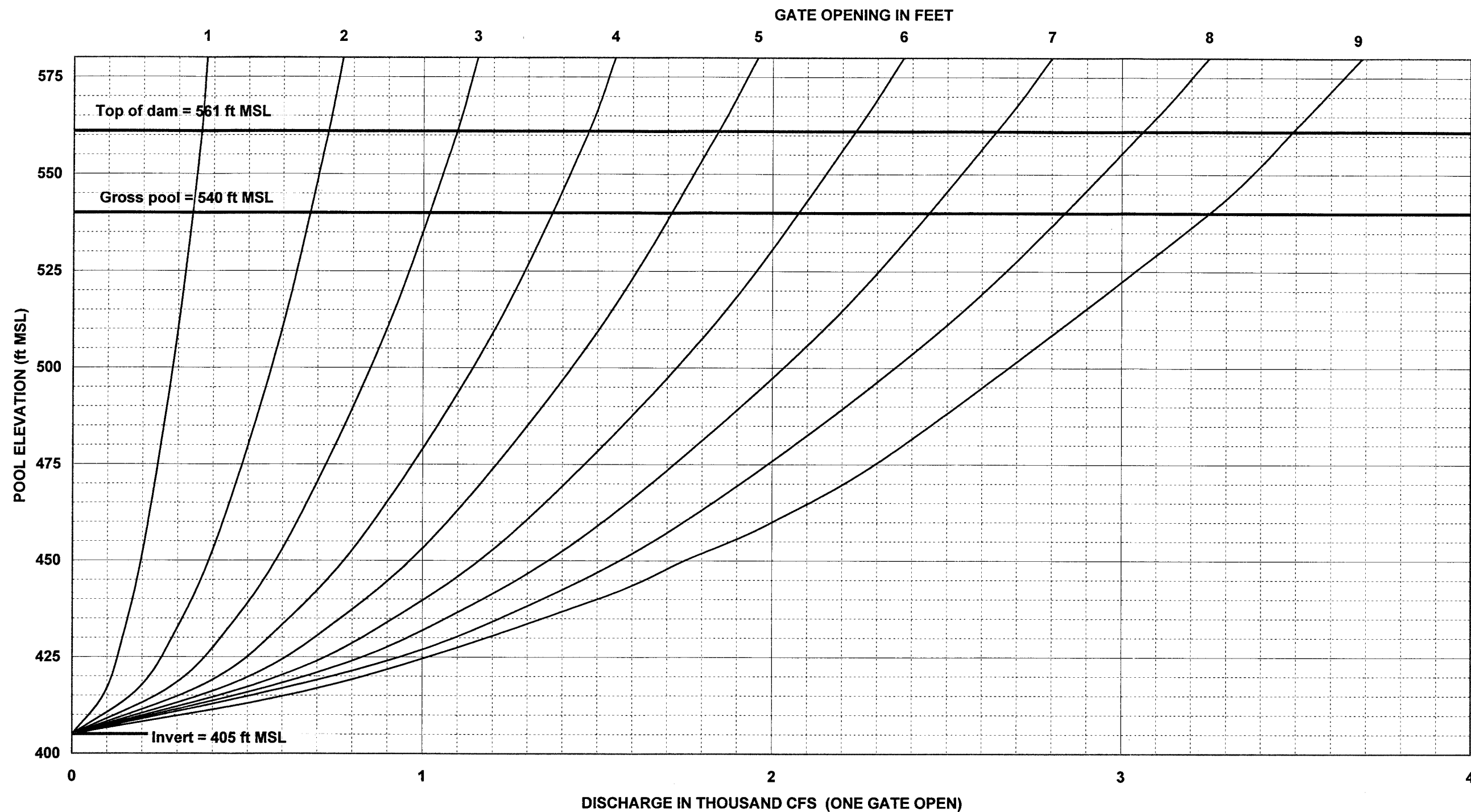
| ELEV. (FT) | DISCHARGE IN CUBIC FEET PER SECOND |       |       |       |       |       |       |       |       |       |
|------------|------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|            | 0.00                               | 0.01  | 0.02  | 0.03  | 0.04  | 0.05  | 0.06  | 0.07  | 0.08  | 0.09  |
| 6.0        | 515.5                              | 519.5 | 523.6 | 527.7 | 531.8 | 535.9 | 540.1 | 544.3 | 548.5 | 552.7 |
| 6.1        | 557.0                              | 561.3 | 565.6 | 569.9 | 574.3 | 578.7 | 583.1 | 587.5 | 592.0 | 596.5 |
| 6.2        | 601.0                              | 605.5 | 610.1 | 614.7 | 619.3 | 623.9 | 628.6 | 633.3 | 638.0 | 642.7 |
| 6.3        | 647.5                              | 652.3 | 657.1 | 661.9 | 666.8 | 671.7 | 676.6 | 681.6 | 686.6 | 691.6 |
| 6.4        | 696.6                              | 701.7 | 706.7 | 711.9 | 717.0 | 722.2 | 727.4 | 732.6 | 737.8 | 743.1 |
| 6.5        | 748.4                              | 753.7 | 759.1 | 764.5 | 769.9 | 775.3 | 780.8 | 786.3 | 791.9 | 797.4 |
| 6.6        | 803.0                              | 810.1 | 817.2 | 824.3 | 831.6 | 838.8 | 846.1 | 853.5 | 860.9 | 868.4 |
| 6.7        | 875.9                              | 883.4 | 891.1 | 898.7 | 906.5 | 914.2 | 922.1 | 929.9 | 937.9 | 945.9 |
| 6.8        | 953.9                              | 962.0 | 970.2 | 978.4 | 986.6 | 994.9 | 1,003 | 1,012 | 1,020 | 1,029 |
| 6.9        | 1,037                              | 1,046 | 1,055 | 1,063 | 1,072 | 1,081 | 1,090 | 1,099 | 1,108 | 1,117 |
| 7.0        | 1,126                              | 1,136 | 1,145 | 1,154 | 1,164 | 1,173 | 1,183 | 1,192 | 1,202 | 1,212 |
| 7.1        | 1,222                              | 1,231 | 1,241 | 1,251 | 1,261 | 1,271 | 1,282 | 1,292 | 1,302 | 1,312 |
| 7.2        | 1,323                              | 1,333 | 1,344 | 1,355 | 1,365 | 1,376 | 1,387 | 1,398 | 1,409 | 1,420 |
| 7.3        | 1,431                              | 1,442 | 1,453 | 1,464 | 1,476 | 1,487 | 1,499 | 1,510 | 1,522 | 1,534 |
| 7.4        | 1,545                              | 1,557 | 1,569 | 1,581 | 1,593 | 1,605 | 1,618 | 1,630 | 1,642 | 1,655 |
| 7.5        | 1,667                              | 1,680 | 1,693 | 1,705 | 1,718 | 1,731 | 1,744 | 1,757 | 1,770 | 1,783 |
| 7.6        | 1,797                              | 1,810 | 1,824 | 1,837 | 1,851 | 1,864 | 1,878 | 1,892 | 1,906 | 1,920 |
| 7.7        | 1,934                              | 1,948 | 1,962 | 1,977 | 1,991 | 2,006 | 2,020 | 2,035 | 2,050 | 2,064 |
| 7.8        | 2,079                              | 2,094 | 2,109 | 2,125 | 2,140 | 2,155 | 2,171 | 2,186 | 2,202 | 2,217 |
| 7.9        | 2,233                              | 2,249 | 2,265 | 2,281 | 2,297 | 2,313 | 2,330 | 2,346 | 2,363 | 2,379 |
| 8.0        | 2,396                              | 2,413 | 2,430 | 2,447 | 2,464 | 2,481 | 2,498 | 2,515 | 2,533 | 2,550 |
| 8.1        | 2,568                              | 2,586 | 2,604 | 2,622 | 2,640 | 2,658 | 2,676 | 2,694 | 2,713 | 2,731 |
| 8.2        | 2,750                              | 2,768 | 2,787 | 2,806 | 2,825 | 2,844 | 2,864 | 2,883 | 2,902 | 2,922 |
| 8.3        | 2,942                              | 2,961 | 2,981 | 3,001 | 3,021 | 3,041 | 3,062 | 3,082 | 3,102 | 3,123 |
| 8.4        | 3,144                              | 3,164 | 3,185 | 3,206 | 3,228 | 3,249 | 3,270 | 3,292 | 3,313 | 3,335 |
| 8.5        | 3,357                              | 3,379 | 3,401 | 3,423 | 3,445 | 3,467 | 3,490 | 3,513 | 3,535 | 3,558 |
| 8.6        | 3,581                              | 3,604 | 3,627 | 3,651 | 3,674 | 3,698 | 3,721 | 3,745 | 3,769 | 3,793 |
| 8.7        | 3,817                              | 3,841 | 3,866 | 3,890 | 3,915 | 3,940 | 3,965 | 3,990 | 4,015 | 4,040 |



The computed discharge (cfs) is slightly higher than the discharge rate observed during operation.

Prepared by JLB

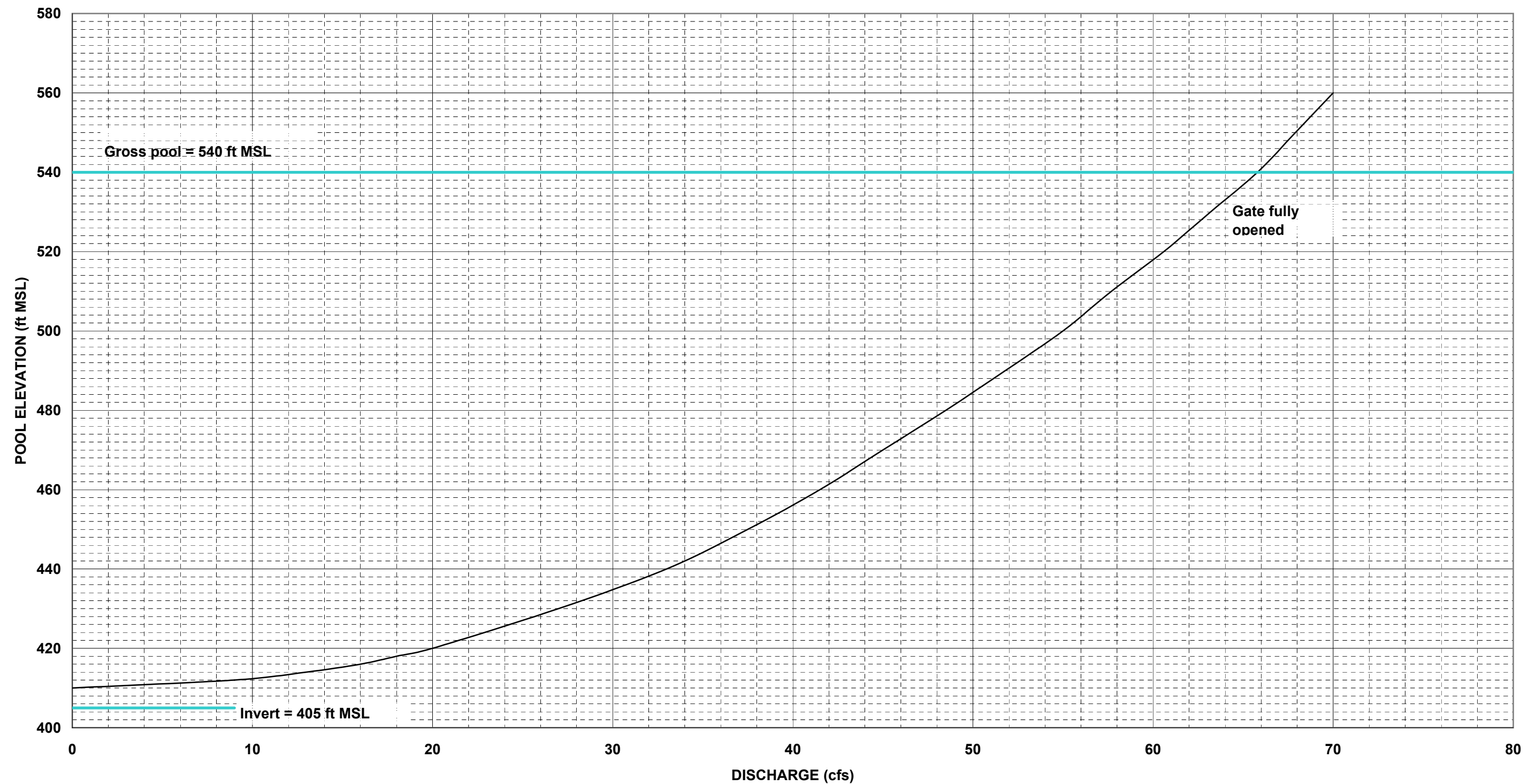
|                                                                |
|----------------------------------------------------------------|
| HIDDEN DAM-HENSLEY LAKE<br>FRESNO RIVER, CALIFORNIA            |
| OUTLET RATING CURVES<br>PARTIAL GATE OPENINGS<br>(Two 5 Gates) |
| U.S. ARMY CORPS OF ENGINEERS<br>SACRAMENTO DISTRICT            |



The computed discharge (cfs) is slightly higher than the discharge rate observed during operation.

Prepared by JLB

|                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------|
| HIDDEN DAM-HENSLEY LAKE<br>FRESNO RIVER, CALIFORNIA                                                                           |
| OUTLET RATING CURVES<br>PARTIAL GATE OPENING<br>(One <span style="background-color: #cccccc; padding: 0 10px;"> </span> Gate) |
| U.S. ARMY CORPS OF ENGINEERS<br>SACRAMENTO DISTRICT                                                                           |



**Note:**

The 1975 Water Control Manual included a rating curve for a 10" x 12" low-flow gate. However, this gate has been sealed and is no longer operable. The rating curve is included for historic purposes.

Prepared by JLB

HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

**LOW FLOW  
DISCHARGE RATING CURVE**  
( )

U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 1 FT |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 405              | 0                                                                                              | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0    |
| 406              | 4                                                                                              | 7       | 11      | 14      | 18      | 21      | 25      | 28      | 32      | 35   |
| 407              | 7                                                                                              | 14      | 21      | 28      | 35      | 42      | 49      | 56      | 63      | 70   |
| 408              | 11                                                                                             | 21      | 32      | 42      | 53      | 63      | 74      | 84      | 95      | 105  |
| 409              | 14                                                                                             | 28      | 42      | 56      | 70      | 84      | 98      | 112     | 126     | 140  |
| 410              | 15                                                                                             | 29      | 44      | 59      | 73      | 88      | 103     | 117     | 132     | 147  |
| 411              | 15                                                                                             | 31      | 46      | 61      | 77      | 92      | 108     | 123     | 138     | 154  |
| 412              | 16                                                                                             | 32      | 48      | 64      | 80      | 96      | 112     | 128     | 145     | 161  |
| 413              | 17                                                                                             | 33      | 50      | 67      | 84      | 100     | 117     | 134     | 151     | 167  |
| 414              | 17                                                                                             | 35      | 52      | 70      | 87      | 105     | 122     | 139     | 157     | 174  |
| 415              | 18                                                                                             | 36      | 54      | 72      | 91      | 109     | 127     | 145     | 163     | 181  |
| 416              | 19                                                                                             | 38      | 56      | 75      | 94      | 113     | 132     | 150     | 169     | 188  |
| 417              | 20                                                                                             | 39      | 59      | 78      | 98      | 117     | 137     | 156     | 176     | 195  |
| 418              | 20                                                                                             | 40      | 61      | 81      | 101     | 121     | 142     | 162     | 182     | 202  |
| 419              | 21                                                                                             | 42      | 63      | 84      | 105     | 126     | 147     | 167     | 188     | 209  |
| 420              | 22                                                                                             | 43      | 65      | 87      | 108     | 130     | 151     | 173     | 195     | 216  |
| 421              | 22                                                                                             | 45      | 67      | 89      | 112     | 134     | 156     | 179     | 201     | 223  |
| 422              | 23                                                                                             | 46      | 69      | 92      | 115     | 138     | 161     | 184     | 207     | 231  |
| 423              | 24                                                                                             | 48      | 71      | 95      | 119     | 143     | 166     | 190     | 214     | 238  |
| 424              | 24                                                                                             | 49      | 73      | 98      | 122     | 147     | 171     | 196     | 220     | 245  |
| 425              | 25                                                                                             | 50      | 76      | 101     | 126     | 151     | 176     | 201     | 227     | 252  |
| 426              | 26                                                                                             | 52      | 78      | 104     | 129     | 155     | 181     | 207     | 233     | 259  |
| 427              | 27                                                                                             | 53      | 80      | 106     | 133     | 160     | 186     | 213     | 239     | 266  |
| 428              | 27                                                                                             | 55      | 82      | 109     | 136     | 164     | 191     | 218     | 246     | 273  |
| 429              | 28                                                                                             | 56      | 84      | 112     | 140     | 168     | 196     | 224     | 252     | 280  |
| 430              | 29                                                                                             | 57      | 86      | 115     | 144     | 172     | 201     | 230     | 258     | 287  |
| 431              | 29                                                                                             | 59      | 88      | 117     | 147     | 176     | 205     | 235     | 264     | 293  |
| 432              | 30                                                                                             | 60      | 90      | 119     | 149     | 179     | 209     | 239     | 269     | 298  |
| 433              | 30                                                                                             | 61      | 91      | 121     | 152     | 182     | 212     | 243     | 273     | 303  |
| 434              | 31                                                                                             | 62      | 92      | 123     | 154     | 185     | 216     | 246     | 277     | 308  |
| 435              | 31                                                                                             | 63      | 94      | 125     | 156     | 188     | 219     | 250     | 282     | 313  |
| 436              | 32                                                                                             | 64      | 95      | 127     | 159     | 191     | 223     | 254     | 286     | 318  |
| 437              | 32                                                                                             | 65      | 97      | 129     | 161     | 194     | 226     | 258     | 290     | 323  |
| 438              | 33                                                                                             | 66      | 98      | 131     | 164     | 197     | 229     | 262     | 295     | 328  |
| 439              | 33                                                                                             | 67      | 100     | 133     | 166     | 200     | 233     | 266     | 299     | 333  |
| 440              | 34                                                                                             | 67      | 101     | 135     | 169     | 202     | 236     | 270     | 304     | 337  |
| 441              | 34                                                                                             | 68      | 103     | 137     | 171     | 205     | 240     | 274     | 308     | 342  |
| 442              | 35                                                                                             | 69      | 104     | 139     | 174     | 208     | 243     | 278     | 312     | 347  |
| 443              | 35                                                                                             | 70      | 106     | 141     | 176     | 211     | 246     | 282     | 317     | 352  |
| 444              | 36                                                                                             | 71      | 107     | 143     | 178     | 214     | 250     | 286     | 321     | 357  |
| 445              | 36                                                                                             | 72      | 109     | 145     | 181     | 217     | 253     | 289     | 326     | 362  |
| 446              | 37                                                                                             | 73      | 110     | 147     | 183     | 220     | 257     | 293     | 330     | 367  |
| 447              | 37                                                                                             | 74      | 111     | 149     | 186     | 223     | 260     | 297     | 334     | 372  |
| 448              | 38                                                                                             | 75      | 113     | 151     | 188     | 226     | 263     | 301     | 339     | 376  |
| 449              | 38                                                                                             | 76      | 114     | 153     | 191     | 229     | 267     | 305     | 343     | 381  |
| 450              | 39                                                                                             | 77      | 116     | 154     | 193     | 232     | 270     | 309     | 348     | 386  |
| 451              | 39                                                                                             | 78      | 117     | 156     | 196     | 235     | 274     | 313     | 352     | 391  |
| 452              | 40                                                                                             | 79      | 119     | 158     | 198     | 238     | 277     | 317     | 356     | 396  |
| 453              | 40                                                                                             | 80      | 120     | 160     | 200     | 240     | 281     | 321     | 361     | 401  |
| 454              | 41                                                                                             | 81      | 122     | 162     | 203     | 243     | 284     | 325     | 365     | 406  |
| 455              | 41                                                                                             | 82      | 123     | 164     | 205     | 246     | 287     | 328     | 370     | 411  |
| 456              | 42                                                                                             | 83      | 125     | 166     | 208     | 249     | 291     | 332     | 374     | 415  |
| 457              | 42                                                                                             | 84      | 126     | 167     | 209     | 251     | 293     | 335     | 377     | 418  |
| 458              | 42                                                                                             | 84      | 127     | 169     | 211     | 253     | 295     | 338     | 380     | 422  |
| 459              | 43                                                                                             | 85      | 128     | 170     | 213     | 255     | 298     | 340     | 383     | 425  |
| 460              | 43                                                                                             | 86      | 129     | 172     | 214     | 257     | 300     | 343     | 386     | 429  |
| 461              | 43                                                                                             | 86      | 130     | 173     | 216     | 259     | 303     | 346     | 389     | 432  |
| 462              | 44                                                                                             | 87      | 131     | 174     | 218     | 261     | 305     | 349     | 392     | 436  |
| 463              | 44                                                                                             | 88      | 132     | 176     | 220     | 263     | 307     | 351     | 395     | 439  |
| 464              | 44                                                                                             | 89      | 133     | 177     | 221     | 266     | 310     | 354     | 398     | 443  |
| 465              | 45                                                                                             | 89      | 134     | 178     | 223     | 268     | 312     | 357     | 401     | 446  |
| 466              | 45                                                                                             | 90      | 135     | 180     | 225     | 270     | 315     | 360     | 404     | 449  |
| 467              | 45                                                                                             | 91      | 136     | 181     | 226     | 272     | 317     | 362     | 408     | 453  |
| 468              | 46                                                                                             | 91      | 137     | 183     | 228     | 274     | 319     | 365     | 411     | 456  |
| 469              | 46                                                                                             | 92      | 138     | 184     | 230     | 276     | 322     | 368     | 414     | 460  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
 OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 0.10 FT         | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 1 FT |
|------------------|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
| ELEV<br>(ft MSL) | DISCHARGE (cfs) |         |         |         |         |         |         |         |         |      |
| 470              | 46              | 93      | 139     | 185     | 232     | 278     | 324     | 371     | 417     | 463  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 1 FT |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 471              | 47                                                                                             | 93      | 140     | 187     | 233     | 280     | 327     | 373     | 420     | 467  |
| 472              | 47                                                                                             | 94      | 141     | 188     | 235     | 282     | 329     | 376     | 423     | 470  |
| 473              | 47                                                                                             | 95      | 142     | 189     | 237     | 284     | 331     | 379     | 426     | 474  |
| 474              | 48                                                                                             | 95      | 143     | 191     | 238     | 286     | 334     | 382     | 429     | 477  |
| 475              | 48                                                                                             | 96      | 144     | 192     | 240     | 288     | 336     | 384     | 432     | 480  |
| 476              | 48                                                                                             | 97      | 145     | 194     | 242     | 290     | 339     | 387     | 435     | 484  |
| 477              | 49                                                                                             | 97      | 146     | 195     | 244     | 292     | 341     | 390     | 439     | 487  |
| 478              | 49                                                                                             | 98      | 147     | 196     | 245     | 294     | 343     | 393     | 442     | 491  |
| 479              | 49                                                                                             | 99      | 148     | 198     | 247     | 296     | 346     | 395     | 445     | 494  |
| 480              | 50                                                                                             | 100     | 149     | 199     | 249     | 299     | 348     | 398     | 448     | 498  |
| 481              | 50                                                                                             | 100     | 150     | 200     | 251     | 301     | 351     | 401     | 451     | 501  |
| 482              | 50                                                                                             | 101     | 151     | 202     | 252     | 303     | 353     | 404     | 454     | 504  |
| 483              | 51                                                                                             | 102     | 152     | 203     | 254     | 305     | 356     | 406     | 457     | 508  |
| 484              | 51                                                                                             | 102     | 153     | 205     | 256     | 307     | 358     | 409     | 460     | 511  |
| 485              | 51                                                                                             | 103     | 154     | 206     | 257     | 309     | 360     | 412     | 463     | 515  |
| 486              | 52                                                                                             | 104     | 155     | 207     | 259     | 311     | 363     | 415     | 466     | 518  |
| 487              | 52                                                                                             | 104     | 157     | 209     | 261     | 313     | 365     | 417     | 470     | 522  |
| 488              | 53                                                                                             | 105     | 158     | 210     | 263     | 315     | 368     | 420     | 473     | 525  |
| 489              | 53                                                                                             | 106     | 159     | 211     | 264     | 317     | 370     | 423     | 476     | 529  |
| 490              | 53                                                                                             | 106     | 160     | 213     | 266     | 319     | 372     | 426     | 479     | 532  |
| 491              | 54                                                                                             | 107     | 161     | 214     | 268     | 321     | 375     | 428     | 482     | 535  |
| 492              | 54                                                                                             | 108     | 162     | 216     | 269     | 323     | 377     | 431     | 485     | 539  |
| 493              | 54                                                                                             | 108     | 163     | 217     | 271     | 325     | 380     | 434     | 488     | 542  |
| 494              | 55                                                                                             | 109     | 164     | 218     | 273     | 327     | 382     | 437     | 491     | 546  |
| 495              | 55                                                                                             | 110     | 165     | 220     | 275     | 330     | 384     | 439     | 494     | 549  |
| 496              | 55                                                                                             | 111     | 166     | 221     | 276     | 332     | 387     | 442     | 497     | 553  |
| 497              | 56                                                                                             | 111     | 167     | 222     | 278     | 334     | 389     | 445     | 500     | 556  |
| 498              | 56                                                                                             | 112     | 168     | 224     | 280     | 336     | 392     | 448     | 504     | 560  |
| 499              | 56                                                                                             | 113     | 169     | 225     | 281     | 338     | 394     | 450     | 507     | 563  |
| 500              | 57                                                                                             | 113     | 170     | 227     | 283     | 340     | 396     | 453     | 510     | 566  |
| 501              | 57                                                                                             | 114     | 171     | 228     | 285     | 342     | 399     | 456     | 513     | 570  |
| 502              | 57                                                                                             | 115     | 172     | 229     | 287     | 344     | 401     | 459     | 516     | 573  |
| 503              | 58                                                                                             | 115     | 173     | 231     | 288     | 346     | 404     | 461     | 519     | 577  |
| 504              | 58                                                                                             | 116     | 174     | 232     | 290     | 348     | 406     | 464     | 522     | 580  |
| 505              | 58                                                                                             | 117     | 175     | 233     | 292     | 350     | 409     | 467     | 525     | 584  |
| 506              | 59                                                                                             | 117     | 176     | 235     | 293     | 352     | 411     | 469     | 528     | 587  |
| 507              | 59                                                                                             | 118     | 177     | 236     | 295     | 354     | 413     | 472     | 530     | 589  |
| 508              | 59                                                                                             | 118     | 178     | 237     | 296     | 355     | 414     | 474     | 533     | 592  |
| 509              | 59                                                                                             | 119     | 178     | 238     | 297     | 357     | 416     | 476     | 535     | 595  |
| 510              | 60                                                                                             | 119     | 179     | 239     | 299     | 358     | 418     | 478     | 538     | 597  |
| 511              | 60                                                                                             | 120     | 180     | 240     | 300     | 360     | 420     | 480     | 540     | 600  |
| 512              | 60                                                                                             | 121     | 181     | 241     | 301     | 362     | 422     | 482     | 542     | 603  |
| 513              | 61                                                                                             | 121     | 182     | 242     | 303     | 363     | 424     | 484     | 545     | 605  |
| 514              | 61                                                                                             | 122     | 182     | 243     | 304     | 365     | 426     | 486     | 547     | 608  |
| 515              | 61                                                                                             | 122     | 183     | 244     | 305     | 366     | 427     | 488     | 549     | 611  |
| 516              | 61                                                                                             | 123     | 184     | 245     | 307     | 368     | 429     | 491     | 552     | 613  |
| 517              | 62                                                                                             | 123     | 185     | 246     | 308     | 369     | 431     | 493     | 554     | 616  |
| 518              | 62                                                                                             | 124     | 186     | 247     | 309     | 371     | 433     | 495     | 557     | 618  |
| 519              | 62                                                                                             | 124     | 186     | 248     | 311     | 373     | 435     | 497     | 559     | 621  |
| 520              | 62                                                                                             | 125     | 187     | 250     | 312     | 374     | 437     | 499     | 561     | 624  |
| 521              | 63                                                                                             | 125     | 188     | 251     | 313     | 376     | 438     | 501     | 564     | 626  |
| 522              | 63                                                                                             | 126     | 189     | 252     | 315     | 377     | 440     | 503     | 566     | 629  |
| 523              | 63                                                                                             | 126     | 190     | 253     | 316     | 379     | 442     | 505     | 569     | 632  |
| 524              | 63                                                                                             | 127     | 190     | 254     | 317     | 381     | 444     | 507     | 571     | 634  |
| 525              | 64                                                                                             | 127     | 191     | 255     | 318     | 382     | 446     | 510     | 573     | 637  |
| 526              | 64                                                                                             | 128     | 192     | 256     | 320     | 384     | 448     | 512     | 576     | 640  |
| 527              | 64                                                                                             | 128     | 193     | 257     | 321     | 385     | 450     | 514     | 578     | 642  |
| 528              | 64                                                                                             | 129     | 193     | 258     | 322     | 387     | 451     | 516     | 580     | 645  |
| 529              | 65                                                                                             | 130     | 194     | 259     | 324     | 389     | 453     | 518     | 583     | 648  |
| 530              | 65                                                                                             | 130     | 195     | 260     | 325     | 390     | 455     | 520     | 585     | 650  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 1 FT |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 531              | 65                                                                                             | 131     | 196     | 261     | 326     | 392     | 457     | 522     | 588     | 653  |
| 532              | 66                                                                                             | 131     | 197     | 262     | 328     | 393     | 459     | 524     | 590     | 655  |
| 533              | 66                                                                                             | 132     | 197     | 263     | 329     | 395     | 461     | 526     | 592     | 658  |
| 534              | 66                                                                                             | 132     | 198     | 264     | 330     | 396     | 462     | 529     | 595     | 661  |
| 535              | 66                                                                                             | 133     | 199     | 265     | 332     | 398     | 464     | 531     | 597     | 663  |
| 536              | 67                                                                                             | 133     | 200     | 266     | 333     | 400     | 466     | 533     | 599     | 666  |
| 537              | 67                                                                                             | 134     | 201     | 267     | 334     | 401     | 468     | 535     | 602     | 669  |
| 538              | 67                                                                                             | 134     | 201     | 269     | 336     | 403     | 470     | 537     | 604     | 671  |
| 539              | 67                                                                                             | 135     | 202     | 270     | 337     | 404     | 472     | 539     | 607     | 674  |
| 540              | 68                                                                                             | 135     | 203     | 271     | 338     | 406     | 474     | 541     | 609     | 677  |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 541              | 68                                                                                             | 136     | 204     | 272     | 340     | 408     | 475     | 543     | 611     | 679  |
| 542              | 68                                                                                             | 136     | 205     | 273     | 341     | 409     | 477     | 545     | 614     | 682  |
| 543              | 68                                                                                             | 137     | 205     | 274     | 342     | 411     | 479     | 548     | 616     | 684  |
| 544              | 69                                                                                             | 137     | 206     | 275     | 344     | 412     | 481     | 550     | 618     | 687  |
| 545              | 69                                                                                             | 138     | 207     | 276     | 345     | 414     | 483     | 552     | 621     | 690  |
| 546              | 69                                                                                             | 138     | 208     | 277     | 346     | 415     | 485     | 554     | 623     | 692  |
| 547              | 70                                                                                             | 139     | 209     | 278     | 348     | 417     | 487     | 556     | 626     | 695  |
| 548              | 70                                                                                             | 140     | 209     | 279     | 349     | 419     | 488     | 558     | 628     | 698  |
| 549              | 70                                                                                             | 140     | 210     | 280     | 350     | 420     | 490     | 560     | 630     | 700  |
| 550              | 70                                                                                             | 141     | 211     | 281     | 351     | 422     | 492     | 562     | 633     | 703  |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 551              | 71                                                                                             | 141     | 212     | 282     | 353     | 423     | 494     | 564     | 635     | 706  |
| 552              | 71                                                                                             | 142     | 212     | 283     | 354     | 425     | 496     | 567     | 637     | 708  |
| 553              | 71                                                                                             | 142     | 213     | 284     | 355     | 427     | 498     | 569     | 640     | 711  |
| 554              | 71                                                                                             | 143     | 214     | 285     | 357     | 428     | 499     | 571     | 642     | 714  |
| 555              | 72                                                                                             | 143     | 215     | 286     | 358     | 430     | 501     | 573     | 645     | 716  |
| 556              | 72                                                                                             | 144     | 216     | 287     | 359     | 431     | 503     | 575     | 647     | 719  |
| 557              | 72                                                                                             | 144     | 216     | 288     | 360     | 432     | 504     | 576     | 648     | 720  |
| 558              | 72                                                                                             | 144     | 217     | 289     | 361     | 433     | 505     | 578     | 650     | 722  |
| 559              | 72                                                                                             | 145     | 217     | 289     | 362     | 434     | 507     | 579     | 651     | 724  |
| 560              | 73                                                                                             | 145     | 218     | 290     | 363     | 435     | 508     | 580     | 653     | 725  |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 561              | 73                                                                                             | 145     | 218     | 291     | 364     | 436     | 509     | 582     | 654     | 727  |
| 562              | 73                                                                                             | 146     | 219     | 292     | 364     | 437     | 510     | 583     | 656     | 729  |
| 563              | 73                                                                                             | 146     | 219     | 292     | 365     | 438     | 511     | 584     | 658     | 731  |
| 564              | 73                                                                                             | 146     | 220     | 293     | 366     | 439     | 513     | 586     | 659     | 732  |
| 565              | 73                                                                                             | 147     | 220     | 294     | 367     | 440     | 514     | 587     | 661     | 734  |
| 566              | 74                                                                                             | 147     | 221     | 294     | 368     | 441     | 515     | 589     | 662     | 736  |
| 567              | 74                                                                                             | 148     | 221     | 295     | 369     | 443     | 516     | 590     | 664     | 738  |
| 568              | 74                                                                                             | 148     | 222     | 296     | 370     | 444     | 517     | 591     | 665     | 739  |
| 569              | 74                                                                                             | 148     | 222     | 296     | 370     | 445     | 519     | 593     | 667     | 741  |
| 570              | 74                                                                                             | 149     | 223     | 297     | 371     | 446     | 520     | 594     | 668     | 743  |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 571              | 74                                                                                             | 149     | 223     | 298     | 372     | 447     | 521     | 596     | 670     | 744  |
| 572              | 75                                                                                             | 149     | 224     | 298     | 373     | 448     | 522     | 597     | 672     | 746  |
| 573              | 75                                                                                             | 150     | 224     | 299     | 374     | 449     | 524     | 598     | 673     | 748  |
| 574              | 75                                                                                             | 150     | 225     | 300     | 375     | 450     | 525     | 600     | 675     | 750  |
| 575              | 75                                                                                             | 150     | 225     | 301     | 376     | 451     | 526     | 601     | 676     | 751  |
| 576              | 75                                                                                             | 151     | 226     | 301     | 377     | 452     | 527     | 602     | 678     | 753  |
| 577              | 75                                                                                             | 151     | 226     | 302     | 377     | 453     | 528     | 604     | 679     | 755  |
| 578              | 76                                                                                             | 151     | 227     | 303     | 378     | 454     | 530     | 605     | 681     | 757  |
| 579              | 76                                                                                             | 152     | 227     | 303     | 379     | 455     | 531     | 607     | 682     | 758  |
| 580              | 76                                                                                             | 152     | 228     | 304     | 380     | 456     | 532     | 608     | 684     | 760  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE             | 1.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
| OPENING          | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 2 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 405              | 0                                                                                              | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0    |
| 406              | 36                                                                                             | 37      | 39      | 40      | 41      | 42      | 44      | 45      | 46      | 47   |
| 407              | 72                                                                                             | 75      | 77      | 80      | 82      | 85      | 87      | 90      | 92      | 95   |
| 408              | 109                                                                                            | 112     | 116     | 120     | 123     | 127     | 131     | 134     | 138     | 142  |
| 409              | 145                                                                                            | 150     | 155     | 160     | 165     | 169     | 174     | 179     | 184     | 189  |
| 410              | 156                                                                                            | 165     | 174     | 183     | 192     | 201     | 210     | 218     | 227     | 236  |
| 411              | 165                                                                                            | 177     | 188     | 200     | 212     | 223     | 235     | 246     | 258     | 269  |
| 412              | 173                                                                                            | 186     | 199     | 212     | 224     | 237     | 250     | 263     | 275     | 288  |
| 413              | 181                                                                                            | 195     | 209     | 223     | 237     | 251     | 265     | 279     | 293     | 307  |
| 414              | 189                                                                                            | 205     | 220     | 235     | 250     | 265     | 280     | 295     | 310     | 325  |
| 415              | 197                                                                                            | 214     | 230     | 246     | 263     | 279     | 295     | 311     | 328     | 344  |
| 416              | 206                                                                                            | 223     | 240     | 258     | 275     | 293     | 310     | 328     | 345     | 363  |
| 417              | 214                                                                                            | 232     | 250     | 269     | 287     | 306     | 324     | 342     | 361     | 379  |
| 418              | 221                                                                                            | 240     | 260     | 279     | 298     | 317     | 336     | 355     | 374     | 393  |
| 419              | 229                                                                                            | 249     | 269     | 289     | 308     | 328     | 348     | 368     | 388     | 408  |
| 420              | 237                                                                                            | 257     | 278     | 299     | 319     | 340     | 360     | 381     | 401     | 422  |
| 421              | 245                                                                                            | 266     | 287     | 309     | 330     | 351     | 372     | 394     | 415     | 436  |
| 422              | 253                                                                                            | 275     | 297     | 318     | 340     | 362     | 384     | 406     | 428     | 450  |
| 423              | 260                                                                                            | 283     | 306     | 328     | 351     | 374     | 397     | 419     | 442     | 465  |
| 424              | 268                                                                                            | 292     | 315     | 338     | 362     | 385     | 409     | 432     | 456     | 479  |
| 425              | 276                                                                                            | 300     | 324     | 348     | 372     | 397     | 421     | 445     | 469     | 493  |
| 426              | 284                                                                                            | 309     | 333     | 358     | 383     | 408     | 433     | 458     | 483     | 508  |
| 427              | 291                                                                                            | 317     | 343     | 368     | 394     | 419     | 445     | 471     | 496     | 522  |
| 428              | 299                                                                                            | 326     | 352     | 378     | 404     | 431     | 457     | 483     | 510     | 536  |
| 429              | 307                                                                                            | 334     | 361     | 388     | 415     | 442     | 469     | 496     | 523     | 550  |
| 430              | 315                                                                                            | 343     | 370     | 398     | 426     | 454     | 481     | 509     | 537     | 565  |
| 431              | 322                                                                                            | 351     | 379     | 408     | 436     | 465     | 493     | 522     | 550     | 579  |
| 432              | 328                                                                                            | 357     | 386     | 415     | 445     | 474     | 503     | 532     | 562     | 591  |
| 433              | 333                                                                                            | 363     | 392     | 422     | 452     | 482     | 511     | 541     | 571     | 601  |
| 434              | 338                                                                                            | 369     | 399     | 429     | 459     | 489     | 520     | 550     | 580     | 610  |
| 435              | 344                                                                                            | 374     | 405     | 436     | 467     | 497     | 528     | 559     | 589     | 620  |
| 436              | 349                                                                                            | 380     | 411     | 443     | 474     | 505     | 536     | 568     | 599     | 630  |
| 437              | 354                                                                                            | 386     | 418     | 450     | 481     | 513     | 545     | 576     | 608     | 640  |
| 438              | 360                                                                                            | 392     | 424     | 456     | 489     | 521     | 553     | 585     | 617     | 649  |
| 439              | 365                                                                                            | 398     | 431     | 463     | 496     | 529     | 561     | 594     | 627     | 659  |
| 440              | 371                                                                                            | 404     | 437     | 470     | 503     | 536     | 569     | 603     | 636     | 669  |
| 441              | 376                                                                                            | 410     | 443     | 477     | 510     | 544     | 578     | 611     | 645     | 679  |
| 442              | 381                                                                                            | 415     | 450     | 484     | 518     | 552     | 586     | 620     | 654     | 688  |
| 443              | 387                                                                                            | 421     | 456     | 491     | 525     | 560     | 594     | 629     | 664     | 698  |
| 444              | 392                                                                                            | 427     | 462     | 497     | 532     | 568     | 603     | 638     | 673     | 708  |
| 445              | 397                                                                                            | 433     | 469     | 504     | 540     | 575     | 611     | 647     | 682     | 718  |
| 446              | 403                                                                                            | 439     | 475     | 511     | 547     | 583     | 619     | 655     | 691     | 728  |
| 447              | 408                                                                                            | 445     | 481     | 518     | 554     | 591     | 628     | 664     | 701     | 737  |
| 448              | 413                                                                                            | 451     | 488     | 525     | 562     | 599     | 636     | 673     | 710     | 747  |
| 449              | 419                                                                                            | 456     | 494     | 532     | 569     | 607     | 644     | 682     | 719     | 757  |
| 450              | 424                                                                                            | 462     | 500     | 538     | 576     | 614     | 652     | 690     | 729     | 767  |
| 451              | 430                                                                                            | 468     | 507     | 545     | 584     | 622     | 661     | 699     | 738     | 776  |
| 452              | 435                                                                                            | 474     | 513     | 552     | 591     | 630     | 669     | 708     | 747     | 786  |
| 453              | 440                                                                                            | 480     | 519     | 559     | 598     | 638     | 677     | 717     | 756     | 796  |
| 454              | 446                                                                                            | 486     | 526     | 566     | 606     | 646     | 686     | 726     | 766     | 806  |
| 455              | 451                                                                                            | 492     | 532     | 572     | 613     | 653     | 694     | 734     | 775     | 815  |
| 456              | 456                                                                                            | 497     | 538     | 579     | 620     | 661     | 702     | 743     | 784     | 825  |
| 457              | 460                                                                                            | 501     | 543     | 584     | 626     | 667     | 709     | 750     | 792     | 833  |
| 458              | 464                                                                                            | 506     | 547     | 589     | 631     | 673     | 715     | 757     | 798     | 840  |
| 459              | 468                                                                                            | 510     | 552     | 594     | 636     | 678     | 721     | 763     | 805     | 847  |
| 460              | 471                                                                                            | 514     | 556     | 599     | 641     | 684     | 726     | 769     | 812     | 854  |
| 461              | 475                                                                                            | 518     | 561     | 604     | 647     | 689     | 732     | 775     | 818     | 861  |
| 462              | 479                                                                                            | 522     | 565     | 609     | 652     | 695     | 738     | 781     | 825     | 868  |
| 463              | 483                                                                                            | 526     | 570     | 613     | 657     | 700     | 744     | 788     | 831     | 875  |
| 464              | 486                                                                                            | 530     | 574     | 618     | 662     | 706     | 750     | 794     | 838     | 882  |
| 465              | 490                                                                                            | 534     | 579     | 623     | 667     | 711     | 756     | 800     | 844     | 888  |
| 466              | 494                                                                                            | 539     | 583     | 628     | 672     | 717     | 762     | 806     | 851     | 895  |
| 467              | 498                                                                                            | 543     | 588     | 633     | 678     | 722     | 767     | 812     | 857     | 902  |
| 468              | 502                                                                                            | 547     | 592     | 637     | 683     | 728     | 773     | 819     | 864     | 909  |
| 469              | 505                                                                                            | 551     | 597     | 642     | 688     | 734     | 779     | 825     | 870     | 916  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 1.0 FT          |         |         |         |         |         |         |         |         | 2 FT |
|------------------|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT         | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT |      |
| ELEV<br>(ft MSL) | DISCHARGE (cfs) |         |         |         |         |         |         |         |         |      |
| 470              | 509             | 555     | 601     | 647     | 693     | 739     | 785     | 831     | 877     | 923  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE     | 1.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|----------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
| OPENING  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 2 FT |
| ELEV     |                                                                                                |         |         |         |         |         |         |         |         |      |
| (ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|          | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 471      | 513                                                                                            | 559     | 606     | 652     | 698     | 745     | 791     | 837     | 883     | 930  |
| 472      | 517                                                                                            | 563     | 610     | 657     | 703     | 750     | 797     | 843     | 890     | 937  |
| 473      | 521                                                                                            | 568     | 615     | 662     | 709     | 756     | 803     | 850     | 897     | 944  |
| 474      | 524                                                                                            | 572     | 619     | 666     | 714     | 761     | 808     | 856     | 903     | 950  |
| 475      | 528                                                                                            | 576     | 623     | 671     | 719     | 767     | 814     | 862     | 910     | 957  |
| 476      | 532                                                                                            | 580     | 628     | 676     | 724     | 772     | 820     | 868     | 916     | 964  |
| 477      | 536                                                                                            | 584     | 632     | 681     | 729     | 778     | 826     | 874     | 923     | 971  |
| 478      | 539                                                                                            | 588     | 637     | 686     | 734     | 783     | 832     | 880     | 929     | 978  |
| 479      | 543                                                                                            | 592     | 641     | 690     | 739     | 789     | 838     | 887     | 936     | 985  |
| 480      | 547                                                                                            | 596     | 646     | 695     | 745     | 794     | 843     | 893     | 942     | 992  |
| 481      | 551                                                                                            | 601     | 650     | 700     | 750     | 800     | 849     | 899     | 949     | 999  |
| 482      | 555                                                                                            | 605     | 655     | 705     | 755     | 805     | 855     | 905     | 955     | 1005 |
| 483      | 558                                                                                            | 609     | 659     | 710     | 760     | 811     | 861     | 911     | 962     | 1012 |
| 484      | 562                                                                                            | 613     | 664     | 714     | 765     | 816     | 867     | 918     | 968     | 1019 |
| 485      | 566                                                                                            | 617     | 668     | 719     | 770     | 822     | 873     | 924     | 975     | 1026 |
| 486      | 570                                                                                            | 621     | 673     | 724     | 776     | 827     | 879     | 930     | 981     | 1033 |
| 487      | 573                                                                                            | 625     | 677     | 729     | 781     | 833     | 884     | 936     | 988     | 1040 |
| 488      | 577                                                                                            | 629     | 682     | 734     | 786     | 838     | 890     | 942     | 995     | 1047 |
| 489      | 581                                                                                            | 634     | 686     | 739     | 791     | 844     | 896     | 949     | 1001    | 1054 |
| 490      | 585                                                                                            | 638     | 691     | 743     | 796     | 849     | 902     | 955     | 1008    | 1060 |
| 491      | 589                                                                                            | 642     | 695     | 748     | 801     | 855     | 908     | 961     | 1014    | 1067 |
| 492      | 592                                                                                            | 646     | 699     | 753     | 807     | 860     | 914     | 967     | 1021    | 1074 |
| 493      | 596                                                                                            | 650     | 704     | 758     | 812     | 866     | 919     | 973     | 1027    | 1081 |
| 494      | 600                                                                                            | 654     | 708     | 763     | 817     | 871     | 925     | 980     | 1034    | 1088 |
| 495      | 604                                                                                            | 658     | 713     | 767     | 822     | 877     | 931     | 986     | 1040    | 1095 |
| 496      | 608                                                                                            | 662     | 717     | 772     | 827     | 882     | 937     | 992     | 1047    | 1102 |
| 497      | 611                                                                                            | 667     | 722     | 777     | 832     | 888     | 943     | 998     | 1053    | 1109 |
| 498      | 615                                                                                            | 671     | 726     | 782     | 838     | 893     | 949     | 1004    | 1060    | 1116 |
| 499      | 619                                                                                            | 675     | 731     | 787     | 843     | 899     | 955     | 1011    | 1066    | 1122 |
| 500      | 623                                                                                            | 679     | 735     | 792     | 848     | 904     | 960     | 1017    | 1073    | 1129 |
| 501      | 626                                                                                            | 683     | 740     | 796     | 853     | 910     | 966     | 1023    | 1080    | 1136 |
| 502      | 630                                                                                            | 687     | 744     | 801     | 858     | 915     | 972     | 1029    | 1086    | 1143 |
| 503      | 634                                                                                            | 691     | 749     | 806     | 863     | 921     | 978     | 1035    | 1093    | 1150 |
| 504      | 638                                                                                            | 695     | 753     | 811     | 868     | 926     | 984     | 1041    | 1099    | 1157 |
| 505      | 642                                                                                            | 700     | 758     | 816     | 874     | 932     | 990     | 1048    | 1106    | 1164 |
| 506      | 645                                                                                            | 704     | 762     | 820     | 879     | 937     | 995     | 1054    | 1112    | 1171 |
| 507      | 648                                                                                            | 707     | 766     | 824     | 883     | 942     | 1000    | 1059    | 1118    | 1177 |
| 508      | 651                                                                                            | 710     | 769     | 828     | 887     | 946     | 1005    | 1064    | 1123    | 1182 |
| 509      | 654                                                                                            | 713     | 772     | 832     | 891     | 950     | 1009    | 1069    | 1128    | 1187 |
| 510      | 657                                                                                            | 716     | 776     | 835     | 895     | 954     | 1014    | 1073    | 1133    | 1192 |
| 511      | 660                                                                                            | 720     | 779     | 839     | 899     | 959     | 1018    | 1078    | 1138    | 1198 |
| 512      | 663                                                                                            | 723     | 783     | 843     | 903     | 963     | 1023    | 1083    | 1143    | 1203 |
| 513      | 666                                                                                            | 726     | 786     | 846     | 907     | 967     | 1027    | 1088    | 1148    | 1208 |
| 514      | 668                                                                                            | 729     | 790     | 850     | 911     | 971     | 1032    | 1092    | 1153    | 1213 |
| 515      | 671                                                                                            | 732     | 793     | 854     | 915     | 975     | 1036    | 1097    | 1158    | 1219 |
| 516      | 674                                                                                            | 735     | 796     | 857     | 918     | 980     | 1041    | 1102    | 1163    | 1224 |
| 517      | 677                                                                                            | 738     | 800     | 861     | 922     | 984     | 1045    | 1106    | 1168    | 1229 |
| 518      | 680                                                                                            | 742     | 803     | 865     | 926     | 988     | 1050    | 1111    | 1173    | 1234 |
| 519      | 683                                                                                            | 745     | 807     | 868     | 930     | 992     | 1054    | 1116    | 1178    | 1240 |
| 520      | 686                                                                                            | 748     | 810     | 872     | 934     | 996     | 1058    | 1121    | 1183    | 1245 |
| 521      | 689                                                                                            | 751     | 813     | 876     | 938     | 1001    | 1063    | 1125    | 1188    | 1250 |
| 522      | 692                                                                                            | 754     | 817     | 880     | 942     | 1005    | 1067    | 1130    | 1193    | 1255 |
| 523      | 695                                                                                            | 757     | 820     | 883     | 946     | 1009    | 1072    | 1135    | 1198    | 1260 |
| 524      | 697                                                                                            | 761     | 824     | 887     | 950     | 1013    | 1076    | 1139    | 1203    | 1266 |
| 525      | 700                                                                                            | 764     | 827     | 891     | 954     | 1017    | 1081    | 1144    | 1208    | 1271 |
| 526      | 703                                                                                            | 767     | 831     | 894     | 958     | 1022    | 1085    | 1149    | 1213    | 1276 |
| 527      | 706                                                                                            | 770     | 834     | 898     | 962     | 1026    | 1090    | 1154    | 1218    | 1281 |
| 528      | 709                                                                                            | 773     | 837     | 902     | 966     | 1030    | 1094    | 1158    | 1222    | 1287 |
| 529      | 712                                                                                            | 776     | 841     | 905     | 970     | 1034    | 1099    | 1163    | 1227    | 1292 |
| 530      | 715                                                                                            | 780     | 844     | 909     | 974     | 1038    | 1103    | 1168    | 1232    | 1297 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE     | 1.0 FT                                                                                         |         |         |         |         |         |         |         |         | 2 FT |  |
|----------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|--|
| OPENING  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT |      |  |
| ELEV     | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |  |
| (ft MSL) | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |  |
| 531      | 718                                                                                            | 783     | 848     | 913     | 978     | 1043    | 1108    | 1172    | 1237    | 1302 |  |
| 532      | 721                                                                                            | 786     | 851     | 916     | 982     | 1047    | 1112    | 1177    | 1242    | 1308 |  |
| 533      | 724                                                                                            | 789     | 855     | 920     | 985     | 1051    | 1116    | 1182    | 1247    | 1313 |  |
| 534      | 726                                                                                            | 792     | 858     | 924     | 989     | 1055    | 1121    | 1187    | 1252    | 1318 |  |
| 535      | 729                                                                                            | 795     | 861     | 927     | 993     | 1059    | 1125    | 1191    | 1257    | 1323 |  |
| 536      | 732                                                                                            | 799     | 865     | 931     | 997     | 1064    | 1130    | 1196    | 1262    | 1329 |  |
| 537      | 735                                                                                            | 802     | 868     | 935     | 1001    | 1068    | 1134    | 1201    | 1267    | 1334 |  |
| 538      | 738                                                                                            | 805     | 872     | 938     | 1005    | 1072    | 1139    | 1206    | 1272    | 1339 |  |
| 539      | 741                                                                                            | 808     | 875     | 942     | 1009    | 1076    | 1143    | 1210    | 1277    | 1344 |  |
| 540      | 744                                                                                            | 811     | 878     | 946     | 1013    | 1080    | 1148    | 1215    | 1282    | 1350 |  |
|          |                                                                                                |         |         |         |         |         |         |         |         |      |  |
| 541      | 747                                                                                            | 814     | 882     | 949     | 1017    | 1085    | 1152    | 1220    | 1287    | 1355 |  |
| 542      | 750                                                                                            | 817     | 885     | 953     | 1021    | 1089    | 1157    | 1224    | 1292    | 1360 |  |
| 543      | 753                                                                                            | 821     | 889     | 957     | 1025    | 1093    | 1161    | 1229    | 1297    | 1365 |  |
| 544      | 755                                                                                            | 824     | 892     | 960     | 1029    | 1097    | 1165    | 1234    | 1302    | 1371 |  |
| 545      | 758                                                                                            | 827     | 896     | 964     | 1033    | 1101    | 1170    | 1239    | 1307    | 1376 |  |
| 546      | 761                                                                                            | 830     | 899     | 968     | 1037    | 1106    | 1174    | 1243    | 1312    | 1381 |  |
| 547      | 764                                                                                            | 833     | 902     | 972     | 1041    | 1110    | 1179    | 1248    | 1317    | 1386 |  |
| 548      | 767                                                                                            | 836     | 906     | 975     | 1045    | 1114    | 1183    | 1253    | 1322    | 1391 |  |
| 549      | 770                                                                                            | 840     | 909     | 979     | 1049    | 1118    | 1188    | 1257    | 1327    | 1397 |  |
| 550      | 773                                                                                            | 843     | 913     | 983     | 1052    | 1122    | 1192    | 1262    | 1332    | 1402 |  |
|          |                                                                                                |         |         |         |         |         |         |         |         |      |  |
| 551      | 776                                                                                            | 846     | 916     | 986     | 1056    | 1127    | 1197    | 1267    | 1337    | 1407 |  |
| 552      | 779                                                                                            | 849     | 919     | 990     | 1060    | 1131    | 1201    | 1272    | 1342    | 1412 |  |
| 553      | 782                                                                                            | 852     | 923     | 994     | 1064    | 1135    | 1206    | 1276    | 1347    | 1418 |  |
| 554      | 784                                                                                            | 855     | 926     | 997     | 1068    | 1139    | 1210    | 1281    | 1352    | 1423 |  |
| 555      | 787                                                                                            | 859     | 930     | 1001    | 1072    | 1143    | 1215    | 1286    | 1357    | 1428 |  |
| 556      | 790                                                                                            | 861     | 933     | 1004    | 1076    | 1147    | 1219    | 1290    | 1362    | 1433 |  |
| 557      | 792                                                                                            | 864     | 936     | 1007    | 1079    | 1151    | 1223    | 1295    | 1366    | 1438 |  |
| 558      | 794                                                                                            | 866     | 938     | 1010    | 1082    | 1154    | 1226    | 1299    | 1371    | 1443 |  |
| 559      | 796                                                                                            | 868     | 941     | 1013    | 1085    | 1158    | 1230    | 1302    | 1375    | 1447 |  |
| 560      | 798                                                                                            | 871     | 943     | 1016    | 1088    | 1161    | 1234    | 1306    | 1379    | 1451 |  |
|          |                                                                                                |         |         |         |         |         |         |         |         |      |  |
| 561      | 800                                                                                            | 873     | 946     | 1019    | 1092    | 1164    | 1237    | 1310    | 1383    | 1456 |  |
| 562      | 802                                                                                            | 875     | 948     | 1021    | 1095    | 1168    | 1241    | 1314    | 1387    | 1460 |  |
| 563      | 804                                                                                            | 877     | 951     | 1024    | 1098    | 1171    | 1245    | 1318    | 1391    | 1465 |  |
| 564      | 806                                                                                            | 880     | 953     | 1027    | 1101    | 1174    | 1248    | 1322    | 1396    | 1469 |  |
| 565      | 808                                                                                            | 882     | 956     | 1030    | 1104    | 1178    | 1252    | 1326    | 1400    | 1474 |  |
| 566      | 810                                                                                            | 884     | 958     | 1033    | 1107    | 1181    | 1255    | 1330    | 1404    | 1478 |  |
| 567      | 812                                                                                            | 887     | 961     | 1036    | 1110    | 1184    | 1259    | 1333    | 1408    | 1482 |  |
| 568      | 814                                                                                            | 889     | 964     | 1038    | 1113    | 1188    | 1263    | 1337    | 1412    | 1487 |  |
| 569      | 816                                                                                            | 891     | 966     | 1041    | 1116    | 1191    | 1266    | 1341    | 1416    | 1491 |  |
| 570      | 818                                                                                            | 893     | 969     | 1044    | 1119    | 1195    | 1270    | 1345    | 1420    | 1496 |  |
|          |                                                                                                |         |         |         |         |         |         |         |         |      |  |
| 571      | 820                                                                                            | 896     | 971     | 1047    | 1122    | 1198    | 1273    | 1349    | 1425    | 1500 |  |
| 572      | 822                                                                                            | 898     | 974     | 1050    | 1125    | 1201    | 1277    | 1353    | 1429    | 1505 |  |
| 573      | 824                                                                                            | 900     | 976     | 1052    | 1128    | 1205    | 1281    | 1357    | 1433    | 1509 |  |
| 574      | 826                                                                                            | 902     | 979     | 1055    | 1132    | 1208    | 1284    | 1361    | 1437    | 1513 |  |
| 575      | 828                                                                                            | 905     | 981     | 1058    | 1135    | 1211    | 1288    | 1365    | 1441    | 1518 |  |
| 576      | 830                                                                                            | 907     | 984     | 1061    | 1138    | 1215    | 1292    | 1368    | 1445    | 1522 |  |
| 577      | 832                                                                                            | 909     | 986     | 1064    | 1141    | 1218    | 1295    | 1372    | 1450    | 1527 |  |
| 578      | 834                                                                                            | 911     | 989     | 1066    | 1144    | 1221    | 1299    | 1376    | 1454    | 1531 |  |
| 579      | 836                                                                                            | 914     | 991     | 1069    | 1147    | 1225    | 1302    | 1380    | 1458    | 1536 |  |
| 580      | 838                                                                                            | 916     | 994     | 1072    | 1150    | 1228    | 1306    | 1384    | 1462    | 1540 |  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 2.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 3 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 405              | 0                                                                                              | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0    |
| 406              | 49                                                                                             | 51      | 52      | 54      | 56      | 57      | 59      | 61      | 63      | 64   |
| 407              | 98                                                                                             | 101     | 105     | 108     | 112     | 115     | 118     | 122     | 125     | 129  |
| 408              | 147                                                                                            | 152     | 157     | 162     | 167     | 172     | 178     | 183     | 188     | 193  |
| 409              | 196                                                                                            | 203     | 210     | 216     | 223     | 230     | 237     | 244     | 250     | 257  |
| 410              | 245                                                                                            | 253     | 262     | 270     | 279     | 287     | 296     | 304     | 313     | 321  |
| 411              | 281                                                                                            | 293     | 304     | 316     | 328     | 339     | 351     | 362     | 374     | 386  |
| 412              | 304                                                                                            | 320     | 337     | 353     | 369     | 385     | 401     | 418     | 434     | 450  |
| 413              | 323                                                                                            | 339     | 356     | 372     | 389     | 405     | 422     | 438     | 454     | 471  |
| 414              | 342                                                                                            | 359     | 375     | 392     | 408     | 425     | 442     | 458     | 475     | 492  |
| 415              | 361                                                                                            | 378     | 394     | 411     | 428     | 445     | 462     | 479     | 495     | 512  |
| 416              | 380                                                                                            | 397     | 414     | 431     | 448     | 465     | 482     | 499     | 516     | 533  |
| 417              | 397                                                                                            | 414     | 432     | 449     | 466     | 484     | 501     | 519     | 536     | 554  |
| 418              | 412                                                                                            | 430     | 448     | 466     | 484     | 503     | 521     | 539     | 557     | 575  |
| 419              | 427                                                                                            | 446     | 465     | 483     | 502     | 521     | 540     | 559     | 578     | 597  |
| 420              | 442                                                                                            | 461     | 481     | 501     | 520     | 540     | 560     | 579     | 599     | 619  |
| 421              | 457                                                                                            | 477     | 498     | 518     | 538     | 559     | 579     | 600     | 620     | 641  |
| 422              | 472                                                                                            | 493     | 514     | 535     | 556     | 578     | 599     | 620     | 641     | 662  |
| 423              | 487                                                                                            | 509     | 531     | 552     | 574     | 596     | 618     | 640     | 662     | 684  |
| 424              | 502                                                                                            | 524     | 547     | 570     | 592     | 615     | 638     | 660     | 683     | 706  |
| 425              | 517                                                                                            | 540     | 564     | 587     | 610     | 634     | 657     | 681     | 704     | 728  |
| 426              | 532                                                                                            | 556     | 580     | 604     | 628     | 653     | 677     | 701     | 725     | 749  |
| 427              | 547                                                                                            | 572     | 597     | 621     | 646     | 671     | 696     | 721     | 746     | 771  |
| 428              | 562                                                                                            | 587     | 613     | 639     | 664     | 690     | 716     | 741     | 767     | 793  |
| 429              | 577                                                                                            | 603     | 630     | 656     | 682     | 709     | 735     | 762     | 788     | 814  |
| 430              | 592                                                                                            | 619     | 646     | 673     | 700     | 728     | 755     | 782     | 809     | 836  |
| 431              | 607                                                                                            | 635     | 663     | 690     | 718     | 746     | 774     | 802     | 830     | 858  |
| 432              | 620                                                                                            | 649     | 678     | 706     | 735     | 764     | 793     | 822     | 851     | 880  |
| 433              | 630                                                                                            | 660     | 689     | 719     | 748     | 778     | 807     | 837     | 866     | 896  |
| 434              | 640                                                                                            | 670     | 700     | 730     | 760     | 790     | 820     | 850     | 880     | 910  |
| 435              | 651                                                                                            | 681     | 712     | 742     | 773     | 803     | 834     | 864     | 895     | 925  |
| 436              | 661                                                                                            | 692     | 723     | 754     | 785     | 816     | 847     | 878     | 909     | 940  |
| 437              | 671                                                                                            | 703     | 734     | 766     | 797     | 828     | 860     | 891     | 923     | 954  |
| 438              | 681                                                                                            | 713     | 745     | 777     | 809     | 841     | 873     | 905     | 937     | 969  |
| 439              | 692                                                                                            | 724     | 757     | 789     | 821     | 854     | 886     | 919     | 951     | 984  |
| 440              | 702                                                                                            | 735     | 768     | 801     | 834     | 866     | 899     | 932     | 965     | 998  |
| 441              | 712                                                                                            | 746     | 779     | 812     | 846     | 879     | 913     | 946     | 979     | 1013 |
| 442              | 722                                                                                            | 756     | 790     | 824     | 858     | 892     | 926     | 960     | 994     | 1027 |
| 443              | 733                                                                                            | 767     | 801     | 836     | 870     | 905     | 939     | 973     | 1008    | 1042 |
| 444              | 743                                                                                            | 778     | 813     | 848     | 882     | 917     | 952     | 987     | 1022    | 1057 |
| 445              | 753                                                                                            | 788     | 824     | 859     | 895     | 930     | 965     | 1001    | 1036    | 1071 |
| 446              | 763                                                                                            | 799     | 835     | 871     | 907     | 943     | 978     | 1014    | 1050    | 1086 |
| 447              | 774                                                                                            | 810     | 846     | 883     | 919     | 955     | 992     | 1028    | 1064    | 1101 |
| 448              | 784                                                                                            | 821     | 858     | 894     | 931     | 968     | 1005    | 1042    | 1078    | 1115 |
| 449              | 794                                                                                            | 831     | 869     | 906     | 943     | 981     | 1018    | 1055    | 1093    | 1130 |
| 450              | 804                                                                                            | 842     | 880     | 918     | 956     | 993     | 1031    | 1069    | 1107    | 1145 |
| 451              | 815                                                                                            | 853     | 891     | 929     | 968     | 1006    | 1044    | 1083    | 1121    | 1159 |
| 452              | 825                                                                                            | 864     | 902     | 941     | 980     | 1019    | 1058    | 1096    | 1135    | 1174 |
| 453              | 835                                                                                            | 874     | 914     | 953     | 992     | 1031    | 1071    | 1110    | 1149    | 1189 |
| 454              | 845                                                                                            | 885     | 925     | 965     | 1004    | 1044    | 1084    | 1124    | 1163    | 1203 |
| 455              | 856                                                                                            | 896     | 936     | 976     | 1017    | 1057    | 1097    | 1137    | 1178    | 1218 |
| 456              | 866                                                                                            | 907     | 947     | 988     | 1029    | 1070    | 1110    | 1151    | 1192    | 1232 |
| 457              | 875                                                                                            | 916     | 958     | 999     | 1040    | 1082    | 1123    | 1164    | 1206    | 1247 |
| 458              | 883                                                                                            | 925     | 967     | 1009    | 1052    | 1094    | 1136    | 1178    | 1220    | 1263 |
| 459              | 890                                                                                            | 933     | 977     | 1020    | 1063    | 1106    | 1149    | 1192    | 1235    | 1279 |
| 460              | 898                                                                                            | 942     | 986     | 1030    | 1074    | 1118    | 1162    | 1206    | 1250    | 1294 |
| 461              | 906                                                                                            | 951     | 996     | 1041    | 1086    | 1131    | 1175    | 1220    | 1265    | 1310 |
| 462              | 914                                                                                            | 959     | 1005    | 1051    | 1097    | 1143    | 1189    | 1234    | 1280    | 1326 |
| 463              | 921                                                                                            | 968     | 1015    | 1062    | 1108    | 1155    | 1202    | 1248    | 1295    | 1342 |
| 464              | 929                                                                                            | 977     | 1024    | 1072    | 1120    | 1167    | 1215    | 1263    | 1310    | 1358 |
| 465              | 937                                                                                            | 986     | 1034    | 1083    | 1131    | 1180    | 1228    | 1277    | 1325    | 1374 |
| 466              | 945                                                                                            | 994     | 1044    | 1093    | 1142    | 1192    | 1241    | 1291    | 1340    | 1389 |
| 467              | 953                                                                                            | 1003    | 1053    | 1103    | 1154    | 1204    | 1254    | 1305    | 1355    | 1405 |
| 468              | 960                                                                                            | 1012    | 1063    | 1114    | 1165    | 1216    | 1268    | 1319    | 1370    | 1421 |
| 469              | 968                                                                                            | 1020    | 1072    | 1124    | 1177    | 1229    | 1281    | 1333    | 1385    | 1437 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
 OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 2.0 FT          |         |         |         |         |         |         |         |         |      |
|------------------|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT         | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 3 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs) |         |         |         |         |         |         |         |         |      |
| 470              | 976             | 1029    | 1082    | 1135    | 1188    | 1241    | 1294    | 1347    | 1400    | 1453 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 2.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 3 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 471              | 984                                                                                            | 1038    | 1091    | 1145    | 1199    | 1253    | 1307    | 1361    | 1415    | 1469 |
| 472              | 991                                                                                            | 1046    | 1101    | 1156    | 1211    | 1265    | 1320    | 1375    | 1430    | 1485 |
| 473              | 999                                                                                            | 1055    | 1111    | 1166    | 1222    | 1278    | 1333    | 1389    | 1445    | 1500 |
| 474              | 1007                                                                                           | 1064    | 1120    | 1177    | 1233    | 1290    | 1347    | 1403    | 1460    | 1516 |
| 475              | 1015                                                                                           | 1072    | 1130    | 1187    | 1245    | 1302    | 1360    | 1417    | 1475    | 1532 |
| 476              | 1023                                                                                           | 1081    | 1139    | 1198    | 1256    | 1314    | 1373    | 1431    | 1490    | 1548 |
| 477              | 1030                                                                                           | 1090    | 1149    | 1208    | 1267    | 1327    | 1386    | 1445    | 1505    | 1564 |
| 478              | 1038                                                                                           | 1098    | 1158    | 1219    | 1279    | 1339    | 1399    | 1459    | 1520    | 1580 |
| 479              | 1046                                                                                           | 1107    | 1168    | 1229    | 1290    | 1351    | 1412    | 1473    | 1534    | 1596 |
| 480              | 1054                                                                                           | 1116    | 1178    | 1240    | 1302    | 1364    | 1425    | 1487    | 1549    | 1611 |
| 481              | 1061                                                                                           | 1124    | 1187    | 1250    | 1313    | 1376    | 1439    | 1501    | 1564    | 1627 |
| 482              | 1069                                                                                           | 1133    | 1197    | 1260    | 1324    | 1388    | 1452    | 1516    | 1579    | 1643 |
| 483              | 1077                                                                                           | 1142    | 1206    | 1271    | 1336    | 1400    | 1465    | 1530    | 1594    | 1659 |
| 484              | 1085                                                                                           | 1150    | 1216    | 1281    | 1347    | 1413    | 1478    | 1544    | 1609    | 1675 |
| 485              | 1093                                                                                           | 1159    | 1225    | 1292    | 1358    | 1425    | 1491    | 1558    | 1624    | 1691 |
| 486              | 1100                                                                                           | 1168    | 1235    | 1302    | 1370    | 1437    | 1504    | 1572    | 1639    | 1706 |
| 487              | 1108                                                                                           | 1176    | 1245    | 1313    | 1381    | 1449    | 1518    | 1586    | 1654    | 1722 |
| 488              | 1116                                                                                           | 1185    | 1254    | 1323    | 1392    | 1462    | 1531    | 1600    | 1669    | 1738 |
| 489              | 1123                                                                                           | 1192    | 1261    | 1330    | 1400    | 1469    | 1538    | 1607    | 1676    | 1746 |
| 490              | 1129                                                                                           | 1198    | 1266    | 1335    | 1404    | 1472    | 1541    | 1610    | 1678    | 1747 |
| 491              | 1135                                                                                           | 1204    | 1272    | 1340    | 1408    | 1476    | 1544    | 1612    | 1680    | 1748 |
| 492              | 1142                                                                                           | 1209    | 1277    | 1344    | 1412    | 1479    | 1547    | 1614    | 1682    | 1749 |
| 493              | 1148                                                                                           | 1215    | 1282    | 1349    | 1416    | 1483    | 1550    | 1617    | 1684    | 1751 |
| 494              | 1154                                                                                           | 1221    | 1287    | 1354    | 1420    | 1486    | 1553    | 1619    | 1685    | 1752 |
| 495              | 1161                                                                                           | 1227    | 1292    | 1358    | 1424    | 1490    | 1556    | 1621    | 1687    | 1753 |
| 496              | 1167                                                                                           | 1232    | 1298    | 1363    | 1428    | 1493    | 1559    | 1624    | 1689    | 1754 |
| 497              | 1173                                                                                           | 1238    | 1303    | 1367    | 1432    | 1497    | 1561    | 1626    | 1691    | 1756 |
| 498              | 1180                                                                                           | 1244    | 1308    | 1372    | 1436    | 1500    | 1564    | 1628    | 1693    | 1757 |
| 499              | 1186                                                                                           | 1250    | 1313    | 1377    | 1440    | 1504    | 1567    | 1631    | 1694    | 1758 |
| 500              | 1192                                                                                           | 1255    | 1318    | 1381    | 1444    | 1507    | 1570    | 1633    | 1696    | 1759 |
| 501              | 1199                                                                                           | 1261    | 1323    | 1386    | 1448    | 1511    | 1573    | 1636    | 1698    | 1760 |
| 502              | 1205                                                                                           | 1267    | 1329    | 1390    | 1452    | 1514    | 1576    | 1638    | 1700    | 1762 |
| 503              | 1211                                                                                           | 1273    | 1334    | 1395    | 1456    | 1518    | 1579    | 1640    | 1702    | 1763 |
| 504              | 1218                                                                                           | 1278    | 1339    | 1400    | 1460    | 1521    | 1582    | 1643    | 1703    | 1764 |
| 505              | 1224                                                                                           | 1284    | 1344    | 1404    | 1464    | 1525    | 1585    | 1645    | 1705    | 1765 |
| 506              | 1230                                                                                           | 1290    | 1349    | 1409    | 1469    | 1528    | 1588    | 1647    | 1707    | 1767 |
| 507              | 1236                                                                                           | 1295    | 1354    | 1413    | 1472    | 1531    | 1590    | 1650    | 1709    | 1768 |
| 508              | 1241                                                                                           | 1300    | 1360    | 1419    | 1478    | 1537    | 1597    | 1656    | 1715    | 1774 |
| 509              | 1247                                                                                           | 1306    | 1366    | 1425    | 1485    | 1544    | 1604    | 1663    | 1723    | 1782 |
| 510              | 1252                                                                                           | 1312    | 1372    | 1431    | 1491    | 1551    | 1611    | 1671    | 1730    | 1790 |
| 511              | 1258                                                                                           | 1318    | 1378    | 1438    | 1498    | 1558    | 1618    | 1678    | 1738    | 1798 |
| 512              | 1263                                                                                           | 1323    | 1384    | 1444    | 1504    | 1565    | 1625    | 1685    | 1746    | 1806 |
| 513              | 1269                                                                                           | 1329    | 1390    | 1450    | 1511    | 1572    | 1632    | 1693    | 1753    | 1814 |
| 514              | 1274                                                                                           | 1335    | 1396    | 1457    | 1518    | 1578    | 1639    | 1700    | 1761    | 1822 |
| 515              | 1280                                                                                           | 1341    | 1402    | 1463    | 1524    | 1585    | 1646    | 1708    | 1769    | 1830 |
| 516              | 1285                                                                                           | 1347    | 1408    | 1469    | 1531    | 1592    | 1654    | 1715    | 1776    | 1838 |
| 517              | 1291                                                                                           | 1352    | 1414    | 1476    | 1537    | 1599    | 1661    | 1722    | 1784    | 1846 |
| 518              | 1296                                                                                           | 1358    | 1420    | 1482    | 1544    | 1606    | 1668    | 1730    | 1792    | 1854 |
| 519              | 1302                                                                                           | 1364    | 1426    | 1488    | 1550    | 1613    | 1675    | 1737    | 1799    | 1861 |
| 520              | 1307                                                                                           | 1370    | 1432    | 1495    | 1557    | 1620    | 1682    | 1744    | 1807    | 1869 |
| 521              | 1313                                                                                           | 1375    | 1438    | 1501    | 1564    | 1626    | 1689    | 1752    | 1815    | 1877 |
| 522              | 1318                                                                                           | 1381    | 1444    | 1507    | 1570    | 1633    | 1696    | 1759    | 1822    | 1885 |
| 523              | 1324                                                                                           | 1387    | 1450    | 1514    | 1577    | 1640    | 1703    | 1767    | 1830    | 1893 |
| 524              | 1329                                                                                           | 1393    | 1456    | 1520    | 1583    | 1647    | 1710    | 1774    | 1838    | 1901 |
| 525              | 1335                                                                                           | 1399    | 1462    | 1526    | 1590    | 1654    | 1718    | 1781    | 1845    | 1909 |
| 526              | 1340                                                                                           | 1404    | 1468    | 1532    | 1597    | 1661    | 1725    | 1789    | 1853    | 1917 |
| 527              | 1346                                                                                           | 1410    | 1474    | 1539    | 1603    | 1667    | 1732    | 1796    | 1860    | 1925 |
| 528              | 1351                                                                                           | 1416    | 1480    | 1545    | 1610    | 1674    | 1739    | 1804    | 1868    | 1933 |
| 529              | 1357                                                                                           | 1422    | 1487    | 1551    | 1616    | 1681    | 1746    | 1811    | 1876    | 1941 |
| 530              | 1362                                                                                           | 1427    | 1493    | 1558    | 1623    | 1688    | 1753    | 1818    | 1883    | 1949 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 2.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 3 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 531              | 1368                                                                                           | 1433    | 1499    | 1564    | 1629    | 1695    | 1760    | 1826    | 1891    | 1956 |
| 532              | 1373                                                                                           | 1439    | 1505    | 1570    | 1636    | 1702    | 1767    | 1833    | 1899    | 1964 |
| 533              | 1379                                                                                           | 1445    | 1511    | 1577    | 1643    | 1709    | 1774    | 1840    | 1906    | 1972 |
| 534              | 1384                                                                                           | 1451    | 1517    | 1583    | 1649    | 1715    | 1782    | 1848    | 1914    | 1980 |
| 535              | 1390                                                                                           | 1456    | 1523    | 1589    | 1656    | 1722    | 1789    | 1855    | 1922    | 1988 |
| 536              | 1395                                                                                           | 1462    | 1529    | 1596    | 1662    | 1729    | 1796    | 1863    | 1929    | 1996 |
| 537              | 1401                                                                                           | 1468    | 1535    | 1602    | 1669    | 1736    | 1803    | 1870    | 1937    | 2004 |
| 538              | 1406                                                                                           | 1474    | 1541    | 1608    | 1675    | 1743    | 1810    | 1877    | 1945    | 2012 |
| 539              | 1412                                                                                           | 1479    | 1547    | 1615    | 1682    | 1750    | 1817    | 1885    | 1952    | 2020 |
| 540              | 1417                                                                                           | 1485    | 1553    | 1621    | 1689    | 1756    | 1824    | 1892    | 1960    | 2028 |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 541              | 1423                                                                                           | 1491    | 1559    | 1627    | 1695    | 1763    | 1831    | 1900    | 1968    | 2036 |
| 542              | 1428                                                                                           | 1497    | 1565    | 1633    | 1702    | 1770    | 1839    | 1907    | 1975    | 2044 |
| 543              | 1434                                                                                           | 1503    | 1571    | 1640    | 1708    | 1777    | 1846    | 1914    | 1983    | 2052 |
| 544              | 1439                                                                                           | 1508    | 1577    | 1646    | 1715    | 1784    | 1853    | 1922    | 1991    | 2059 |
| 545              | 1445                                                                                           | 1514    | 1583    | 1652    | 1722    | 1791    | 1860    | 1929    | 1998    | 2067 |
| 546              | 1450                                                                                           | 1520    | 1589    | 1659    | 1728    | 1798    | 1867    | 1936    | 2006    | 2075 |
| 547              | 1456                                                                                           | 1526    | 1595    | 1665    | 1735    | 1804    | 1874    | 1944    | 2014    | 2083 |
| 548              | 1461                                                                                           | 1531    | 1601    | 1671    | 1741    | 1811    | 1881    | 1951    | 2021    | 2091 |
| 549              | 1467                                                                                           | 1537    | 1607    | 1678    | 1748    | 1818    | 1888    | 1959    | 2029    | 2099 |
| 550              | 1472                                                                                           | 1543    | 1613    | 1684    | 1754    | 1825    | 1895    | 1966    | 2036    | 2107 |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 551              | 1478                                                                                           | 1549    | 1619    | 1690    | 1761    | 1832    | 1903    | 1973    | 2044    | 2115 |
| 552              | 1483                                                                                           | 1554    | 1626    | 1697    | 1768    | 1839    | 1910    | 1981    | 2052    | 2123 |
| 553              | 1489                                                                                           | 1560    | 1632    | 1703    | 1774    | 1846    | 1917    | 1988    | 2059    | 2131 |
| 554              | 1494                                                                                           | 1566    | 1638    | 1709    | 1781    | 1852    | 1924    | 1996    | 2067    | 2139 |
| 555              | 1500                                                                                           | 1572    | 1644    | 1716    | 1787    | 1859    | 1931    | 2003    | 2075    | 2147 |
| 556              | 1505                                                                                           | 1578    | 1650    | 1722    | 1794    | 1866    | 1938    | 2010    | 2082    | 2154 |
| 557              | 1511                                                                                           | 1583    | 1655    | 1728    | 1800    | 1873    | 1945    | 2018    | 2090    | 2162 |
| 558              | 1515                                                                                           | 1588    | 1661    | 1733    | 1806    | 1879    | 1951    | 2024    | 2096    | 2169 |
| 559              | 1520                                                                                           | 1593    | 1666    | 1738    | 1811    | 1884    | 1957    | 2030    | 2103    | 2176 |
| 560              | 1525                                                                                           | 1598    | 1671    | 1744    | 1817    | 1890    | 1963    | 2036    | 2109    | 2182 |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 561              | 1529                                                                                           | 1602    | 1676    | 1749    | 1822    | 1895    | 1969    | 2042    | 2115    | 2188 |
| 562              | 1534                                                                                           | 1607    | 1681    | 1754    | 1828    | 1901    | 1974    | 2048    | 2121    | 2195 |
| 563              | 1538                                                                                           | 1612    | 1686    | 1759    | 1833    | 1907    | 1980    | 2054    | 2128    | 2201 |
| 564              | 1543                                                                                           | 1617    | 1691    | 1765    | 1838    | 1912    | 1986    | 2060    | 2134    | 2208 |
| 565              | 1548                                                                                           | 1622    | 1696    | 1770    | 1844    | 1918    | 1992    | 2066    | 2140    | 2214 |
| 566              | 1552                                                                                           | 1627    | 1701    | 1775    | 1849    | 1923    | 1998    | 2072    | 2146    | 2220 |
| 567              | 1557                                                                                           | 1631    | 1706    | 1780    | 1855    | 1929    | 2003    | 2078    | 2152    | 2227 |
| 568              | 1562                                                                                           | 1636    | 1711    | 1785    | 1860    | 1935    | 2009    | 2084    | 2159    | 2233 |
| 569              | 1566                                                                                           | 1641    | 1716    | 1791    | 1865    | 1940    | 2015    | 2090    | 2165    | 2240 |
| 570              | 1571                                                                                           | 1646    | 1721    | 1796    | 1871    | 1946    | 2021    | 2096    | 2171    | 2246 |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 571              | 1575                                                                                           | 1651    | 1726    | 1801    | 1876    | 1951    | 2027    | 2102    | 2177    | 2252 |
| 572              | 1580                                                                                           | 1655    | 1731    | 1806    | 1882    | 1957    | 2033    | 2108    | 2183    | 2259 |
| 573              | 1585                                                                                           | 1660    | 1736    | 1811    | 1887    | 1963    | 2038    | 2114    | 2190    | 2265 |
| 574              | 1589                                                                                           | 1665    | 1741    | 1817    | 1893    | 1968    | 2044    | 2120    | 2196    | 2272 |
| 575              | 1594                                                                                           | 1670    | 1746    | 1822    | 1898    | 1974    | 2050    | 2126    | 2202    | 2278 |
| 576              | 1599                                                                                           | 1675    | 1751    | 1827    | 1903    | 1980    | 2056    | 2132    | 2208    | 2284 |
| 577              | 1603                                                                                           | 1680    | 1756    | 1832    | 1909    | 1985    | 2062    | 2138    | 2214    | 2291 |
| 578              | 1608                                                                                           | 1684    | 1761    | 1838    | 1914    | 1991    | 2067    | 2144    | 2221    | 2297 |
| 579              | 1612                                                                                           | 1689    | 1766    | 1843    | 1920    | 1996    | 2073    | 2150    | 2227    | 2304 |
| 580              | 1617                                                                                           | 1694    | 1771    | 1848    | 1925    | 2002    | 2079    | 2156    | 2233    | 2310 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 3.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 4 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 405              | 0                                                                                              | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0    |
| 406              | 66                                                                                             | 67      | 68      | 69      | 71      | 72      | 73      | 75      | 76      | 77   |
| 407              | 131                                                                                            | 134     | 136     | 139     | 141     | 144     | 147     | 149     | 152     | 154  |
| 408              | 197                                                                                            | 201     | 204     | 208     | 212     | 216     | 220     | 224     | 228     | 231  |
| 409              | 262                                                                                            | 267     | 273     | 278     | 283     | 288     | 293     | 298     | 303     | 309  |
| 410              | 328                                                                                            | 334     | 341     | 347     | 354     | 360     | 366     | 373     | 379     | 386  |
| 411              | 393                                                                                            | 401     | 409     | 417     | 424     | 432     | 440     | 448     | 455     | 463  |
| 412              | 459                                                                                            | 468     | 477     | 486     | 495     | 504     | 513     | 522     | 531     | 540  |
| 413              | 485                                                                                            | 500     | 515     | 529     | 544     | 559     | 573     | 588     | 603     | 617  |
| 414              | 507                                                                                            | 523     | 539     | 554     | 570     | 586     | 602     | 617     | 633     | 649  |
| 415              | 529                                                                                            | 545     | 561     | 577     | 594     | 610     | 626     | 642     | 659     | 675  |
| 416              | 550                                                                                            | 567     | 584     | 600     | 617     | 634     | 651     | 668     | 685     | 701  |
| 417              | 571                                                                                            | 589     | 606     | 623     | 641     | 658     | 676     | 693     | 710     | 728  |
| 418              | 593                                                                                            | 611     | 629     | 647     | 665     | 683     | 700     | 718     | 736     | 754  |
| 419              | 616                                                                                            | 634     | 653     | 672     | 690     | 709     | 727     | 746     | 765     | 783  |
| 420              | 638                                                                                            | 658     | 677     | 696     | 716     | 735     | 754     | 774     | 793     | 812  |
| 421              | 661                                                                                            | 681     | 701     | 721     | 741     | 761     | 781     | 801     | 821     | 842  |
| 422              | 683                                                                                            | 704     | 725     | 746     | 767     | 787     | 808     | 829     | 850     | 871  |
| 423              | 706                                                                                            | 727     | 749     | 770     | 792     | 814     | 835     | 857     | 878     | 900  |
| 424              | 728                                                                                            | 750     | 773     | 795     | 817     | 840     | 862     | 885     | 907     | 929  |
| 425              | 751                                                                                            | 774     | 797     | 820     | 843     | 866     | 889     | 912     | 935     | 958  |
| 426              | 773                                                                                            | 797     | 821     | 845     | 868     | 892     | 916     | 940     | 964     | 988  |
| 427              | 796                                                                                            | 820     | 845     | 869     | 894     | 918     | 943     | 968     | 992     | 1017 |
| 428              | 818                                                                                            | 843     | 869     | 894     | 919     | 945     | 970     | 995     | 1021    | 1046 |
| 429              | 841                                                                                            | 867     | 893     | 919     | 945     | 971     | 997     | 1023    | 1049    | 1075 |
| 430              | 863                                                                                            | 890     | 917     | 943     | 970     | 997     | 1024    | 1051    | 1078    | 1104 |
| 431              | 885                                                                                            | 913     | 941     | 968     | 996     | 1023    | 1051    | 1078    | 1106    | 1134 |
| 432              | 908                                                                                            | 936     | 965     | 993     | 1021    | 1050    | 1078    | 1106    | 1134    | 1163 |
| 433              | 925                                                                                            | 955     | 985     | 1014    | 1044    | 1073    | 1103    | 1133    | 1162    | 1192 |
| 434              | 940                                                                                            | 971     | 1001    | 1031    | 1061    | 1091    | 1121    | 1151    | 1182    | 1212 |
| 435              | 956                                                                                            | 986     | 1017    | 1048    | 1078    | 1109    | 1140    | 1170    | 1201    | 1232 |
| 436              | 971                                                                                            | 1002    | 1033    | 1064    | 1095    | 1127    | 1158    | 1189    | 1220    | 1251 |
| 437              | 986                                                                                            | 1018    | 1049    | 1081    | 1113    | 1144    | 1176    | 1208    | 1239    | 1271 |
| 438              | 1001                                                                                           | 1033    | 1065    | 1098    | 1130    | 1162    | 1194    | 1226    | 1259    | 1291 |
| 439              | 1016                                                                                           | 1049    | 1082    | 1114    | 1147    | 1180    | 1212    | 1245    | 1278    | 1311 |
| 440              | 1031                                                                                           | 1065    | 1098    | 1131    | 1164    | 1197    | 1231    | 1264    | 1297    | 1330 |
| 441              | 1047                                                                                           | 1080    | 1114    | 1148    | 1181    | 1215    | 1249    | 1283    | 1316    | 1350 |
| 442              | 1062                                                                                           | 1096    | 1130    | 1164    | 1199    | 1233    | 1267    | 1301    | 1336    | 1370 |
| 443              | 1077                                                                                           | 1112    | 1146    | 1181    | 1216    | 1251    | 1285    | 1320    | 1355    | 1390 |
| 444              | 1092                                                                                           | 1127    | 1163    | 1198    | 1233    | 1268    | 1304    | 1339    | 1374    | 1409 |
| 445              | 1107                                                                                           | 1143    | 1179    | 1214    | 1250    | 1286    | 1322    | 1358    | 1393    | 1429 |
| 446              | 1122                                                                                           | 1159    | 1195    | 1231    | 1267    | 1304    | 1340    | 1376    | 1413    | 1449 |
| 447              | 1137                                                                                           | 1174    | 1211    | 1248    | 1285    | 1321    | 1358    | 1395    | 1432    | 1469 |
| 448              | 1153                                                                                           | 1190    | 1227    | 1265    | 1302    | 1339    | 1376    | 1414    | 1451    | 1488 |
| 449              | 1168                                                                                           | 1206    | 1243    | 1281    | 1319    | 1357    | 1395    | 1433    | 1470    | 1508 |
| 450              | 1183                                                                                           | 1221    | 1260    | 1298    | 1336    | 1375    | 1413    | 1451    | 1490    | 1528 |
| 451              | 1198                                                                                           | 1237    | 1276    | 1315    | 1353    | 1392    | 1431    | 1470    | 1509    | 1548 |
| 452              | 1213                                                                                           | 1253    | 1292    | 1331    | 1371    | 1410    | 1449    | 1489    | 1528    | 1567 |
| 453              | 1228                                                                                           | 1268    | 1308    | 1348    | 1388    | 1428    | 1468    | 1507    | 1547    | 1587 |
| 454              | 1244                                                                                           | 1284    | 1324    | 1365    | 1405    | 1445    | 1486    | 1526    | 1567    | 1607 |
| 455              | 1259                                                                                           | 1300    | 1340    | 1381    | 1422    | 1463    | 1504    | 1545    | 1586    | 1627 |
| 456              | 1274                                                                                           | 1315    | 1357    | 1398    | 1439    | 1481    | 1522    | 1564    | 1605    | 1646 |
| 457              | 1289                                                                                           | 1331    | 1373    | 1415    | 1457    | 1499    | 1540    | 1582    | 1624    | 1666 |
| 458              | 1305                                                                                           | 1347    | 1390    | 1432    | 1474    | 1517    | 1559    | 1601    | 1644    | 1686 |
| 459              | 1320                                                                                           | 1361    | 1403    | 1444    | 1485    | 1527    | 1568    | 1609    | 1651    | 1692 |
| 460              | 1335                                                                                           | 1375    | 1416    | 1456    | 1496    | 1537    | 1577    | 1617    | 1658    | 1698 |
| 461              | 1350                                                                                           | 1389    | 1428    | 1468    | 1507    | 1547    | 1586    | 1625    | 1665    | 1704 |
| 462              | 1365                                                                                           | 1403    | 1441    | 1480    | 1518    | 1557    | 1595    | 1633    | 1672    | 1710 |
| 463              | 1379                                                                                           | 1417    | 1454    | 1492    | 1529    | 1567    | 1604    | 1642    | 1679    | 1716 |
| 464              | 1394                                                                                           | 1431    | 1467    | 1504    | 1540    | 1577    | 1613    | 1650    | 1686    | 1722 |
| 465              | 1409                                                                                           | 1445    | 1480    | 1516    | 1551    | 1587    | 1622    | 1658    | 1693    | 1729 |
| 466              | 1424                                                                                           | 1459    | 1493    | 1528    | 1562    | 1597    | 1631    | 1666    | 1700    | 1735 |
| 467              | 1439                                                                                           | 1472    | 1506    | 1539    | 1573    | 1607    | 1640    | 1674    | 1707    | 1741 |
| 468              | 1454                                                                                           | 1486    | 1519    | 1551    | 1584    | 1617    | 1649    | 1682    | 1714    | 1747 |
| 469              | 1469                                                                                           | 1500    | 1532    | 1563    | 1595    | 1627    | 1658    | 1690    | 1721    | 1753 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 3.0 FT          |         |         |         |         |         |         |         |         |      |
|------------------|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT         | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 4 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs) |         |         |         |         |         |         |         |         |      |
| 470              | 1483            | 1514    | 1545    | 1575    | 1606    | 1637    | 1667    | 1698    | 1728    | 1759 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 3.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 4 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 471              | 1498                                                                                           | 1528    | 1558    | 1587    | 1617    | 1647    | 1676    | 1706    | 1735    | 1765 |
| 472              | 1513                                                                                           | 1542    | 1571    | 1599    | 1628    | 1657    | 1685    | 1714    | 1742    | 1771 |
| 473              | 1528                                                                                           | 1556    | 1583    | 1611    | 1639    | 1667    | 1694    | 1722    | 1750    | 1777 |
| 474              | 1543                                                                                           | 1570    | 1596    | 1623    | 1650    | 1677    | 1703    | 1730    | 1757    | 1783 |
| 475              | 1558                                                                                           | 1584    | 1609    | 1635    | 1661    | 1686    | 1712    | 1738    | 1764    | 1789 |
| 476              | 1573                                                                                           | 1597    | 1622    | 1647    | 1672    | 1696    | 1721    | 1746    | 1771    | 1795 |
| 477              | 1588                                                                                           | 1611    | 1635    | 1659    | 1683    | 1706    | 1730    | 1754    | 1778    | 1802 |
| 478              | 1602                                                                                           | 1625    | 1648    | 1671    | 1694    | 1716    | 1739    | 1762    | 1785    | 1808 |
| 479              | 1617                                                                                           | 1639    | 1661    | 1683    | 1705    | 1726    | 1748    | 1770    | 1792    | 1814 |
| 480              | 1632                                                                                           | 1653    | 1674    | 1695    | 1716    | 1736    | 1757    | 1778    | 1799    | 1820 |
| 481              | 1647                                                                                           | 1667    | 1687    | 1707    | 1727    | 1746    | 1766    | 1786    | 1806    | 1826 |
| 482              | 1662                                                                                           | 1681    | 1700    | 1719    | 1738    | 1756    | 1775    | 1794    | 1813    | 1832 |
| 483              | 1677                                                                                           | 1695    | 1713    | 1731    | 1748    | 1766    | 1784    | 1802    | 1820    | 1838 |
| 484              | 1692                                                                                           | 1709    | 1726    | 1743    | 1759    | 1776    | 1793    | 1810    | 1827    | 1844 |
| 485              | 1707                                                                                           | 1723    | 1739    | 1754    | 1770    | 1786    | 1802    | 1818    | 1834    | 1850 |
| 486              | 1721                                                                                           | 1736    | 1751    | 1766    | 1781    | 1796    | 1811    | 1826    | 1841    | 1856 |
| 487              | 1736                                                                                           | 1750    | 1764    | 1778    | 1792    | 1806    | 1820    | 1834    | 1848    | 1862 |
| 488              | 1751                                                                                           | 1764    | 1777    | 1790    | 1803    | 1816    | 1829    | 1842    | 1855    | 1868 |
| 489              | 1759                                                                                           | 1771    | 1784    | 1797    | 1810    | 1823    | 1836    | 1849    | 1862    | 1875 |
| 490              | 1760                                                                                           | 1774    | 1787    | 1800    | 1814    | 1827    | 1841    | 1854    | 1867    | 1881 |
| 491              | 1762                                                                                           | 1776    | 1790    | 1804    | 1817    | 1831    | 1845    | 1859    | 1873    | 1887 |
| 492              | 1764                                                                                           | 1778    | 1792    | 1807    | 1821    | 1835    | 1850    | 1864    | 1878    | 1893 |
| 493              | 1765                                                                                           | 1780    | 1795    | 1810    | 1825    | 1840    | 1854    | 1869    | 1884    | 1899 |
| 494              | 1768                                                                                           | 1783    | 1799    | 1815    | 1831    | 1846    | 1862    | 1878    | 1894    | 1909 |
| 495              | 1772                                                                                           | 1791    | 1810    | 1829    | 1848    | 1867    | 1886    | 1905    | 1924    | 1943 |
| 496              | 1777                                                                                           | 1799    | 1821    | 1844    | 1866    | 1888    | 1911    | 1933    | 1955    | 1978 |
| 497              | 1781                                                                                           | 1807    | 1832    | 1858    | 1884    | 1909    | 1935    | 1960    | 1986    | 2012 |
| 498              | 1786                                                                                           | 1815    | 1843    | 1872    | 1901    | 1930    | 1959    | 1988    | 2017    | 2046 |
| 499              | 1790                                                                                           | 1822    | 1854    | 1887    | 1919    | 1951    | 1983    | 2015    | 2047    | 2080 |
| 500              | 1795                                                                                           | 1830    | 1866    | 1901    | 1936    | 1972    | 2007    | 2043    | 2078    | 2114 |
| 501              | 1799                                                                                           | 1838    | 1877    | 1915    | 1954    | 1993    | 2032    | 2070    | 2109    | 2148 |
| 502              | 1804                                                                                           | 1846    | 1888    | 1930    | 1972    | 2014    | 2056    | 2098    | 2140    | 2182 |
| 503              | 1808                                                                                           | 1853    | 1899    | 1944    | 1989    | 2035    | 2080    | 2125    | 2171    | 2216 |
| 504              | 1813                                                                                           | 1861    | 1910    | 1958    | 2007    | 2056    | 2104    | 2153    | 2201    | 2250 |
| 505              | 1817                                                                                           | 1869    | 1921    | 1973    | 2025    | 2076    | 2128    | 2180    | 2232    | 2284 |
| 506              | 1822                                                                                           | 1877    | 1932    | 1987    | 2042    | 2097    | 2153    | 2208    | 2263    | 2318 |
| 507              | 1826                                                                                           | 1885    | 1943    | 2001    | 2060    | 2118    | 2177    | 2235    | 2294    | 2352 |
| 508              | 1836                                                                                           | 1897    | 1958    | 2019    | 2080    | 2141    | 2203    | 2264    | 2325    | 2386 |
| 509              | 1844                                                                                           | 1905    | 1967    | 2028    | 2089    | 2151    | 2212    | 2274    | 2335    | 2397 |
| 510              | 1852                                                                                           | 1914    | 1975    | 2037    | 2099    | 2160    | 2222    | 2284    | 2346    | 2407 |
| 511              | 1860                                                                                           | 1922    | 1984    | 2046    | 2108    | 2170    | 2232    | 2294    | 2356    | 2418 |
| 512              | 1868                                                                                           | 1931    | 1993    | 2055    | 2117    | 2180    | 2242    | 2304    | 2366    | 2429 |
| 513              | 1876                                                                                           | 1939    | 2002    | 2064    | 2127    | 2189    | 2252    | 2314    | 2377    | 2439 |
| 514              | 1885                                                                                           | 1948    | 2010    | 2073    | 2136    | 2199    | 2262    | 2324    | 2387    | 2450 |
| 515              | 1893                                                                                           | 1956    | 2019    | 2082    | 2145    | 2208    | 2271    | 2335    | 2398    | 2461 |
| 516              | 1901                                                                                           | 1964    | 2028    | 2091    | 2155    | 2218    | 2281    | 2345    | 2408    | 2471 |
| 517              | 1909                                                                                           | 1973    | 2037    | 2100    | 2164    | 2228    | 2291    | 2355    | 2418    | 2482 |
| 518              | 1917                                                                                           | 1981    | 2045    | 2109    | 2173    | 2237    | 2301    | 2365    | 2429    | 2493 |
| 519              | 1926                                                                                           | 1990    | 2054    | 2118    | 2182    | 2247    | 2311    | 2375    | 2439    | 2503 |
| 520              | 1934                                                                                           | 1998    | 2063    | 2127    | 2192    | 2256    | 2321    | 2385    | 2450    | 2514 |
| 521              | 1942                                                                                           | 2007    | 2072    | 2136    | 2201    | 2266    | 2331    | 2395    | 2460    | 2525 |
| 522              | 1950                                                                                           | 2015    | 2080    | 2145    | 2210    | 2275    | 2340    | 2405    | 2470    | 2536 |
| 523              | 1958                                                                                           | 2024    | 2089    | 2154    | 2220    | 2285    | 2350    | 2416    | 2481    | 2546 |
| 524              | 1967                                                                                           | 2032    | 2098    | 2163    | 2229    | 2295    | 2360    | 2426    | 2491    | 2557 |
| 525              | 1975                                                                                           | 2041    | 2107    | 2172    | 2238    | 2304    | 2370    | 2436    | 2502    | 2568 |
| 526              | 1983                                                                                           | 2049    | 2115    | 2181    | 2248    | 2314    | 2380    | 2446    | 2512    | 2578 |
| 527              | 1991                                                                                           | 2058    | 2124    | 2190    | 2257    | 2323    | 2390    | 2456    | 2523    | 2589 |
| 528              | 1999                                                                                           | 2066    | 2133    | 2199    | 2266    | 2333    | 2400    | 2466    | 2533    | 2600 |
| 529              | 2008                                                                                           | 2075    | 2142    | 2209    | 2275    | 2342    | 2409    | 2476    | 2543    | 2610 |
| 530              | 2016                                                                                           | 2083    | 2150    | 2218    | 2285    | 2352    | 2419    | 2486    | 2554    | 2621 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 3.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 4 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 531              | 2024                                                                                           | 2092    | 2159    | 2227    | 2294    | 2362    | 2429    | 2497    | 2564    | 2632 |
| 532              | 2032                                                                                           | 2100    | 2168    | 2236    | 2303    | 2371    | 2439    | 2507    | 2575    | 2642 |
| 533              | 2040                                                                                           | 2108    | 2177    | 2245    | 2313    | 2381    | 2449    | 2517    | 2585    | 2653 |
| 534              | 2049                                                                                           | 2117    | 2185    | 2254    | 2322    | 2390    | 2459    | 2527    | 2595    | 2664 |
| 535              | 2057                                                                                           | 2125    | 2194    | 2263    | 2331    | 2400    | 2469    | 2537    | 2606    | 2674 |
| 536              | 2065                                                                                           | 2134    | 2203    | 2272    | 2341    | 2409    | 2478    | 2547    | 2616    | 2685 |
| 537              | 2073                                                                                           | 2142    | 2212    | 2281    | 2350    | 2419    | 2488    | 2557    | 2627    | 2696 |
| 538              | 2081                                                                                           | 2151    | 2220    | 2290    | 2359    | 2429    | 2498    | 2568    | 2637    | 2706 |
| 539              | 2090                                                                                           | 2159    | 2229    | 2299    | 2368    | 2438    | 2508    | 2578    | 2647    | 2717 |
| 540              | 2098                                                                                           | 2168    | 2238    | 2308    | 2378    | 2448    | 2518    | 2588    | 2658    | 2728 |
| 541              | 2106                                                                                           | 2176    | 2247    | 2317    | 2387    | 2457    | 2528    | 2598    | 2668    | 2738 |
| 542              | 2114                                                                                           | 2185    | 2255    | 2326    | 2396    | 2467    | 2537    | 2608    | 2679    | 2749 |
| 543              | 2122                                                                                           | 2193    | 2264    | 2335    | 2406    | 2476    | 2547    | 2618    | 2689    | 2760 |
| 544              | 2131                                                                                           | 2202    | 2273    | 2344    | 2415    | 2486    | 2557    | 2628    | 2699    | 2770 |
| 545              | 2139                                                                                           | 2210    | 2282    | 2353    | 2424    | 2496    | 2567    | 2638    | 2710    | 2781 |
| 546              | 2147                                                                                           | 2219    | 2290    | 2362    | 2434    | 2505    | 2577    | 2649    | 2720    | 2792 |
| 547              | 2155                                                                                           | 2227    | 2299    | 2371    | 2443    | 2515    | 2587    | 2659    | 2731    | 2803 |
| 548              | 2163                                                                                           | 2236    | 2308    | 2380    | 2452    | 2524    | 2597    | 2669    | 2741    | 2813 |
| 549              | 2172                                                                                           | 2244    | 2317    | 2389    | 2461    | 2534    | 2606    | 2679    | 2751    | 2824 |
| 550              | 2180                                                                                           | 2252    | 2325    | 2398    | 2471    | 2544    | 2616    | 2689    | 2762    | 2835 |
| 551              | 2188                                                                                           | 2261    | 2334    | 2407    | 2480    | 2553    | 2626    | 2699    | 2772    | 2845 |
| 552              | 2196                                                                                           | 2269    | 2343    | 2416    | 2489    | 2563    | 2636    | 2709    | 2783    | 2856 |
| 553              | 2204                                                                                           | 2278    | 2351    | 2425    | 2499    | 2572    | 2646    | 2719    | 2793    | 2867 |
| 554              | 2213                                                                                           | 2286    | 2360    | 2434    | 2508    | 2582    | 2656    | 2730    | 2803    | 2877 |
| 555              | 2221                                                                                           | 2295    | 2369    | 2443    | 2517    | 2591    | 2666    | 2740    | 2814    | 2888 |
| 556              | 2229                                                                                           | 2303    | 2378    | 2452    | 2527    | 2601    | 2675    | 2750    | 2824    | 2899 |
| 557              | 2237                                                                                           | 2312    | 2386    | 2461    | 2536    | 2611    | 2685    | 2760    | 2835    | 2909 |
| 558              | 2244                                                                                           | 2319    | 2394    | 2469    | 2545    | 2620    | 2695    | 2770    | 2845    | 2920 |
| 559              | 2251                                                                                           | 2326    | 2401    | 2477    | 2552    | 2627    | 2702    | 2778    | 2853    | 2928 |
| 560              | 2257                                                                                           | 2333    | 2408    | 2484    | 2559    | 2635    | 2710    | 2785    | 2861    | 2936 |
| 561              | 2264                                                                                           | 2340    | 2415    | 2491    | 2566    | 2642    | 2718    | 2793    | 2869    | 2945 |
| 562              | 2271                                                                                           | 2346    | 2422    | 2498    | 2574    | 2650    | 2725    | 2801    | 2877    | 2953 |
| 563              | 2277                                                                                           | 2353    | 2429    | 2505    | 2581    | 2657    | 2733    | 2809    | 2885    | 2961 |
| 564              | 2284                                                                                           | 2360    | 2436    | 2512    | 2588    | 2664    | 2741    | 2817    | 2893    | 2969 |
| 565              | 2290                                                                                           | 2367    | 2443    | 2519    | 2596    | 2672    | 2748    | 2825    | 2901    | 2977 |
| 566              | 2297                                                                                           | 2373    | 2450    | 2526    | 2603    | 2679    | 2756    | 2832    | 2909    | 2985 |
| 567              | 2303                                                                                           | 2380    | 2457    | 2534    | 2610    | 2687    | 2764    | 2840    | 2917    | 2994 |
| 568              | 2310                                                                                           | 2387    | 2464    | 2541    | 2617    | 2694    | 2771    | 2848    | 2925    | 3002 |
| 569              | 2317                                                                                           | 2394    | 2471    | 2548    | 2625    | 2702    | 2779    | 2856    | 2933    | 3010 |
| 570              | 2323                                                                                           | 2400    | 2478    | 2555    | 2632    | 2709    | 2787    | 2864    | 2941    | 3018 |
| 571              | 2330                                                                                           | 2407    | 2485    | 2562    | 2639    | 2717    | 2794    | 2872    | 2949    | 3026 |
| 572              | 2336                                                                                           | 2414    | 2492    | 2569    | 2647    | 2724    | 2802    | 2879    | 2957    | 3035 |
| 573              | 2343                                                                                           | 2421    | 2498    | 2576    | 2654    | 2732    | 2809    | 2887    | 2965    | 3043 |
| 574              | 2350                                                                                           | 2427    | 2505    | 2583    | 2661    | 2739    | 2817    | 2895    | 2973    | 3051 |
| 575              | 2356                                                                                           | 2434    | 2512    | 2590    | 2669    | 2747    | 2825    | 2903    | 2981    | 3059 |
| 576              | 2363                                                                                           | 2441    | 2519    | 2598    | 2676    | 2754    | 2832    | 2911    | 2989    | 3067 |
| 577              | 2369                                                                                           | 2448    | 2526    | 2605    | 2683    | 2762    | 2840    | 2919    | 2997    | 3075 |
| 578              | 2376                                                                                           | 2454    | 2533    | 2612    | 2690    | 2769    | 2848    | 2926    | 3005    | 3084 |
| 579              | 2382                                                                                           | 2461    | 2540    | 2619    | 2698    | 2777    | 2855    | 2934    | 3013    | 3092 |
| 580              | 2389                                                                                           | 2468    | 2547    | 2626    | 2705    | 2784    | 2863    | 2942    | 3021    | 3100 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 4.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 5 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 405              | 0                                                                                              | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0    |
| 406              | 78                                                                                             | 79      | 80      | 80      | 81      | 82      | 83      | 83      | 84      | 85   |
| 407              | 156                                                                                            | 157     | 159     | 161     | 162     | 164     | 165     | 167     | 169     | 170  |
| 408              | 234                                                                                            | 236     | 239     | 241     | 243     | 246     | 248     | 250     | 253     | 255  |
| 409              | 312                                                                                            | 315     | 318     | 321     | 324     | 328     | 331     | 334     | 337     | 340  |
| 410              | 390                                                                                            | 394     | 398     | 402     | 406     | 409     | 413     | 417     | 421     | 425  |
| 411              | 468                                                                                            | 472     | 477     | 482     | 487     | 491     | 496     | 501     | 506     | 510  |
| 412              | 546                                                                                            | 551     | 557     | 562     | 568     | 573     | 579     | 584     | 590     | 595  |
| 413              | 624                                                                                            | 630     | 636     | 643     | 649     | 655     | 662     | 668     | 674     | 680  |
| 414              | 659                                                                                            | 669     | 680     | 690     | 701     | 711     | 721     | 732     | 742     | 752  |
| 415              | 687                                                                                            | 699     | 711     | 722     | 734     | 746     | 758     | 770     | 782     | 794  |
| 416              | 715                                                                                            | 728     | 741     | 755     | 768     | 781     | 795     | 808     | 821     | 835  |
| 417              | 743                                                                                            | 757     | 772     | 787     | 802     | 817     | 831     | 846     | 861     | 876  |
| 418              | 770                                                                                            | 787     | 803     | 819     | 836     | 852     | 868     | 885     | 901     | 917  |
| 419              | 801                                                                                            | 818     | 835     | 853     | 870     | 887     | 905     | 922     | 940     | 957  |
| 420              | 831                                                                                            | 849     | 867     | 885     | 903     | 921     | 939     | 957     | 975     | 993  |
| 421              | 860                                                                                            | 879     | 898     | 917     | 936     | 955     | 973     | 992     | 1011    | 1030 |
| 422              | 890                                                                                            | 910     | 930     | 949     | 969     | 988     | 1008    | 1027    | 1047    | 1067 |
| 423              | 920                                                                                            | 941     | 961     | 981     | 1002    | 1022    | 1042    | 1062    | 1083    | 1103 |
| 424              | 950                                                                                            | 971     | 992     | 1013    | 1034    | 1055    | 1076    | 1098    | 1119    | 1140 |
| 425              | 980                                                                                            | 1002    | 1024    | 1046    | 1067    | 1089    | 1111    | 1133    | 1154    | 1176 |
| 426              | 1010                                                                                           | 1033    | 1055    | 1078    | 1100    | 1123    | 1145    | 1168    | 1190    | 1213 |
| 427              | 1040                                                                                           | 1063    | 1087    | 1110    | 1133    | 1156    | 1179    | 1203    | 1226    | 1249 |
| 428              | 1070                                                                                           | 1094    | 1118    | 1142    | 1166    | 1190    | 1214    | 1238    | 1262    | 1286 |
| 429              | 1100                                                                                           | 1125    | 1149    | 1174    | 1199    | 1223    | 1248    | 1273    | 1298    | 1322 |
| 430              | 1130                                                                                           | 1155    | 1181    | 1206    | 1232    | 1257    | 1282    | 1308    | 1333    | 1359 |
| 431              | 1160                                                                                           | 1186    | 1212    | 1238    | 1264    | 1291    | 1317    | 1343    | 1369    | 1395 |
| 432              | 1190                                                                                           | 1217    | 1244    | 1270    | 1297    | 1324    | 1351    | 1378    | 1405    | 1432 |
| 433              | 1220                                                                                           | 1247    | 1275    | 1303    | 1330    | 1358    | 1385    | 1413    | 1441    | 1468 |
| 434              | 1241                                                                                           | 1270    | 1299    | 1328    | 1357    | 1386    | 1415    | 1444    | 1472    | 1501 |
| 435              | 1261                                                                                           | 1290    | 1320    | 1349    | 1379    | 1408    | 1438    | 1467    | 1497    | 1526 |
| 436              | 1281                                                                                           | 1311    | 1341    | 1371    | 1401    | 1431    | 1461    | 1491    | 1521    | 1551 |
| 437              | 1302                                                                                           | 1332    | 1362    | 1393    | 1423    | 1454    | 1484    | 1515    | 1545    | 1576 |
| 438              | 1322                                                                                           | 1353    | 1384    | 1415    | 1446    | 1477    | 1508    | 1539    | 1570    | 1601 |
| 439              | 1342                                                                                           | 1374    | 1405    | 1437    | 1468    | 1499    | 1531    | 1562    | 1594    | 1625 |
| 440              | 1362                                                                                           | 1394    | 1426    | 1458    | 1490    | 1522    | 1554    | 1586    | 1618    | 1650 |
| 441              | 1383                                                                                           | 1415    | 1448    | 1480    | 1513    | 1545    | 1578    | 1610    | 1643    | 1675 |
| 442              | 1403                                                                                           | 1436    | 1469    | 1502    | 1535    | 1568    | 1601    | 1634    | 1667    | 1700 |
| 443              | 1423                                                                                           | 1457    | 1490    | 1524    | 1557    | 1591    | 1624    | 1658    | 1691    | 1725 |
| 444              | 1443                                                                                           | 1477    | 1511    | 1545    | 1579    | 1613    | 1647    | 1681    | 1715    | 1749 |
| 445              | 1464                                                                                           | 1498    | 1533    | 1567    | 1602    | 1636    | 1671    | 1705    | 1740    | 1774 |
| 446              | 1484                                                                                           | 1519    | 1554    | 1589    | 1624    | 1659    | 1694    | 1729    | 1764    | 1799 |
| 447              | 1504                                                                                           | 1540    | 1575    | 1611    | 1646    | 1682    | 1717    | 1753    | 1788    | 1824 |
| 448              | 1524                                                                                           | 1560    | 1596    | 1632    | 1669    | 1705    | 1741    | 1777    | 1813    | 1849 |
| 449              | 1545                                                                                           | 1581    | 1618    | 1654    | 1691    | 1727    | 1764    | 1800    | 1837    | 1873 |
| 450              | 1565                                                                                           | 1602    | 1639    | 1676    | 1713    | 1750    | 1787    | 1824    | 1861    | 1898 |
| 451              | 1585                                                                                           | 1623    | 1660    | 1698    | 1735    | 1773    | 1810    | 1848    | 1886    | 1923 |
| 452              | 1605                                                                                           | 1644    | 1682    | 1720    | 1758    | 1796    | 1834    | 1872    | 1910    | 1948 |
| 453              | 1626                                                                                           | 1664    | 1703    | 1741    | 1780    | 1818    | 1857    | 1896    | 1934    | 1973 |
| 454              | 1646                                                                                           | 1685    | 1724    | 1763    | 1802    | 1841    | 1880    | 1919    | 1958    | 1997 |
| 455              | 1666                                                                                           | 1706    | 1745    | 1785    | 1824    | 1864    | 1904    | 1943    | 1983    | 2022 |
| 456              | 1687                                                                                           | 1727    | 1767    | 1807    | 1847    | 1887    | 1927    | 1967    | 2007    | 2047 |
| 457              | 1707                                                                                           | 1747    | 1788    | 1828    | 1869    | 1910    | 1950    | 1991    | 2031    | 2072 |
| 458              | 1727                                                                                           | 1768    | 1809    | 1850    | 1891    | 1932    | 1973    | 2015    | 2056    | 2097 |
| 459              | 1735                                                                                           | 1778    | 1820    | 1863    | 1906    | 1948    | 1991    | 2034    | 2077    | 2119 |
| 460              | 1742                                                                                           | 1786    | 1830    | 1874    | 1917    | 1961    | 2005    | 2049    | 2093    | 2137 |
| 461              | 1749                                                                                           | 1794    | 1839    | 1884    | 1929    | 1974    | 2019    | 2064    | 2109    | 2154 |
| 462              | 1756                                                                                           | 1803    | 1849    | 1895    | 1941    | 1987    | 2033    | 2080    | 2126    | 2172 |
| 463              | 1764                                                                                           | 1811    | 1858    | 1906    | 1953    | 2000    | 2047    | 2095    | 2142    | 2189 |
| 464              | 1771                                                                                           | 1819    | 1868    | 1916    | 1965    | 2013    | 2062    | 2110    | 2158    | 2207 |
| 465              | 1778                                                                                           | 1828    | 1877    | 1927    | 1976    | 2026    | 2076    | 2125    | 2175    | 2224 |
| 466              | 1785                                                                                           | 1836    | 1887    | 1938    | 1988    | 2039    | 2090    | 2140    | 2191    | 2242 |
| 467              | 1793                                                                                           | 1844    | 1896    | 1948    | 2000    | 2052    | 2104    | 2156    | 2208    | 2259 |
| 468              | 1800                                                                                           | 1853    | 1906    | 1959    | 2012    | 2065    | 2118    | 2171    | 2224    | 2277 |
| 469              | 1807                                                                                           | 1861    | 1915    | 1970    | 2024    | 2078    | 2132    | 2186    | 2240    | 2294 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
 OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 4.0 FT          |         |         |         |         |         |         |         |         |      |
|------------------|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT         | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 5 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs) |         |         |         |         |         |         |         |         |      |
| 470              | 1814            | 1870    | 1925    | 1980    | 2035    | 2091    | 2146    | 2201    | 2257    | 2312 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 4.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 5 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 471              | 1822                                                                                           | 1878    | 1934    | 1991    | 2047    | 2104    | 2160    | 2217    | 2273    | 2329 |
| 472              | 1829                                                                                           | 1886    | 1944    | 2002    | 2059    | 2117    | 2174    | 2232    | 2289    | 2347 |
| 473              | 1836                                                                                           | 1895    | 1953    | 2012    | 2071    | 2130    | 2188    | 2247    | 2306    | 2365 |
| 474              | 1843                                                                                           | 1903    | 1963    | 2023    | 2083    | 2143    | 2202    | 2262    | 2322    | 2382 |
| 475              | 1850                                                                                           | 1911    | 1972    | 2033    | 2094    | 2156    | 2217    | 2278    | 2339    | 2400 |
| 476              | 1858                                                                                           | 1920    | 1982    | 2044    | 2106    | 2168    | 2231    | 2293    | 2355    | 2417 |
| 477              | 1865                                                                                           | 1928    | 1991    | 2055    | 2118    | 2181    | 2245    | 2308    | 2371    | 2435 |
| 478              | 1872                                                                                           | 1937    | 2001    | 2065    | 2130    | 2194    | 2259    | 2323    | 2388    | 2452 |
| 479              | 1879                                                                                           | 1945    | 2011    | 2076    | 2142    | 2207    | 2273    | 2338    | 2404    | 2470 |
| 480              | 1887                                                                                           | 1953    | 2020    | 2087    | 2153    | 2220    | 2287    | 2354    | 2420    | 2487 |
| 481              | 1894                                                                                           | 1962    | 2030    | 2097    | 2165    | 2233    | 2301    | 2369    | 2437    | 2505 |
| 482              | 1901                                                                                           | 1970    | 2039    | 2108    | 2177    | 2246    | 2315    | 2384    | 2453    | 2522 |
| 483              | 1908                                                                                           | 1978    | 2049    | 2119    | 2189    | 2259    | 2329    | 2399    | 2470    | 2540 |
| 484              | 1915                                                                                           | 1987    | 2058    | 2129    | 2201    | 2272    | 2343    | 2415    | 2486    | 2557 |
| 485              | 1923                                                                                           | 1995    | 2068    | 2140    | 2213    | 2285    | 2357    | 2430    | 2502    | 2575 |
| 486              | 1930                                                                                           | 2004    | 2077    | 2151    | 2224    | 2298    | 2372    | 2445    | 2519    | 2592 |
| 487              | 1937                                                                                           | 2012    | 2087    | 2161    | 2236    | 2311    | 2386    | 2460    | 2535    | 2610 |
| 488              | 1944                                                                                           | 2020    | 2096    | 2172    | 2248    | 2324    | 2400    | 2476    | 2551    | 2627 |
| 489              | 1952                                                                                           | 2029    | 2106    | 2183    | 2260    | 2337    | 2414    | 2491    | 2568    | 2645 |
| 490              | 1959                                                                                           | 2037    | 2115    | 2193    | 2272    | 2350    | 2428    | 2506    | 2584    | 2662 |
| 491              | 1966                                                                                           | 2045    | 2125    | 2204    | 2283    | 2363    | 2442    | 2521    | 2601    | 2680 |
| 492              | 1973                                                                                           | 2054    | 2134    | 2215    | 2295    | 2376    | 2456    | 2536    | 2617    | 2697 |
| 493              | 1980                                                                                           | 2062    | 2144    | 2225    | 2307    | 2389    | 2470    | 2552    | 2633    | 2715 |
| 494              | 1992                                                                                           | 2074    | 2156    | 2239    | 2321    | 2403    | 2486    | 2568    | 2650    | 2732 |
| 495              | 2024                                                                                           | 2105    | 2185    | 2266    | 2347    | 2427    | 2508    | 2589    | 2669    | 2750 |
| 496              | 2057                                                                                           | 2136    | 2215    | 2294    | 2373    | 2452    | 2531    | 2610    | 2688    | 2767 |
| 497              | 2089                                                                                           | 2166    | 2244    | 2321    | 2398    | 2476    | 2553    | 2630    | 2708    | 2785 |
| 498              | 2121                                                                                           | 2197    | 2273    | 2348    | 2424    | 2500    | 2575    | 2651    | 2727    | 2803 |
| 499              | 2154                                                                                           | 2228    | 2302    | 2376    | 2450    | 2524    | 2598    | 2672    | 2746    | 2820 |
| 500              | 2186                                                                                           | 2258    | 2331    | 2403    | 2476    | 2548    | 2620    | 2693    | 2765    | 2838 |
| 501              | 2218                                                                                           | 2289    | 2360    | 2431    | 2501    | 2572    | 2643    | 2714    | 2784    | 2855 |
| 502              | 2251                                                                                           | 2320    | 2389    | 2458    | 2527    | 2596    | 2665    | 2734    | 2804    | 2873 |
| 503              | 2283                                                                                           | 2351    | 2418    | 2486    | 2553    | 2620    | 2688    | 2755    | 2823    | 2890 |
| 504              | 2316                                                                                           | 2381    | 2447    | 2513    | 2579    | 2645    | 2710    | 2776    | 2842    | 2908 |
| 505              | 2348                                                                                           | 2412    | 2476    | 2540    | 2605    | 2669    | 2733    | 2797    | 2861    | 2925 |
| 506              | 2380                                                                                           | 2443    | 2505    | 2568    | 2630    | 2693    | 2755    | 2818    | 2880    | 2943 |
| 507              | 2413                                                                                           | 2474    | 2534    | 2595    | 2656    | 2717    | 2778    | 2839    | 2899    | 2960 |
| 508              | 2445                                                                                           | 2504    | 2564    | 2623    | 2682    | 2741    | 2800    | 2859    | 2919    | 2978 |
| 509              | 2456                                                                                           | 2516    | 2576    | 2636    | 2695    | 2755    | 2815    | 2875    | 2934    | 2994 |
| 510              | 2467                                                                                           | 2527    | 2587    | 2647    | 2707    | 2767    | 2827    | 2887    | 2947    | 3007 |
| 511              | 2478                                                                                           | 2539    | 2599    | 2659    | 2719    | 2780    | 2840    | 2900    | 2961    | 3021 |
| 512              | 2489                                                                                           | 2550    | 2610    | 2671    | 2732    | 2792    | 2853    | 2913    | 2974    | 3034 |
| 513              | 2500                                                                                           | 2561    | 2622    | 2683    | 2744    | 2804    | 2865    | 2926    | 2987    | 3048 |
| 514              | 2511                                                                                           | 2572    | 2633    | 2695    | 2756    | 2817    | 2878    | 2939    | 3000    | 3061 |
| 515              | 2522                                                                                           | 2584    | 2645    | 2706    | 2768    | 2829    | 2890    | 2952    | 3013    | 3075 |
| 516              | 2533                                                                                           | 2595    | 2656    | 2718    | 2780    | 2841    | 2903    | 2965    | 3026    | 3088 |
| 517              | 2544                                                                                           | 2606    | 2668    | 2730    | 2792    | 2854    | 2916    | 2978    | 3040    | 3102 |
| 518              | 2555                                                                                           | 2617    | 2679    | 2742    | 2804    | 2866    | 2928    | 2991    | 3053    | 3115 |
| 519              | 2566                                                                                           | 2628    | 2691    | 2753    | 2816    | 2878    | 2941    | 3003    | 3066    | 3128 |
| 520              | 2577                                                                                           | 2640    | 2702    | 2765    | 2828    | 2891    | 2954    | 3016    | 3079    | 3142 |
| 521              | 2588                                                                                           | 2651    | 2714    | 2777    | 2840    | 2903    | 2966    | 3029    | 3092    | 3155 |
| 522              | 2599                                                                                           | 2662    | 2725    | 2789    | 2852    | 2915    | 2979    | 3042    | 3105    | 3169 |
| 523              | 2610                                                                                           | 2673    | 2737    | 2801    | 2864    | 2928    | 2991    | 3055    | 3119    | 3182 |
| 524              | 2621                                                                                           | 2685    | 2749    | 2812    | 2876    | 2940    | 3004    | 3068    | 3132    | 3196 |
| 525              | 2632                                                                                           | 2696    | 2760    | 2824    | 2888    | 2952    | 3017    | 3081    | 3145    | 3209 |
| 526              | 2643                                                                                           | 2707    | 2772    | 2836    | 2900    | 2965    | 3029    | 3094    | 3158    | 3223 |
| 527              | 2654                                                                                           | 2718    | 2783    | 2848    | 2912    | 2977    | 3042    | 3107    | 3171    | 3236 |
| 528              | 2665                                                                                           | 2730    | 2795    | 2860    | 2924    | 2989    | 3054    | 3119    | 3184    | 3249 |
| 529              | 2676                                                                                           | 2741    | 2806    | 2871    | 2937    | 3002    | 3067    | 3132    | 3198    | 3263 |
| 530              | 2686                                                                                           | 2752    | 2818    | 2883    | 2949    | 3014    | 3080    | 3145    | 3211    | 3276 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 4.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 5 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 531              | 2697                                                                                           | 2763    | 2829    | 2895    | 2961    | 3026    | 3092    | 3158    | 3224    | 3290 |
| 532              | 2708                                                                                           | 2774    | 2841    | 2907    | 2973    | 3039    | 3105    | 3171    | 3237    | 3303 |
| 533              | 2719                                                                                           | 2786    | 2852    | 2918    | 2985    | 3051    | 3118    | 3184    | 3250    | 3317 |
| 534              | 2730                                                                                           | 2797    | 2864    | 2930    | 2997    | 3063    | 3130    | 3197    | 3263    | 3330 |
| 535              | 2741                                                                                           | 2808    | 2875    | 2942    | 3009    | 3076    | 3143    | 3210    | 3277    | 3343 |
| 536              | 2752                                                                                           | 2819    | 2887    | 2954    | 3021    | 3088    | 3155    | 3223    | 3290    | 3357 |
| 537              | 2763                                                                                           | 2831    | 2898    | 2966    | 3033    | 3100    | 3168    | 3235    | 3303    | 3370 |
| 538              | 2774                                                                                           | 2842    | 2910    | 2977    | 3045    | 3113    | 3181    | 3248    | 3316    | 3384 |
| 539              | 2785                                                                                           | 2853    | 2921    | 2989    | 3057    | 3125    | 3193    | 3261    | 3329    | 3397 |
| 540              | 2796                                                                                           | 2864    | 2933    | 3001    | 3069    | 3138    | 3206    | 3274    | 3342    | 3411 |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 541              | 2807                                                                                           | 2876    | 2944    | 3013    | 3081    | 3150    | 3218    | 3287    | 3356    | 3424 |
| 542              | 2818                                                                                           | 2887    | 2956    | 3024    | 3093    | 3162    | 3231    | 3300    | 3369    | 3438 |
| 543              | 2829                                                                                           | 2898    | 2967    | 3036    | 3105    | 3175    | 3244    | 3313    | 3382    | 3451 |
| 544              | 2840                                                                                           | 2909    | 2979    | 3048    | 3117    | 3187    | 3256    | 3326    | 3395    | 3464 |
| 545              | 2851                                                                                           | 2921    | 2990    | 3060    | 3130    | 3199    | 3269    | 3339    | 3408    | 3478 |
| 546              | 2862                                                                                           | 2932    | 3002    | 3072    | 3142    | 3212    | 3281    | 3351    | 3421    | 3491 |
| 547              | 2873                                                                                           | 2943    | 3013    | 3083    | 3154    | 3224    | 3294    | 3364    | 3435    | 3505 |
| 548              | 2884                                                                                           | 2954    | 3025    | 3095    | 3166    | 3236    | 3307    | 3377    | 3448    | 3518 |
| 549              | 2895                                                                                           | 2965    | 3036    | 3107    | 3178    | 3249    | 3319    | 3390    | 3461    | 3532 |
| 550              | 2906                                                                                           | 2977    | 3048    | 3119    | 3190    | 3261    | 3332    | 3403    | 3474    | 3545 |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 551              | 2917                                                                                           | 2988    | 3059    | 3131    | 3202    | 3273    | 3345    | 3416    | 3487    | 3559 |
| 552              | 2928                                                                                           | 2999    | 3071    | 3142    | 3214    | 3286    | 3357    | 3429    | 3500    | 3572 |
| 553              | 2938                                                                                           | 3010    | 3082    | 3154    | 3226    | 3298    | 3370    | 3442    | 3514    | 3585 |
| 554              | 2949                                                                                           | 3022    | 3094    | 3166    | 3238    | 3310    | 3382    | 3455    | 3527    | 3599 |
| 555              | 2960                                                                                           | 3033    | 3105    | 3178    | 3250    | 3323    | 3395    | 3467    | 3540    | 3612 |
| 556              | 2971                                                                                           | 3044    | 3117    | 3189    | 3262    | 3335    | 3408    | 3480    | 3553    | 3626 |
| 557              | 2982                                                                                           | 3055    | 3128    | 3201    | 3274    | 3347    | 3420    | 3493    | 3566    | 3639 |
| 558              | 2993                                                                                           | 3067    | 3140    | 3213    | 3286    | 3360    | 3433    | 3506    | 3579    | 3653 |
| 559              | 3002                                                                                           | 3076    | 3149    | 3223    | 3297    | 3371    | 3444    | 3518    | 3592    | 3666 |
| 560              | 3010                                                                                           | 3085    | 3159    | 3233    | 3307    | 3381    | 3455    | 3529    | 3603    | 3677 |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 561              | 3019                                                                                           | 3094    | 3168    | 3242    | 3317    | 3391    | 3466    | 3540    | 3615    | 3689 |
| 562              | 3028                                                                                           | 3102    | 3177    | 3252    | 3327    | 3402    | 3477    | 3552    | 3626    | 3701 |
| 563              | 3036                                                                                           | 3111    | 3187    | 3262    | 3337    | 3412    | 3487    | 3563    | 3638    | 3713 |
| 564              | 3045                                                                                           | 3120    | 3196    | 3271    | 3347    | 3423    | 3498    | 3574    | 3649    | 3725 |
| 565              | 3053                                                                                           | 3129    | 3205    | 3281    | 3357    | 3433    | 3509    | 3585    | 3661    | 3737 |
| 566              | 3062                                                                                           | 3138    | 3214    | 3291    | 3367    | 3443    | 3520    | 3596    | 3672    | 3749 |
| 567              | 3070                                                                                           | 3147    | 3224    | 3300    | 3377    | 3454    | 3531    | 3607    | 3684    | 3761 |
| 568              | 3079                                                                                           | 3156    | 3233    | 3310    | 3387    | 3464    | 3541    | 3618    | 3695    | 3772 |
| 569              | 3087                                                                                           | 3165    | 3242    | 3320    | 3397    | 3475    | 3552    | 3629    | 3707    | 3784 |
| 570              | 3096                                                                                           | 3174    | 3252    | 3329    | 3407    | 3485    | 3563    | 3641    | 3718    | 3796 |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 571              | 3105                                                                                           | 3183    | 3261    | 3339    | 3417    | 3495    | 3574    | 3652    | 3730    | 3808 |
| 572              | 3113                                                                                           | 3192    | 3270    | 3349    | 3427    | 3506    | 3584    | 3663    | 3741    | 3820 |
| 573              | 3122                                                                                           | 3201    | 3279    | 3358    | 3437    | 3516    | 3595    | 3674    | 3753    | 3832 |
| 574              | 3130                                                                                           | 3209    | 3289    | 3368    | 3447    | 3527    | 3606    | 3685    | 3764    | 3844 |
| 575              | 3139                                                                                           | 3218    | 3298    | 3378    | 3457    | 3537    | 3617    | 3696    | 3776    | 3856 |
| 576              | 3147                                                                                           | 3227    | 3307    | 3387    | 3467    | 3547    | 3627    | 3707    | 3787    | 3867 |
| 577              | 3156                                                                                           | 3236    | 3317    | 3397    | 3477    | 3558    | 3638    | 3719    | 3799    | 3879 |
| 578              | 3164                                                                                           | 3245    | 3326    | 3407    | 3487    | 3568    | 3649    | 3730    | 3810    | 3891 |
| 579              | 3173                                                                                           | 3254    | 3335    | 3416    | 3497    | 3579    | 3660    | 3741    | 3822    | 3903 |
| 580              | 3182                                                                                           | 3263    | 3345    | 3426    | 3508    | 3589    | 3671    | 3752    | 3834    | 3915 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 5.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 6 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 405              | 0                                                                                              | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0    |
| 406              | 86                                                                                             | 87      | 87      | 88      | 89      | 90      | 91      | 91      | 92      | 93   |
| 407              | 172                                                                                            | 173     | 175     | 177     | 178     | 180     | 181     | 183     | 185     | 186  |
| 408              | 258                                                                                            | 260     | 262     | 265     | 267     | 270     | 272     | 274     | 277     | 279  |
| 409              | 343                                                                                            | 347     | 350     | 353     | 356     | 359     | 363     | 366     | 369     | 372  |
| 410              | 429                                                                                            | 433     | 437     | 441     | 445     | 449     | 453     | 457     | 461     | 465  |
| 411              | 515                                                                                            | 520     | 525     | 530     | 534     | 539     | 544     | 549     | 554     | 559  |
| 412              | 601                                                                                            | 607     | 612     | 618     | 623     | 629     | 635     | 640     | 646     | 652  |
| 413              | 687                                                                                            | 693     | 700     | 706     | 713     | 719     | 725     | 732     | 738     | 745  |
| 414              | 761                                                                                            | 769     | 778     | 787     | 795     | 804     | 812     | 821     | 829     | 838  |
| 415              | 805                                                                                            | 815     | 826     | 837     | 848     | 859     | 870     | 881     | 892     | 903  |
| 416              | 846                                                                                            | 858     | 869     | 881     | 892     | 904     | 915     | 927     | 939     | 950  |
| 417              | 888                                                                                            | 900     | 912     | 924     | 936     | 949     | 961     | 973     | 985     | 997  |
| 418              | 930                                                                                            | 943     | 955     | 968     | 981     | 993     | 1006    | 1019    | 1031    | 1044 |
| 419              | 970                                                                                            | 984     | 997     | 1011    | 1024    | 1037    | 1051    | 1064    | 1077    | 1091 |
| 420              | 1008                                                                                           | 1022    | 1037    | 1051    | 1066    | 1080    | 1094    | 1109    | 1123    | 1138 |
| 421              | 1045                                                                                           | 1061    | 1076    | 1092    | 1107    | 1123    | 1138    | 1154    | 1169    | 1185 |
| 422              | 1083                                                                                           | 1100    | 1116    | 1133    | 1149    | 1166    | 1182    | 1199    | 1215    | 1232 |
| 423              | 1121                                                                                           | 1138    | 1156    | 1173    | 1191    | 1208    | 1226    | 1243    | 1261    | 1278 |
| 424              | 1158                                                                                           | 1177    | 1195    | 1214    | 1233    | 1251    | 1270    | 1288    | 1307    | 1325 |
| 425              | 1196                                                                                           | 1215    | 1235    | 1255    | 1274    | 1294    | 1313    | 1333    | 1353    | 1372 |
| 426              | 1233                                                                                           | 1254    | 1275    | 1295    | 1316    | 1337    | 1357    | 1378    | 1399    | 1419 |
| 427              | 1271                                                                                           | 1293    | 1314    | 1336    | 1358    | 1379    | 1401    | 1423    | 1444    | 1466 |
| 428              | 1308                                                                                           | 1331    | 1354    | 1377    | 1399    | 1422    | 1445    | 1468    | 1490    | 1513 |
| 429              | 1346                                                                                           | 1370    | 1394    | 1417    | 1441    | 1465    | 1489    | 1512    | 1536    | 1560 |
| 430              | 1384                                                                                           | 1408    | 1433    | 1458    | 1483    | 1508    | 1532    | 1557    | 1582    | 1607 |
| 431              | 1421                                                                                           | 1447    | 1473    | 1499    | 1525    | 1550    | 1576    | 1602    | 1628    | 1654 |
| 432              | 1459                                                                                           | 1486    | 1513    | 1539    | 1566    | 1593    | 1620    | 1647    | 1674    | 1701 |
| 433              | 1496                                                                                           | 1524    | 1552    | 1580    | 1608    | 1636    | 1664    | 1692    | 1720    | 1748 |
| 434              | 1531                                                                                           | 1560    | 1589    | 1619    | 1648    | 1677    | 1707    | 1736    | 1765    | 1795 |
| 435              | 1557                                                                                           | 1588    | 1618    | 1649    | 1680    | 1710    | 1741    | 1772    | 1802    | 1833 |
| 436              | 1582                                                                                           | 1613    | 1645    | 1676    | 1707    | 1738    | 1769    | 1801    | 1832    | 1863 |
| 437              | 1608                                                                                           | 1639    | 1671    | 1703    | 1735    | 1766    | 1798    | 1830    | 1861    | 1893 |
| 438              | 1633                                                                                           | 1665    | 1697    | 1730    | 1762    | 1794    | 1826    | 1859    | 1891    | 1923 |
| 439              | 1658                                                                                           | 1691    | 1724    | 1757    | 1789    | 1822    | 1855    | 1888    | 1921    | 1953 |
| 440              | 1684                                                                                           | 1717    | 1750    | 1784    | 1817    | 1850    | 1883    | 1917    | 1950    | 1983 |
| 441              | 1709                                                                                           | 1743    | 1777    | 1810    | 1844    | 1878    | 1912    | 1946    | 1980    | 2014 |
| 442              | 1734                                                                                           | 1769    | 1803    | 1837    | 1872    | 1906    | 1940    | 1975    | 2009    | 2044 |
| 443              | 1760                                                                                           | 1794    | 1829    | 1864    | 1899    | 1934    | 1969    | 2004    | 2039    | 2074 |
| 444              | 1785                                                                                           | 1820    | 1856    | 1891    | 1927    | 1962    | 1997    | 2033    | 2068    | 2104 |
| 445              | 1810                                                                                           | 1846    | 1882    | 1918    | 1954    | 1990    | 2026    | 2062    | 2098    | 2134 |
| 446              | 1836                                                                                           | 1872    | 1909    | 1945    | 1981    | 2018    | 2054    | 2091    | 2127    | 2164 |
| 447              | 1861                                                                                           | 1898    | 1935    | 1972    | 2009    | 2046    | 2083    | 2120    | 2157    | 2194 |
| 448              | 1886                                                                                           | 1924    | 1961    | 1999    | 2036    | 2074    | 2111    | 2149    | 2187    | 2224 |
| 449              | 1912                                                                                           | 1950    | 1988    | 2026    | 2064    | 2102    | 2140    | 2178    | 2216    | 2254 |
| 450              | 1937                                                                                           | 1975    | 2014    | 2053    | 2091    | 2130    | 2168    | 2207    | 2246    | 2284 |
| 451              | 1962                                                                                           | 2001    | 2040    | 2080    | 2119    | 2158    | 2197    | 2236    | 2275    | 2314 |
| 452              | 1987                                                                                           | 2027    | 2067    | 2106    | 2146    | 2186    | 2225    | 2265    | 2305    | 2344 |
| 453              | 2013                                                                                           | 2053    | 2093    | 2133    | 2174    | 2214    | 2254    | 2294    | 2334    | 2374 |
| 454              | 2038                                                                                           | 2079    | 2120    | 2160    | 2201    | 2242    | 2282    | 2323    | 2364    | 2405 |
| 455              | 2063                                                                                           | 2105    | 2146    | 2187    | 2228    | 2270    | 2311    | 2352    | 2393    | 2435 |
| 456              | 2089                                                                                           | 2131    | 2172    | 2214    | 2256    | 2298    | 2339    | 2381    | 2423    | 2465 |
| 457              | 2114                                                                                           | 2156    | 2199    | 2241    | 2283    | 2326    | 2368    | 2410    | 2453    | 2495 |
| 458              | 2139                                                                                           | 2182    | 2225    | 2268    | 2311    | 2354    | 2396    | 2439    | 2482    | 2525 |
| 459              | 2163                                                                                           | 2206    | 2250    | 2294    | 2337    | 2381    | 2424    | 2468    | 2511    | 2555 |
| 460              | 2181                                                                                           | 2226    | 2270    | 2314    | 2359    | 2403    | 2447    | 2492    | 2536    | 2581 |
| 461              | 2199                                                                                           | 2244    | 2289    | 2333    | 2378    | 2423    | 2468    | 2512    | 2557    | 2602 |
| 462              | 2217                                                                                           | 2262    | 2307    | 2352    | 2398    | 2443    | 2488    | 2533    | 2578    | 2623 |
| 463              | 2235                                                                                           | 2280    | 2326    | 2371    | 2417    | 2463    | 2508    | 2554    | 2599    | 2645 |
| 464              | 2253                                                                                           | 2299    | 2345    | 2390    | 2436    | 2482    | 2528    | 2574    | 2620    | 2666 |
| 465              | 2271                                                                                           | 2317    | 2363    | 2410    | 2456    | 2502    | 2548    | 2595    | 2641    | 2687 |
| 466              | 2289                                                                                           | 2335    | 2382    | 2429    | 2475    | 2522    | 2569    | 2615    | 2662    | 2709 |
| 467              | 2306                                                                                           | 2354    | 2401    | 2448    | 2495    | 2542    | 2589    | 2636    | 2683    | 2730 |
| 468              | 2324                                                                                           | 2372    | 2419    | 2467    | 2514    | 2562    | 2609    | 2656    | 2704    | 2751 |
| 469              | 2342                                                                                           | 2390    | 2438    | 2486    | 2533    | 2581    | 2629    | 2677    | 2725    | 2773 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
 OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 5.0 FT          |         |         |         |         |         |         |         |         |      |
|------------------|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT         | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 6 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs) |         |         |         |         |         |         |         |         |      |
| 470              | 2360            | 2408    | 2457    | 2505    | 2553    | 2601    | 2649    | 2697    | 2746    | 2794 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 5.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 6 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 471              | 2378                                                                                           | 2427    | 2475    | 2524    | 2572    | 2621    | 2669    | 2718    | 2767    | 2815 |
| 472              | 2396                                                                                           | 2445    | 2494    | 2543    | 2592    | 2641    | 2690    | 2739    | 2788    | 2837 |
| 473              | 2414                                                                                           | 2463    | 2513    | 2562    | 2611    | 2661    | 2710    | 2759    | 2808    | 2858 |
| 474              | 2432                                                                                           | 2481    | 2531    | 2581    | 2631    | 2680    | 2730    | 2780    | 2829    | 2879 |
| 475              | 2450                                                                                           | 2500    | 2550    | 2600    | 2650    | 2700    | 2750    | 2800    | 2850    | 2900 |
| 476              | 2468                                                                                           | 2518    | 2569    | 2619    | 2669    | 2720    | 2770    | 2821    | 2871    | 2922 |
| 477              | 2485                                                                                           | 2536    | 2587    | 2638    | 2689    | 2740    | 2791    | 2841    | 2892    | 2943 |
| 478              | 2503                                                                                           | 2555    | 2606    | 2657    | 2708    | 2760    | 2811    | 2862    | 2913    | 2964 |
| 479              | 2521                                                                                           | 2573    | 2624    | 2676    | 2728    | 2779    | 2831    | 2883    | 2934    | 2986 |
| 480              | 2539                                                                                           | 2591    | 2643    | 2695    | 2747    | 2799    | 2851    | 2903    | 2955    | 3007 |
| 481              | 2557                                                                                           | 2609    | 2662    | 2714    | 2767    | 2819    | 2871    | 2924    | 2976    | 3028 |
| 482              | 2575                                                                                           | 2628    | 2680    | 2733    | 2786    | 2839    | 2891    | 2944    | 2997    | 3050 |
| 483              | 2593                                                                                           | 2646    | 2699    | 2752    | 2805    | 2859    | 2912    | 2965    | 3018    | 3071 |
| 484              | 2611                                                                                           | 2664    | 2718    | 2771    | 2825    | 2878    | 2932    | 2985    | 3039    | 3092 |
| 485              | 2629                                                                                           | 2683    | 2736    | 2790    | 2844    | 2898    | 2952    | 3006    | 3060    | 3114 |
| 486              | 2647                                                                                           | 2701    | 2755    | 2809    | 2864    | 2918    | 2972    | 3026    | 3081    | 3135 |
| 487              | 2664                                                                                           | 2719    | 2774    | 2828    | 2883    | 2938    | 2992    | 3047    | 3102    | 3156 |
| 488              | 2682                                                                                           | 2737    | 2792    | 2847    | 2902    | 2958    | 3013    | 3068    | 3123    | 3178 |
| 489              | 2700                                                                                           | 2756    | 2811    | 2866    | 2922    | 2977    | 3033    | 3088    | 3144    | 3199 |
| 490              | 2718                                                                                           | 2774    | 2830    | 2886    | 2941    | 2997    | 3053    | 3109    | 3164    | 3220 |
| 491              | 2736                                                                                           | 2792    | 2848    | 2905    | 2961    | 3017    | 3073    | 3129    | 3185    | 3242 |
| 492              | 2754                                                                                           | 2811    | 2867    | 2924    | 2980    | 3037    | 3093    | 3150    | 3206    | 3263 |
| 493              | 2772                                                                                           | 2829    | 2886    | 2943    | 3000    | 3057    | 3113    | 3170    | 3227    | 3284 |
| 494              | 2790                                                                                           | 2847    | 2904    | 2962    | 3019    | 3076    | 3134    | 3191    | 3248    | 3306 |
| 495              | 2808                                                                                           | 2865    | 2923    | 2981    | 3038    | 3096    | 3154    | 3211    | 3269    | 3327 |
| 496              | 2826                                                                                           | 2884    | 2942    | 3000    | 3058    | 3116    | 3174    | 3232    | 3290    | 3348 |
| 497              | 2843                                                                                           | 2902    | 2960    | 3019    | 3077    | 3136    | 3194    | 3253    | 3311    | 3370 |
| 498              | 2861                                                                                           | 2920    | 2979    | 3038    | 3097    | 3156    | 3214    | 3273    | 3332    | 3391 |
| 499              | 2879                                                                                           | 2938    | 2998    | 3057    | 3116    | 3175    | 3235    | 3294    | 3353    | 3412 |
| 500              | 2897                                                                                           | 2957    | 3016    | 3076    | 3136    | 3195    | 3255    | 3314    | 3374    | 3433 |
| 501              | 2915                                                                                           | 2975    | 3035    | 3095    | 3155    | 3215    | 3275    | 3335    | 3395    | 3455 |
| 502              | 2933                                                                                           | 2993    | 3054    | 3114    | 3174    | 3235    | 3295    | 3355    | 3416    | 3476 |
| 503              | 2951                                                                                           | 3012    | 3072    | 3133    | 3194    | 3255    | 3315    | 3376    | 3437    | 3497 |
| 504              | 2969                                                                                           | 3030    | 3091    | 3152    | 3213    | 3274    | 3335    | 3397    | 3458    | 3519 |
| 505              | 2987                                                                                           | 3048    | 3110    | 3171    | 3233    | 3294    | 3356    | 3417    | 3479    | 3540 |
| 506              | 3005                                                                                           | 3066    | 3128    | 3190    | 3252    | 3314    | 3376    | 3438    | 3500    | 3561 |
| 507              | 3022                                                                                           | 3085    | 3147    | 3209    | 3271    | 3334    | 3396    | 3458    | 3520    | 3583 |
| 508              | 3040                                                                                           | 3103    | 3166    | 3228    | 3291    | 3354    | 3416    | 3479    | 3541    | 3604 |
| 509              | 3057                                                                                           | 3120    | 3183    | 3247    | 3310    | 3373    | 3436    | 3499    | 3562    | 3625 |
| 510              | 3071                                                                                           | 3135    | 3198    | 3262    | 3326    | 3389    | 3453    | 3517    | 3580    | 3644 |
| 511              | 3085                                                                                           | 3149    | 3213    | 3277    | 3341    | 3405    | 3469    | 3533    | 3597    | 3660 |
| 512              | 3099                                                                                           | 3163    | 3227    | 3291    | 3356    | 3420    | 3484    | 3548    | 3613    | 3677 |
| 513              | 3112                                                                                           | 3177    | 3241    | 3306    | 3370    | 3435    | 3500    | 3564    | 3629    | 3693 |
| 514              | 3126                                                                                           | 3191    | 3256    | 3321    | 3385    | 3450    | 3515    | 3580    | 3645    | 3709 |
| 515              | 3140                                                                                           | 3205    | 3270    | 3335    | 3400    | 3465    | 3530    | 3596    | 3661    | 3726 |
| 516              | 3154                                                                                           | 3219    | 3284    | 3350    | 3415    | 3480    | 3546    | 3611    | 3677    | 3742 |
| 517              | 3167                                                                                           | 3233    | 3299    | 3364    | 3430    | 3496    | 3561    | 3627    | 3693    | 3758 |
| 518              | 3181                                                                                           | 3247    | 3313    | 3379    | 3445    | 3511    | 3577    | 3643    | 3709    | 3775 |
| 519              | 3195                                                                                           | 3261    | 3327    | 3393    | 3460    | 3526    | 3592    | 3659    | 3725    | 3791 |
| 520              | 3208                                                                                           | 3275    | 3342    | 3408    | 3475    | 3541    | 3608    | 3674    | 3741    | 3807 |
| 521              | 3222                                                                                           | 3289    | 3356    | 3423    | 3489    | 3556    | 3623    | 3690    | 3757    | 3824 |
| 522              | 3236                                                                                           | 3303    | 3370    | 3437    | 3504    | 3572    | 3639    | 3706    | 3773    | 3840 |
| 523              | 3250                                                                                           | 3317    | 3384    | 3452    | 3519    | 3587    | 3654    | 3721    | 3789    | 3856 |
| 524              | 3263                                                                                           | 3331    | 3399    | 3466    | 3534    | 3602    | 3670    | 3737    | 3805    | 3873 |
| 525              | 3277                                                                                           | 3345    | 3413    | 3481    | 3549    | 3617    | 3685    | 3753    | 3821    | 3889 |
| 526              | 3291                                                                                           | 3359    | 3427    | 3496    | 3564    | 3632    | 3700    | 3769    | 3837    | 3905 |
| 527              | 3305                                                                                           | 3373    | 3442    | 3510    | 3579    | 3647    | 3716    | 3784    | 3853    | 3922 |
| 528              | 3318                                                                                           | 3387    | 3456    | 3525    | 3594    | 3663    | 3731    | 3800    | 3869    | 3938 |
| 529              | 3332                                                                                           | 3401    | 3470    | 3539    | 3609    | 3678    | 3747    | 3816    | 3885    | 3954 |
| 530              | 3346                                                                                           | 3415    | 3485    | 3554    | 3623    | 3693    | 3762    | 3832    | 3901    | 3971 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 5.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 6 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 531              | 3359                                                                                           | 3429    | 3499    | 3569    | 3638    | 3708    | 3778    | 3847    | 3917    | 3987 |
| 532              | 3373                                                                                           | 3443    | 3513    | 3583    | 3653    | 3723    | 3793    | 3863    | 3933    | 4003 |
| 533              | 3387                                                                                           | 3457    | 3527    | 3598    | 3668    | 3738    | 3809    | 3879    | 3949    | 4020 |
| 534              | 3401                                                                                           | 3471    | 3542    | 3612    | 3683    | 3754    | 3824    | 3895    | 3965    | 4036 |
| 535              | 3414                                                                                           | 3485    | 3556    | 3627    | 3698    | 3769    | 3840    | 3910    | 3981    | 4052 |
| 536              | 3428                                                                                           | 3499    | 3570    | 3642    | 3713    | 3784    | 3855    | 3926    | 3997    | 4068 |
| 537              | 3442                                                                                           | 3513    | 3585    | 3656    | 3728    | 3799    | 3870    | 3942    | 4013    | 4085 |
| 538              | 3456                                                                                           | 3527    | 3599    | 3671    | 3742    | 3814    | 3886    | 3958    | 4029    | 4101 |
| 539              | 3469                                                                                           | 3541    | 3613    | 3685    | 3757    | 3829    | 3901    | 3973    | 4045    | 4117 |
| 540              | 3483                                                                                           | 3555    | 3628    | 3700    | 3772    | 3845    | 3917    | 3989    | 4061    | 4134 |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 541              | 3497                                                                                           | 3569    | 3642    | 3714    | 3787    | 3860    | 3932    | 4005    | 4077    | 4150 |
| 542              | 3510                                                                                           | 3583    | 3656    | 3729    | 3802    | 3875    | 3948    | 4021    | 4094    | 4166 |
| 543              | 3524                                                                                           | 3597    | 3671    | 3744    | 3817    | 3890    | 3963    | 4036    | 4110    | 4183 |
| 544              | 3538                                                                                           | 3611    | 3685    | 3758    | 3832    | 3905    | 3979    | 4052    | 4126    | 4199 |
| 545              | 3552                                                                                           | 3625    | 3699    | 3773    | 3847    | 3920    | 3994    | 4068    | 4142    | 4215 |
| 546              | 3565                                                                                           | 3639    | 3713    | 3787    | 3861    | 3936    | 4010    | 4084    | 4158    | 4232 |
| 547              | 3579                                                                                           | 3653    | 3728    | 3802    | 3876    | 3951    | 4025    | 4099    | 4174    | 4248 |
| 548              | 3593                                                                                           | 3667    | 3742    | 3817    | 3891    | 3966    | 4040    | 4115    | 4190    | 4264 |
| 549              | 3607                                                                                           | 3681    | 3756    | 3831    | 3906    | 3981    | 4056    | 4131    | 4206    | 4281 |
| 550              | 3620                                                                                           | 3695    | 3771    | 3846    | 3921    | 3996    | 4071    | 4147    | 4222    | 4297 |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 551              | 3634                                                                                           | 3709    | 3785    | 3860    | 3936    | 4011    | 4087    | 4162    | 4238    | 4313 |
| 552              | 3648                                                                                           | 3723    | 3799    | 3875    | 3951    | 4027    | 4102    | 4178    | 4254    | 4330 |
| 553              | 3661                                                                                           | 3737    | 3814    | 3890    | 3966    | 4042    | 4118    | 4194    | 4270    | 4346 |
| 554              | 3675                                                                                           | 3752    | 3828    | 3904    | 3981    | 4057    | 4133    | 4210    | 4286    | 4362 |
| 555              | 3689                                                                                           | 3766    | 3842    | 3919    | 3995    | 4072    | 4149    | 4225    | 4302    | 4379 |
| 556              | 3703                                                                                           | 3780    | 3856    | 3933    | 4010    | 4087    | 4164    | 4241    | 4318    | 4395 |
| 557              | 3716                                                                                           | 3794    | 3871    | 3948    | 4025    | 4102    | 4180    | 4257    | 4334    | 4411 |
| 558              | 3730                                                                                           | 3808    | 3885    | 3963    | 4040    | 4118    | 4195    | 4273    | 4350    | 4428 |
| 559              | 3743                                                                                           | 3821    | 3899    | 3977    | 4055    | 4133    | 4210    | 4288    | 4366    | 4444 |
| 560              | 3756                                                                                           | 3834    | 3912    | 3990    | 4068    | 4147    | 4225    | 4303    | 4381    | 4459 |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 561              | 3768                                                                                           | 3846    | 3925    | 4003    | 4082    | 4160    | 4238    | 4317    | 4395    | 4474 |
| 562              | 3780                                                                                           | 3859    | 3937    | 4016    | 4095    | 4173    | 4252    | 4331    | 4410    | 4488 |
| 563              | 3792                                                                                           | 3871    | 3950    | 4029    | 4108    | 4187    | 4266    | 4345    | 4424    | 4503 |
| 564              | 3804                                                                                           | 3883    | 3963    | 4042    | 4121    | 4200    | 4280    | 4359    | 4438    | 4517 |
| 565              | 3816                                                                                           | 3896    | 3975    | 4055    | 4134    | 4214    | 4293    | 4373    | 4452    | 4532 |
| 566              | 3828                                                                                           | 3908    | 3988    | 4068    | 4148    | 4227    | 4307    | 4387    | 4467    | 4546 |
| 567              | 3841                                                                                           | 3921    | 4001    | 4081    | 4161    | 4241    | 4321    | 4401    | 4481    | 4561 |
| 568              | 3853                                                                                           | 3933    | 4013    | 4094    | 4174    | 4254    | 4335    | 4415    | 4495    | 4576 |
| 569              | 3865                                                                                           | 3945    | 4026    | 4107    | 4187    | 4268    | 4348    | 4429    | 4510    | 4590 |
| 570              | 3877                                                                                           | 3958    | 4039    | 4120    | 4200    | 4281    | 4362    | 4443    | 4524    | 4605 |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 571              | 3889                                                                                           | 3970    | 4051    | 4133    | 4214    | 4295    | 4376    | 4457    | 4538    | 4619 |
| 572              | 3901                                                                                           | 3983    | 4064    | 4145    | 4227    | 4308    | 4390    | 4471    | 4552    | 4634 |
| 573              | 3913                                                                                           | 3995    | 4077    | 4158    | 4240    | 4322    | 4403    | 4485    | 4567    | 4648 |
| 574              | 3926                                                                                           | 4008    | 4089    | 4171    | 4253    | 4335    | 4417    | 4499    | 4581    | 4663 |
| 575              | 3938                                                                                           | 4020    | 4102    | 4184    | 4266    | 4349    | 4431    | 4513    | 4595    | 4677 |
| 576              | 3950                                                                                           | 4032    | 4115    | 4197    | 4280    | 4362    | 4445    | 4527    | 4609    | 4692 |
| 577              | 3962                                                                                           | 4045    | 4127    | 4210    | 4293    | 4376    | 4458    | 4541    | 4624    | 4706 |
| 578              | 3974                                                                                           | 4057    | 4140    | 4223    | 4306    | 4389    | 4472    | 4555    | 4638    | 4721 |
| 579              | 3986                                                                                           | 4070    | 4153    | 4236    | 4319    | 4403    | 4486    | 4569    | 4652    | 4735 |
| 580              | 3999                                                                                           | 4082    | 4166    | 4249    | 4333    | 4416    | 4500    | 4583    | 4667    | 4750 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 6.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 7 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 405              | 0                                                                                              | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0    |
| 406              | 94                                                                                             | 95      | 96      | 98      | 99      | 100     | 101     | 102     | 103     | 104  |
| 407              | 188                                                                                            | 191     | 193     | 195     | 197     | 200     | 202     | 204     | 206     | 209  |
| 408              | 283                                                                                            | 286     | 289     | 293     | 296     | 299     | 303     | 306     | 310     | 313  |
| 409              | 377                                                                                            | 381     | 386     | 390     | 395     | 399     | 404     | 408     | 413     | 417  |
| 410              | 471                                                                                            | 477     | 482     | 488     | 494     | 499     | 505     | 510     | 516     | 522  |
| 411              | 565                                                                                            | 572     | 579     | 585     | 592     | 599     | 606     | 612     | 619     | 626  |
| 412              | 659                                                                                            | 667     | 675     | 683     | 691     | 699     | 707     | 715     | 722     | 730  |
| 413              | 754                                                                                            | 763     | 772     | 781     | 790     | 799     | 808     | 817     | 826     | 835  |
| 414              | 848                                                                                            | 858     | 868     | 878     | 888     | 898     | 909     | 919     | 929     | 939  |
| 415              | 917                                                                                            | 931     | 945     | 959     | 973     | 987     | 1001    | 1015    | 1029    | 1043 |
| 416              | 967                                                                                            | 983     | 1000    | 1017    | 1034    | 1050    | 1067    | 1084    | 1100    | 1117 |
| 417              | 1014                                                                                           | 1032    | 1049    | 1066    | 1084    | 1101    | 1118    | 1136    | 1153    | 1170 |
| 418              | 1062                                                                                           | 1080    | 1098    | 1116    | 1134    | 1152    | 1170    | 1188    | 1205    | 1223 |
| 419              | 1109                                                                                           | 1128    | 1147    | 1165    | 1184    | 1202    | 1221    | 1240    | 1258    | 1277 |
| 420              | 1157                                                                                           | 1176    | 1195    | 1215    | 1234    | 1253    | 1272    | 1292    | 1311    | 1330 |
| 421              | 1204                                                                                           | 1224    | 1244    | 1264    | 1284    | 1304    | 1324    | 1343    | 1363    | 1383 |
| 422              | 1252                                                                                           | 1273    | 1293    | 1314    | 1334    | 1354    | 1375    | 1395    | 1416    | 1436 |
| 423              | 1300                                                                                           | 1321    | 1342    | 1363    | 1384    | 1405    | 1426    | 1447    | 1469    | 1490 |
| 424              | 1347                                                                                           | 1369    | 1391    | 1412    | 1434    | 1456    | 1478    | 1499    | 1521    | 1543 |
| 425              | 1395                                                                                           | 1417    | 1439    | 1462    | 1484    | 1507    | 1529    | 1551    | 1574    | 1596 |
| 426              | 1442                                                                                           | 1465    | 1488    | 1511    | 1534    | 1557    | 1580    | 1603    | 1626    | 1649 |
| 427              | 1490                                                                                           | 1513    | 1537    | 1561    | 1584    | 1608    | 1632    | 1655    | 1679    | 1703 |
| 428              | 1537                                                                                           | 1562    | 1586    | 1610    | 1634    | 1659    | 1683    | 1707    | 1732    | 1756 |
| 429              | 1585                                                                                           | 1610    | 1635    | 1660    | 1685    | 1710    | 1734    | 1759    | 1784    | 1809 |
| 430              | 1632                                                                                           | 1658    | 1684    | 1709    | 1735    | 1760    | 1786    | 1811    | 1837    | 1862 |
| 431              | 1680                                                                                           | 1706    | 1732    | 1759    | 1785    | 1811    | 1837    | 1863    | 1890    | 1916 |
| 432              | 1728                                                                                           | 1754    | 1781    | 1808    | 1835    | 1862    | 1888    | 1915    | 1942    | 1969 |
| 433              | 1775                                                                                           | 1803    | 1830    | 1857    | 1885    | 1912    | 1940    | 1967    | 1995    | 2022 |
| 434              | 1823                                                                                           | 1851    | 1879    | 1907    | 1935    | 1963    | 1991    | 2019    | 2047    | 2075 |
| 435              | 1863                                                                                           | 1892    | 1922    | 1951    | 1981    | 2010    | 2040    | 2070    | 2099    | 2129 |
| 436              | 1894                                                                                           | 1925    | 1956    | 1986    | 2017    | 2048    | 2079    | 2110    | 2141    | 2171 |
| 437              | 1925                                                                                           | 1956    | 1987    | 2019    | 2050    | 2082    | 2113    | 2144    | 2176    | 2207 |
| 438              | 1955                                                                                           | 1987    | 2019    | 2051    | 2083    | 2115    | 2147    | 2179    | 2211    | 2243 |
| 439              | 1986                                                                                           | 2018    | 2051    | 2083    | 2116    | 2148    | 2181    | 2213    | 2246    | 2278 |
| 440              | 2017                                                                                           | 2050    | 2083    | 2116    | 2149    | 2182    | 2215    | 2248    | 2281    | 2314 |
| 441              | 2047                                                                                           | 2081    | 2114    | 2148    | 2182    | 2215    | 2249    | 2283    | 2316    | 2350 |
| 442              | 2078                                                                                           | 2112    | 2146    | 2180    | 2215    | 2249    | 2283    | 2317    | 2351    | 2385 |
| 443              | 2108                                                                                           | 2143    | 2178    | 2213    | 2247    | 2282    | 2317    | 2352    | 2386    | 2421 |
| 444              | 2139                                                                                           | 2174    | 2210    | 2245    | 2280    | 2316    | 2351    | 2386    | 2422    | 2457 |
| 445              | 2170                                                                                           | 2206    | 2241    | 2277    | 2313    | 2349    | 2385    | 2421    | 2457    | 2493 |
| 446              | 2200                                                                                           | 2237    | 2273    | 2310    | 2346    | 2382    | 2419    | 2455    | 2492    | 2528 |
| 447              | 2231                                                                                           | 2268    | 2305    | 2342    | 2379    | 2416    | 2453    | 2490    | 2527    | 2564 |
| 448              | 2262                                                                                           | 2299    | 2337    | 2374    | 2412    | 2449    | 2487    | 2524    | 2562    | 2600 |
| 449              | 2292                                                                                           | 2330    | 2368    | 2407    | 2445    | 2483    | 2521    | 2559    | 2597    | 2635 |
| 450              | 2323                                                                                           | 2362    | 2400    | 2439    | 2478    | 2516    | 2555    | 2594    | 2632    | 2671 |
| 451              | 2354                                                                                           | 2393    | 2432    | 2471    | 2510    | 2550    | 2589    | 2628    | 2667    | 2707 |
| 452              | 2384                                                                                           | 2424    | 2464    | 2504    | 2543    | 2583    | 2623    | 2663    | 2702    | 2742 |
| 453              | 2415                                                                                           | 2455    | 2496    | 2536    | 2576    | 2617    | 2657    | 2697    | 2738    | 2778 |
| 454              | 2445                                                                                           | 2486    | 2527    | 2568    | 2609    | 2650    | 2691    | 2732    | 2773    | 2814 |
| 455              | 2476                                                                                           | 2518    | 2559    | 2601    | 2642    | 2683    | 2725    | 2766    | 2808    | 2849 |
| 456              | 2507                                                                                           | 2549    | 2591    | 2633    | 2675    | 2717    | 2759    | 2801    | 2843    | 2885 |
| 457              | 2537                                                                                           | 2580    | 2623    | 2665    | 2708    | 2750    | 2793    | 2836    | 2878    | 2921 |
| 458              | 2568                                                                                           | 2611    | 2654    | 2697    | 2741    | 2784    | 2827    | 2870    | 2913    | 2956 |
| 459              | 2599                                                                                           | 2642    | 2686    | 2730    | 2774    | 2817    | 2861    | 2905    | 2948    | 2992 |
| 460              | 2625                                                                                           | 2670    | 2715    | 2759    | 2804    | 2849    | 2894    | 2938    | 2983    | 3028 |
| 461              | 2647                                                                                           | 2693    | 2739    | 2784    | 2830    | 2875    | 2921    | 2966    | 3012    | 3057 |
| 462              | 2669                                                                                           | 2715    | 2761    | 2807    | 2853    | 2899    | 2945    | 2991    | 3036    | 3082 |
| 463              | 2691                                                                                           | 2737    | 2784    | 2830    | 2876    | 2922    | 2969    | 3015    | 3061    | 3108 |
| 464              | 2713                                                                                           | 2759    | 2806    | 2853    | 2899    | 2946    | 2993    | 3039    | 3086    | 3133 |
| 465              | 2734                                                                                           | 2781    | 2829    | 2876    | 2923    | 2970    | 3017    | 3064    | 3111    | 3158 |
| 466              | 2756                                                                                           | 2804    | 2851    | 2898    | 2946    | 2993    | 3041    | 3088    | 3136    | 3183 |
| 467              | 2778                                                                                           | 2826    | 2874    | 2921    | 2969    | 3017    | 3065    | 3113    | 3161    | 3209 |
| 468              | 2799                                                                                           | 2848    | 2896    | 2944    | 2993    | 3041    | 3089    | 3137    | 3186    | 3234 |
| 469              | 2821                                                                                           | 2870    | 2918    | 2967    | 3016    | 3064    | 3113    | 3162    | 3210    | 3259 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
 OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 6.0 FT          |         |         |         |         |         |         |         |         |      |
|------------------|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT         | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 7 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs) |         |         |         |         |         |         |         |         |      |
| 470              | 2843            | 2892    | 2941    | 2990    | 3039    | 3088    | 3137    | 3186    | 3235    | 3284 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 6.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 7 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 471              | 2865                                                                                           | 2914    | 2963    | 3013    | 3062    | 3112    | 3161    | 3211    | 3260    | 3310 |
| 472              | 2886                                                                                           | 2936    | 2986    | 3036    | 3086    | 3135    | 3185    | 3235    | 3285    | 3335 |
| 473              | 2908                                                                                           | 2958    | 3008    | 3059    | 3109    | 3159    | 3209    | 3260    | 3310    | 3360 |
| 474              | 2930                                                                                           | 2980    | 3031    | 3082    | 3132    | 3183    | 3233    | 3284    | 3335    | 3385 |
| 475              | 2951                                                                                           | 3002    | 3053    | 3104    | 3155    | 3206    | 3257    | 3308    | 3359    | 3411 |
| 476              | 2973                                                                                           | 3025    | 3076    | 3127    | 3179    | 3230    | 3282    | 3333    | 3384    | 3436 |
| 477              | 2995                                                                                           | 3047    | 3098    | 3150    | 3202    | 3254    | 3306    | 3357    | 3409    | 3461 |
| 478              | 3017                                                                                           | 3069    | 3121    | 3173    | 3225    | 3278    | 3330    | 3382    | 3434    | 3486 |
| 479              | 3038                                                                                           | 3091    | 3143    | 3196    | 3249    | 3301    | 3354    | 3406    | 3459    | 3511 |
| 480              | 3060                                                                                           | 3113    | 3166    | 3219    | 3272    | 3325    | 3378    | 3431    | 3484    | 3537 |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 481              | 3082                                                                                           | 3135    | 3188    | 3242    | 3295    | 3349    | 3402    | 3455    | 3509    | 3562 |
| 482              | 3103                                                                                           | 3157    | 3211    | 3265    | 3318    | 3372    | 3426    | 3480    | 3533    | 3587 |
| 483              | 3125                                                                                           | 3179    | 3233    | 3288    | 3342    | 3396    | 3450    | 3504    | 3558    | 3612 |
| 484              | 3147                                                                                           | 3201    | 3256    | 3310    | 3365    | 3420    | 3474    | 3529    | 3583    | 3638 |
| 485              | 3169                                                                                           | 3224    | 3278    | 3333    | 3388    | 3443    | 3498    | 3553    | 3608    | 3663 |
| 486              | 3190                                                                                           | 3246    | 3301    | 3356    | 3412    | 3467    | 3522    | 3578    | 3633    | 3688 |
| 487              | 3212                                                                                           | 3268    | 3323    | 3379    | 3435    | 3491    | 3546    | 3602    | 3658    | 3713 |
| 488              | 3234                                                                                           | 3290    | 3346    | 3402    | 3458    | 3514    | 3570    | 3626    | 3683    | 3739 |
| 489              | 3255                                                                                           | 3312    | 3368    | 3425    | 3481    | 3538    | 3594    | 3651    | 3707    | 3764 |
| 490              | 3277                                                                                           | 3334    | 3391    | 3448    | 3505    | 3562    | 3618    | 3675    | 3732    | 3789 |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 491              | 3299                                                                                           | 3356    | 3413    | 3471    | 3528    | 3585    | 3643    | 3700    | 3757    | 3814 |
| 492              | 3321                                                                                           | 3378    | 3436    | 3494    | 3551    | 3609    | 3667    | 3724    | 3782    | 3840 |
| 493              | 3342                                                                                           | 3400    | 3458    | 3516    | 3575    | 3633    | 3691    | 3749    | 3807    | 3865 |
| 494              | 3364                                                                                           | 3422    | 3481    | 3539    | 3598    | 3656    | 3715    | 3773    | 3832    | 3890 |
| 495              | 3386                                                                                           | 3445    | 3503    | 3562    | 3621    | 3680    | 3739    | 3798    | 3856    | 3915 |
| 496              | 3407                                                                                           | 3467    | 3526    | 3585    | 3644    | 3704    | 3763    | 3822    | 3881    | 3941 |
| 497              | 3429                                                                                           | 3489    | 3548    | 3608    | 3668    | 3727    | 3787    | 3847    | 3906    | 3966 |
| 498              | 3451                                                                                           | 3511    | 3571    | 3631    | 3691    | 3751    | 3811    | 3871    | 3931    | 3991 |
| 499              | 3473                                                                                           | 3533    | 3593    | 3654    | 3714    | 3775    | 3835    | 3895    | 3956    | 4016 |
| 500              | 3494                                                                                           | 3555    | 3616    | 3677    | 3737    | 3798    | 3859    | 3920    | 3981    | 4042 |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 501              | 3516                                                                                           | 3577    | 3638    | 3700    | 3761    | 3822    | 3883    | 3944    | 4006    | 4067 |
| 502              | 3538                                                                                           | 3599    | 3661    | 3722    | 3784    | 3846    | 3907    | 3969    | 4030    | 4092 |
| 503              | 3559                                                                                           | 3621    | 3683    | 3745    | 3807    | 3869    | 3931    | 3993    | 4055    | 4117 |
| 504              | 3581                                                                                           | 3643    | 3706    | 3768    | 3831    | 3893    | 3955    | 4018    | 4080    | 4142 |
| 505              | 3603                                                                                           | 3666    | 3728    | 3791    | 3854    | 3917    | 3979    | 4042    | 4105    | 4168 |
| 506              | 3625                                                                                           | 3688    | 3751    | 3814    | 3877    | 3940    | 4003    | 4067    | 4130    | 4193 |
| 507              | 3646                                                                                           | 3710    | 3773    | 3837    | 3900    | 3964    | 4028    | 4091    | 4155    | 4218 |
| 508              | 3668                                                                                           | 3732    | 3796    | 3860    | 3924    | 3988    | 4052    | 4116    | 4179    | 4243 |
| 509              | 3690                                                                                           | 3754    | 3818    | 3883    | 3947    | 4011    | 4076    | 4140    | 4204    | 4269 |
| 510              | 3709                                                                                           | 3774    | 3839    | 3904    | 3969    | 4034    | 4099    | 4164    | 4229    | 4294 |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 511              | 3726                                                                                           | 3792    | 3857    | 3923    | 3988    | 4054    | 4119    | 4185    | 4250    | 4316 |
| 512              | 3743                                                                                           | 3808    | 3874    | 3940    | 4006    | 4072    | 4137    | 4203    | 4269    | 4335 |
| 513              | 3759                                                                                           | 3825    | 3891    | 3958    | 4024    | 4090    | 4156    | 4222    | 4288    | 4354 |
| 514              | 3776                                                                                           | 3842    | 3909    | 3975    | 4041    | 4108    | 4174    | 4241    | 4307    | 4374 |
| 515              | 3792                                                                                           | 3859    | 3926    | 3993    | 4059    | 4126    | 4193    | 4259    | 4326    | 4393 |
| 516              | 3809                                                                                           | 3876    | 3943    | 4010    | 4077    | 4144    | 4211    | 4278    | 4345    | 4412 |
| 517              | 3826                                                                                           | 3893    | 3960    | 4028    | 4095    | 4162    | 4230    | 4297    | 4364    | 4432 |
| 518              | 3842                                                                                           | 3910    | 3978    | 4045    | 4113    | 4180    | 4248    | 4316    | 4383    | 4451 |
| 519              | 3859                                                                                           | 3927    | 3995    | 4063    | 4131    | 4199    | 4266    | 4334    | 4402    | 4470 |
| 520              | 3876                                                                                           | 3944    | 4012    | 4080    | 4148    | 4217    | 4285    | 4353    | 4421    | 4489 |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 521              | 3892                                                                                           | 3961    | 4029    | 4098    | 4166    | 4235    | 4303    | 4372    | 4440    | 4509 |
| 522              | 3909                                                                                           | 3978    | 4046    | 4115    | 4184    | 4253    | 4322    | 4390    | 4459    | 4528 |
| 523              | 3925                                                                                           | 3995    | 4064    | 4133    | 4202    | 4271    | 4340    | 4409    | 4478    | 4547 |
| 524              | 3942                                                                                           | 4011    | 4081    | 4150    | 4220    | 4289    | 4359    | 4428    | 4497    | 4567 |
| 525              | 3959                                                                                           | 4028    | 4098    | 4168    | 4238    | 4307    | 4377    | 4447    | 4516    | 4586 |
| 526              | 3975                                                                                           | 4045    | 4115    | 4185    | 4255    | 4325    | 4395    | 4465    | 4535    | 4605 |
| 527              | 3992                                                                                           | 4062    | 4133    | 4203    | 4273    | 4343    | 4414    | 4484    | 4554    | 4625 |
| 528              | 4009                                                                                           | 4079    | 4150    | 4220    | 4291    | 4362    | 4432    | 4503    | 4573    | 4644 |
| 529              | 4025                                                                                           | 4096    | 4167    | 4238    | 4309    | 4380    | 4451    | 4522    | 4592    | 4663 |
| 530              | 4042                                                                                           | 4113    | 4184    | 4255    | 4327    | 4398    | 4469    | 4540    | 4611    | 4683 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 6.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 7 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 531              | 4058                                                                                           | 4130    | 4201    | 4273    | 4344    | 4416    | 4487    | 4559    | 4630    | 4702 |
| 532              | 4075                                                                                           | 4147    | 4219    | 4290    | 4362    | 4434    | 4506    | 4578    | 4650    | 4721 |
| 533              | 4092                                                                                           | 4164    | 4236    | 4308    | 4380    | 4452    | 4524    | 4596    | 4669    | 4741 |
| 534              | 4108                                                                                           | 4181    | 4253    | 4325    | 4398    | 4470    | 4543    | 4615    | 4688    | 4760 |
| 535              | 4125                                                                                           | 4198    | 4270    | 4343    | 4416    | 4488    | 4561    | 4634    | 4707    | 4779 |
| 536              | 4141                                                                                           | 4215    | 4288    | 4361    | 4434    | 4507    | 4580    | 4653    | 4726    | 4799 |
| 537              | 4158                                                                                           | 4231    | 4305    | 4378    | 4451    | 4525    | 4598    | 4671    | 4745    | 4818 |
| 538              | 4175                                                                                           | 4248    | 4322    | 4396    | 4469    | 4543    | 4616    | 4690    | 4764    | 4837 |
| 539              | 4191                                                                                           | 4265    | 4339    | 4413    | 4487    | 4561    | 4635    | 4709    | 4783    | 4857 |
| 540              | 4208                                                                                           | 4282    | 4356    | 4431    | 4505    | 4579    | 4653    | 4727    | 4802    | 4876 |
| 541              | 4225                                                                                           | 4299    | 4374    | 4448    | 4523    | 4597    | 4672    | 4746    | 4821    | 4895 |
| 542              | 4241                                                                                           | 4316    | 4391    | 4466    | 4540    | 4615    | 4690    | 4765    | 4840    | 4915 |
| 543              | 4258                                                                                           | 4333    | 4408    | 4483    | 4558    | 4633    | 4708    | 4784    | 4859    | 4934 |
| 544              | 4274                                                                                           | 4350    | 4425    | 4501    | 4576    | 4652    | 4727    | 4802    | 4878    | 4953 |
| 545              | 4291                                                                                           | 4367    | 4442    | 4518    | 4594    | 4670    | 4745    | 4821    | 4897    | 4972 |
| 546              | 4308                                                                                           | 4384    | 4460    | 4536    | 4612    | 4688    | 4764    | 4840    | 4916    | 4992 |
| 547              | 4324                                                                                           | 4401    | 4477    | 4553    | 4630    | 4706    | 4782    | 4858    | 4935    | 5011 |
| 548              | 4341                                                                                           | 4418    | 4494    | 4571    | 4647    | 4724    | 4801    | 4877    | 4954    | 5030 |
| 549              | 4358                                                                                           | 4434    | 4511    | 4588    | 4665    | 4742    | 4819    | 4896    | 4973    | 5050 |
| 550              | 4374                                                                                           | 4451    | 4529    | 4606    | 4683    | 4760    | 4837    | 4915    | 4992    | 5069 |
| 551              | 4391                                                                                           | 4468    | 4546    | 4623    | 4701    | 4778    | 4856    | 4933    | 5011    | 5088 |
| 552              | 4407                                                                                           | 4485    | 4563    | 4641    | 4719    | 4796    | 4874    | 4952    | 5030    | 5108 |
| 553              | 4424                                                                                           | 4502    | 4580    | 4658    | 4736    | 4815    | 4893    | 4971    | 5049    | 5127 |
| 554              | 4441                                                                                           | 4519    | 4597    | 4676    | 4754    | 4833    | 4911    | 4990    | 5068    | 5146 |
| 555              | 4457                                                                                           | 4536    | 4615    | 4693    | 4772    | 4851    | 4930    | 5008    | 5087    | 5166 |
| 556              | 4474                                                                                           | 4553    | 4632    | 4711    | 4790    | 4869    | 4948    | 5027    | 5106    | 5185 |
| 557              | 4491                                                                                           | 4570    | 4649    | 4728    | 4808    | 4887    | 4966    | 5046    | 5125    | 5204 |
| 558              | 4507                                                                                           | 4587    | 4666    | 4746    | 4826    | 4905    | 4985    | 5064    | 5144    | 5224 |
| 559              | 4524                                                                                           | 4604    | 4684    | 4763    | 4843    | 4923    | 5003    | 5083    | 5163    | 5243 |
| 560              | 4540                                                                                           | 4620    | 4700    | 4780    | 4861    | 4941    | 5021    | 5102    | 5182    | 5262 |
| 561              | 4554                                                                                           | 4635    | 4716    | 4796    | 4877    | 4958    | 5038    | 5119    | 5199    | 5280 |
| 562              | 4569                                                                                           | 4650    | 4731    | 4812    | 4893    | 4973    | 5054    | 5135    | 5216    | 5297 |
| 563              | 4584                                                                                           | 4665    | 4746    | 4827    | 4908    | 4989    | 5071    | 5152    | 5233    | 5314 |
| 564              | 4599                                                                                           | 4680    | 4761    | 4843    | 4924    | 5005    | 5087    | 5168    | 5249    | 5331 |
| 565              | 4614                                                                                           | 4695    | 4777    | 4858    | 4940    | 5021    | 5103    | 5184    | 5266    | 5347 |
| 566              | 4628                                                                                           | 4710    | 4792    | 4874    | 4955    | 5037    | 5119    | 5201    | 5283    | 5364 |
| 567              | 4643                                                                                           | 4725    | 4807    | 4889    | 4971    | 5053    | 5135    | 5217    | 5299    | 5381 |
| 568              | 4658                                                                                           | 4740    | 4822    | 4905    | 4987    | 5069    | 5151    | 5233    | 5316    | 5398 |
| 569              | 4673                                                                                           | 4755    | 4838    | 4920    | 5002    | 5085    | 5167    | 5250    | 5332    | 5415 |
| 570              | 4687                                                                                           | 4770    | 4853    | 4935    | 5018    | 5101    | 5184    | 5266    | 5349    | 5432 |
| 571              | 4702                                                                                           | 4785    | 4868    | 4951    | 5034    | 5117    | 5200    | 5283    | 5366    | 5448 |
| 572              | 4717                                                                                           | 4800    | 4883    | 4966    | 5050    | 5133    | 5216    | 5299    | 5382    | 5465 |
| 573              | 4732                                                                                           | 4815    | 4898    | 4982    | 5065    | 5149    | 5232    | 5315    | 5399    | 5482 |
| 574              | 4746                                                                                           | 4830    | 4914    | 4997    | 5081    | 5164    | 5248    | 5332    | 5415    | 5499 |
| 575              | 4761                                                                                           | 4845    | 4929    | 5013    | 5097    | 5180    | 5264    | 5348    | 5432    | 5516 |
| 576              | 4776                                                                                           | 4860    | 4944    | 5028    | 5112    | 5196    | 5280    | 5364    | 5449    | 5533 |
| 577              | 4791                                                                                           | 4875    | 4959    | 5044    | 5128    | 5212    | 5297    | 5381    | 5465    | 5549 |
| 578              | 4805                                                                                           | 4890    | 4975    | 5059    | 5144    | 5228    | 5313    | 5397    | 5482    | 5566 |
| 579              | 4820                                                                                           | 4905    | 4990    | 5075    | 5159    | 5244    | 5329    | 5414    | 5498    | 5583 |
| 580              | 4835                                                                                           | 4920    | 5005    | 5090    | 5175    | 5260    | 5345    | 5430    | 5515    | 5600 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 7.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 8 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 405              | 0                                                                                              | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0    |
| 406              | 105                                                                                            | 105     | 106     | 106     | 107     | 107     | 108     | 108     | 109     | 109  |
| 407              | 210                                                                                            | 211     | 212     | 212     | 213     | 214     | 215     | 216     | 217     | 218  |
| 408              | 314                                                                                            | 316     | 317     | 319     | 320     | 322     | 323     | 324     | 326     | 327  |
| 409              | 419                                                                                            | 421     | 423     | 425     | 427     | 429     | 431     | 433     | 434     | 436  |
| 410              | 524                                                                                            | 526     | 529     | 531     | 534     | 536     | 538     | 541     | 543     | 545  |
| 411              | 629                                                                                            | 632     | 635     | 637     | 640     | 643     | 646     | 649     | 652     | 655  |
| 412              | 734                                                                                            | 737     | 740     | 744     | 747     | 750     | 754     | 757     | 760     | 764  |
| 413              | 838                                                                                            | 842     | 846     | 850     | 854     | 857     | 861     | 865     | 869     | 873  |
| 414              | 943                                                                                            | 948     | 952     | 956     | 960     | 965     | 969     | 973     | 978     | 982  |
| 415              | 1048                                                                                           | 1053    | 1058    | 1062    | 1067    | 1072    | 1077    | 1081    | 1086    | 1091 |
| 416              | 1125                                                                                           | 1134    | 1142    | 1150    | 1158    | 1167    | 1175    | 1183    | 1192    | 1200 |
| 417              | 1180                                                                                           | 1189    | 1198    | 1208    | 1217    | 1227    | 1236    | 1246    | 1255    | 1264 |
| 418              | 1234                                                                                           | 1245    | 1255    | 1266    | 1276    | 1287    | 1297    | 1308    | 1318    | 1329 |
| 419              | 1288                                                                                           | 1300    | 1312    | 1323    | 1335    | 1347    | 1358    | 1370    | 1381    | 1393 |
| 420              | 1343                                                                                           | 1355    | 1368    | 1381    | 1394    | 1406    | 1419    | 1432    | 1445    | 1457 |
| 421              | 1397                                                                                           | 1411    | 1425    | 1439    | 1452    | 1466    | 1480    | 1494    | 1508    | 1522 |
| 422              | 1451                                                                                           | 1466    | 1481    | 1496    | 1511    | 1526    | 1541    | 1556    | 1571    | 1586 |
| 423              | 1506                                                                                           | 1522    | 1538    | 1554    | 1570    | 1586    | 1602    | 1618    | 1634    | 1650 |
| 424              | 1560                                                                                           | 1577    | 1595    | 1612    | 1629    | 1646    | 1663    | 1680    | 1698    | 1715 |
| 425              | 1615                                                                                           | 1633    | 1651    | 1669    | 1688    | 1706    | 1724    | 1743    | 1761    | 1779 |
| 426              | 1669                                                                                           | 1688    | 1708    | 1727    | 1747    | 1766    | 1785    | 1805    | 1824    | 1844 |
| 427              | 1723                                                                                           | 1744    | 1764    | 1785    | 1805    | 1826    | 1846    | 1867    | 1887    | 1908 |
| 428              | 1778                                                                                           | 1799    | 1821    | 1842    | 1864    | 1886    | 1907    | 1929    | 1951    | 1972 |
| 429              | 1832                                                                                           | 1855    | 1877    | 1900    | 1923    | 1946    | 1968    | 1991    | 2014    | 2037 |
| 430              | 1886                                                                                           | 1910    | 1934    | 1958    | 1982    | 2006    | 2029    | 2053    | 2077    | 2101 |
| 431              | 1941                                                                                           | 1966    | 1991    | 2016    | 2041    | 2065    | 2090    | 2115    | 2140    | 2165 |
| 432              | 1995                                                                                           | 2021    | 2047    | 2073    | 2099    | 2125    | 2151    | 2178    | 2204    | 2230 |
| 433              | 2049                                                                                           | 2077    | 2104    | 2131    | 2158    | 2185    | 2213    | 2240    | 2267    | 2294 |
| 434              | 2104                                                                                           | 2132    | 2160    | 2189    | 2217    | 2245    | 2274    | 2302    | 2330    | 2358 |
| 435              | 2158                                                                                           | 2188    | 2217    | 2246    | 2276    | 2305    | 2335    | 2364    | 2393    | 2423 |
| 436              | 2203                                                                                           | 2235    | 2266    | 2298    | 2329    | 2361    | 2392    | 2424    | 2456    | 2487 |
| 437              | 2240                                                                                           | 2272    | 2305    | 2338    | 2370    | 2403    | 2435    | 2468    | 2501    | 2533 |
| 438              | 2276                                                                                           | 2309    | 2342    | 2375    | 2409    | 2442    | 2475    | 2508    | 2541    | 2575 |
| 439              | 2312                                                                                           | 2346    | 2380    | 2413    | 2447    | 2481    | 2515    | 2549    | 2582    | 2616 |
| 440              | 2348                                                                                           | 2383    | 2417    | 2451    | 2486    | 2520    | 2554    | 2589    | 2623    | 2657 |
| 441              | 2385                                                                                           | 2420    | 2455    | 2489    | 2524    | 2559    | 2594    | 2629    | 2664    | 2699 |
| 442              | 2421                                                                                           | 2456    | 2492    | 2527    | 2563    | 2598    | 2634    | 2669    | 2705    | 2740 |
| 443              | 2457                                                                                           | 2493    | 2529    | 2565    | 2601    | 2638    | 2674    | 2710    | 2746    | 2782 |
| 444              | 2493                                                                                           | 2530    | 2567    | 2603    | 2640    | 2677    | 2713    | 2750    | 2787    | 2823 |
| 445              | 2530                                                                                           | 2567    | 2604    | 2641    | 2679    | 2716    | 2753    | 2790    | 2827    | 2865 |
| 446              | 2566                                                                                           | 2604    | 2642    | 2679    | 2717    | 2755    | 2793    | 2831    | 2868    | 2906 |
| 447              | 2602                                                                                           | 2641    | 2679    | 2717    | 2756    | 2794    | 2832    | 2871    | 2909    | 2948 |
| 448              | 2639                                                                                           | 2677    | 2716    | 2755    | 2794    | 2833    | 2872    | 2911    | 2950    | 2989 |
| 449              | 2675                                                                                           | 2714    | 2754    | 2793    | 2833    | 2872    | 2912    | 2951    | 2991    | 3030 |
| 450              | 2711                                                                                           | 2751    | 2791    | 2831    | 2871    | 2911    | 2952    | 2992    | 3032    | 3072 |
| 451              | 2747                                                                                           | 2788    | 2829    | 2869    | 2910    | 2951    | 2991    | 3032    | 3073    | 3113 |
| 452              | 2784                                                                                           | 2825    | 2866    | 2907    | 2949    | 2990    | 3031    | 3072    | 3114    | 3155 |
| 453              | 2820                                                                                           | 2862    | 2903    | 2945    | 2987    | 3029    | 3071    | 3113    | 3154    | 3196 |
| 454              | 2856                                                                                           | 2898    | 2941    | 2983    | 3026    | 3068    | 3110    | 3153    | 3195    | 3238 |
| 455              | 2892                                                                                           | 2935    | 2978    | 3021    | 3064    | 3107    | 3150    | 3193    | 3236    | 3279 |
| 456              | 2929                                                                                           | 2972    | 3016    | 3059    | 3103    | 3146    | 3190    | 3233    | 3277    | 3321 |
| 457              | 2965                                                                                           | 3009    | 3053    | 3097    | 3141    | 3185    | 3230    | 3274    | 3318    | 3362 |
| 458              | 3001                                                                                           | 3046    | 3090    | 3135    | 3180    | 3225    | 3269    | 3314    | 3359    | 3403 |
| 459              | 3037                                                                                           | 3083    | 3128    | 3173    | 3218    | 3264    | 3309    | 3354    | 3400    | 3445 |
| 460              | 3074                                                                                           | 3119    | 3165    | 3211    | 3257    | 3303    | 3349    | 3395    | 3440    | 3486 |
| 461              | 3104                                                                                           | 3151    | 3198    | 3245    | 3292    | 3339    | 3387    | 3434    | 3481    | 3528 |
| 462              | 3130                                                                                           | 3178    | 3226    | 3273    | 3321    | 3369    | 3416    | 3464    | 3512    | 3559 |
| 463              | 3156                                                                                           | 3204    | 3252    | 3300    | 3348    | 3396    | 3444    | 3493    | 3541    | 3589 |
| 464              | 3181                                                                                           | 3230    | 3278    | 3327    | 3375    | 3424    | 3473    | 3521    | 3570    | 3618 |
| 465              | 3207                                                                                           | 3256    | 3305    | 3354    | 3403    | 3452    | 3501    | 3550    | 3598    | 3647 |
| 466              | 3233                                                                                           | 3282    | 3331    | 3381    | 3430    | 3479    | 3529    | 3578    | 3627    | 3677 |
| 467              | 3258                                                                                           | 3308    | 3358    | 3408    | 3457    | 3507    | 3557    | 3607    | 3656    | 3706 |
| 468              | 3284                                                                                           | 3334    | 3384    | 3434    | 3485    | 3535    | 3585    | 3635    | 3685    | 3735 |
| 469              | 3310                                                                                           | 3360    | 3411    | 3461    | 3512    | 3562    | 3613    | 3664    | 3714    | 3765 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
 OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 7.0 FT          |         |         |         |         |         |         |         |         |      |
|------------------|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT         | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 8 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs) |         |         |         |         |         |         |         |         |      |
| 470              | 3335            | 3386    | 3437    | 3488    | 3539    | 3590    | 3641    | 3692    | 3743    | 3794 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 7.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 8 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 471              | 3361                                                                                           | 3412    | 3464    | 3515    | 3566    | 3618    | 3669    | 3721    | 3772    | 3823 |
| 472              | 3387                                                                                           | 3438    | 3490    | 3542    | 3594    | 3646    | 3697    | 3749    | 3801    | 3853 |
| 473              | 3412                                                                                           | 3464    | 3517    | 3569    | 3621    | 3673    | 3725    | 3778    | 3830    | 3882 |
| 474              | 3438                                                                                           | 3490    | 3543    | 3596    | 3648    | 3701    | 3753    | 3806    | 3859    | 3911 |
| 475              | 3464                                                                                           | 3517    | 3570    | 3623    | 3676    | 3729    | 3782    | 3835    | 3888    | 3941 |
| 476              | 3489                                                                                           | 3543    | 3596    | 3649    | 3703    | 3756    | 3810    | 3863    | 3917    | 3970 |
| 477              | 3515                                                                                           | 3569    | 3622    | 3676    | 3730    | 3784    | 3838    | 3892    | 3945    | 3999 |
| 478              | 3540                                                                                           | 3595    | 3649    | 3703    | 3757    | 3812    | 3866    | 3920    | 3974    | 4029 |
| 479              | 3566                                                                                           | 3621    | 3675    | 3730    | 3785    | 3839    | 3894    | 3949    | 4003    | 4058 |
| 480              | 3592                                                                                           | 3647    | 3702    | 3757    | 3812    | 3867    | 3922    | 3977    | 4032    | 4087 |
| 481              | 3617                                                                                           | 3673    | 3728    | 3784    | 3839    | 3895    | 3950    | 4006    | 4061    | 4117 |
| 482              | 3643                                                                                           | 3699    | 3755    | 3811    | 3867    | 3922    | 3978    | 4034    | 4090    | 4146 |
| 483              | 3669                                                                                           | 3725    | 3781    | 3838    | 3894    | 3950    | 4006    | 4063    | 4119    | 4175 |
| 484              | 3694                                                                                           | 3751    | 3808    | 3864    | 3921    | 3978    | 4034    | 4091    | 4148    | 4204 |
| 485              | 3720                                                                                           | 3777    | 3834    | 3891    | 3948    | 4005    | 4063    | 4120    | 4177    | 4234 |
| 486              | 3746                                                                                           | 3803    | 3861    | 3918    | 3976    | 4033    | 4091    | 4148    | 4206    | 4263 |
| 487              | 3771                                                                                           | 3829    | 3887    | 3945    | 4003    | 4061    | 4119    | 4177    | 4235    | 4292 |
| 488              | 3797                                                                                           | 3855    | 3914    | 3972    | 4030    | 4089    | 4147    | 4205    | 4263    | 4322 |
| 489              | 3823                                                                                           | 3881    | 3940    | 3999    | 4057    | 4116    | 4175    | 4234    | 4292    | 4351 |
| 490              | 3848                                                                                           | 3907    | 3966    | 4026    | 4085    | 4144    | 4203    | 4262    | 4321    | 4380 |
| 491              | 3874                                                                                           | 3933    | 3993    | 4053    | 4112    | 4172    | 4231    | 4291    | 4350    | 4410 |
| 492              | 3900                                                                                           | 3959    | 4019    | 4079    | 4139    | 4199    | 4259    | 4319    | 4379    | 4439 |
| 493              | 3925                                                                                           | 3986    | 4046    | 4106    | 4167    | 4227    | 4287    | 4348    | 4408    | 4468 |
| 494              | 3951                                                                                           | 4012    | 4072    | 4133    | 4194    | 4255    | 4315    | 4376    | 4437    | 4498 |
| 495              | 3976                                                                                           | 4038    | 4099    | 4160    | 4221    | 4282    | 4344    | 4405    | 4466    | 4527 |
| 496              | 4002                                                                                           | 4064    | 4125    | 4187    | 4248    | 4310    | 4372    | 4433    | 4495    | 4556 |
| 497              | 4028                                                                                           | 4090    | 4152    | 4214    | 4276    | 4338    | 4400    | 4462    | 4524    | 4586 |
| 498              | 4053                                                                                           | 4116    | 4178    | 4241    | 4303    | 4365    | 4428    | 4490    | 4553    | 4615 |
| 499              | 4079                                                                                           | 4142    | 4205    | 4267    | 4330    | 4393    | 4456    | 4519    | 4581    | 4644 |
| 500              | 4105                                                                                           | 4168    | 4231    | 4294    | 4358    | 4421    | 4484    | 4547    | 4610    | 4674 |
| 501              | 4130                                                                                           | 4194    | 4258    | 4321    | 4385    | 4448    | 4512    | 4576    | 4639    | 4703 |
| 502              | 4156                                                                                           | 4220    | 4284    | 4348    | 4412    | 4476    | 4540    | 4604    | 4668    | 4732 |
| 503              | 4182                                                                                           | 4246    | 4311    | 4375    | 4439    | 4504    | 4568    | 4633    | 4697    | 4762 |
| 504              | 4207                                                                                           | 4272    | 4337    | 4402    | 4467    | 4532    | 4596    | 4661    | 4726    | 4791 |
| 505              | 4233                                                                                           | 4298    | 4363    | 4429    | 4494    | 4559    | 4624    | 4690    | 4755    | 4820 |
| 506              | 4259                                                                                           | 4324    | 4390    | 4456    | 4521    | 4587    | 4653    | 4718    | 4784    | 4850 |
| 507              | 4284                                                                                           | 4350    | 4416    | 4482    | 4549    | 4615    | 4681    | 4747    | 4813    | 4879 |
| 508              | 4310                                                                                           | 4376    | 4443    | 4509    | 4576    | 4642    | 4709    | 4775    | 4842    | 4908 |
| 509              | 4336                                                                                           | 4402    | 4469    | 4536    | 4603    | 4670    | 4737    | 4804    | 4871    | 4937 |
| 510              | 4361                                                                                           | 4428    | 4496    | 4563    | 4630    | 4698    | 4765    | 4832    | 4900    | 4967 |
| 511              | 4384                                                                                           | 4452    | 4520    | 4588    | 4656    | 4724    | 4792    | 4860    | 4928    | 4996 |
| 512              | 4403                                                                                           | 4472    | 4540    | 4609    | 4677    | 4746    | 4814    | 4883    | 4951    | 5020 |
| 513              | 4423                                                                                           | 4492    | 4561    | 4630    | 4698    | 4767    | 4836    | 4905    | 4974    | 5042 |
| 514              | 4443                                                                                           | 4512    | 4581    | 4650    | 4719    | 4788    | 4858    | 4927    | 4996    | 5065 |
| 515              | 4462                                                                                           | 4532    | 4601    | 4671    | 4740    | 4810    | 4879    | 4949    | 5018    | 5087 |
| 516              | 4482                                                                                           | 4552    | 4622    | 4691    | 4761    | 4831    | 4901    | 4970    | 5040    | 5110 |
| 517              | 4502                                                                                           | 4572    | 4642    | 4712    | 4782    | 4852    | 4922    | 4992    | 5062    | 5132 |
| 518              | 4521                                                                                           | 4592    | 4662    | 4732    | 4803    | 4873    | 4944    | 5014    | 5084    | 5155 |
| 519              | 4541                                                                                           | 4612    | 4682    | 4753    | 4824    | 4894    | 4965    | 5036    | 5107    | 5177 |
| 520              | 4561                                                                                           | 4632    | 4703    | 4774    | 4845    | 4916    | 4987    | 5058    | 5129    | 5200 |
| 521              | 4580                                                                                           | 4651    | 4723    | 4794    | 4866    | 4937    | 5008    | 5080    | 5151    | 5222 |
| 522              | 4600                                                                                           | 4671    | 4743    | 4815    | 4886    | 4958    | 5030    | 5101    | 5173    | 5245 |
| 523              | 4619                                                                                           | 4691    | 4763    | 4835    | 4907    | 4979    | 5051    | 5123    | 5195    | 5267 |
| 524              | 4639                                                                                           | 4711    | 4784    | 4856    | 4928    | 5001    | 5073    | 5145    | 5217    | 5290 |
| 525              | 4659                                                                                           | 4731    | 4804    | 4877    | 4949    | 5022    | 5094    | 5167    | 5240    | 5312 |
| 526              | 4678                                                                                           | 4751    | 4824    | 4897    | 4970    | 5043    | 5116    | 5189    | 5262    | 5335 |
| 527              | 4698                                                                                           | 4771    | 4844    | 4918    | 4991    | 5064    | 5137    | 5211    | 5284    | 5357 |
| 528              | 4718                                                                                           | 4791    | 4865    | 4938    | 5012    | 5085    | 5159    | 5233    | 5306    | 5380 |
| 529              | 4737                                                                                           | 4811    | 4885    | 4959    | 5033    | 5107    | 5181    | 5254    | 5328    | 5402 |
| 530              | 4757                                                                                           | 4831    | 4905    | 4979    | 5054    | 5128    | 5202    | 5276    | 5350    | 5425 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 7.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 8 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 531              | 4777                                                                                           | 4851    | 4926    | 5000    | 5075    | 5149    | 5224    | 5298    | 5373    | 5447 |
| 532              | 4796                                                                                           | 4871    | 4946    | 5021    | 5095    | 5170    | 5245    | 5320    | 5395    | 5470 |
| 533              | 4816                                                                                           | 4891    | 4966    | 5041    | 5116    | 5191    | 5267    | 5342    | 5417    | 5492 |
| 534              | 4835                                                                                           | 4911    | 4986    | 5062    | 5137    | 5213    | 5288    | 5364    | 5439    | 5515 |
| 535              | 4855                                                                                           | 4931    | 5007    | 5082    | 5158    | 5234    | 5310    | 5385    | 5461    | 5537 |
| 536              | 4875                                                                                           | 4951    | 5027    | 5103    | 5179    | 5255    | 5331    | 5407    | 5483    | 5560 |
| 537              | 4894                                                                                           | 4971    | 5047    | 5124    | 5200    | 5276    | 5353    | 5429    | 5506    | 5582 |
| 538              | 4914                                                                                           | 4991    | 5067    | 5144    | 5221    | 5298    | 5374    | 5451    | 5528    | 5604 |
| 539              | 4934                                                                                           | 5011    | 5088    | 5165    | 5242    | 5319    | 5396    | 5473    | 5550    | 5627 |
| 540              | 4953                                                                                           | 5031    | 5108    | 5185    | 5263    | 5340    | 5417    | 5495    | 5572    | 5649 |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 541              | 4973                                                                                           | 5051    | 5128    | 5206    | 5284    | 5361    | 5439    | 5517    | 5594    | 5672 |
| 542              | 4992                                                                                           | 5070    | 5148    | 5226    | 5304    | 5382    | 5460    | 5538    | 5616    | 5694 |
| 543              | 5012                                                                                           | 5090    | 5169    | 5247    | 5325    | 5404    | 5482    | 5560    | 5639    | 5717 |
| 544              | 5032                                                                                           | 5110    | 5189    | 5268    | 5346    | 5425    | 5503    | 5582    | 5661    | 5739 |
| 545              | 5051                                                                                           | 5130    | 5209    | 5288    | 5367    | 5446    | 5525    | 5604    | 5683    | 5762 |
| 546              | 5071                                                                                           | 5150    | 5230    | 5309    | 5388    | 5467    | 5547    | 5626    | 5705    | 5784 |
| 547              | 5091                                                                                           | 5170    | 5250    | 5329    | 5409    | 5489    | 5568    | 5648    | 5727    | 5807 |
| 548              | 5110                                                                                           | 5190    | 5270    | 5350    | 5430    | 5510    | 5590    | 5669    | 5749    | 5829 |
| 549              | 5130                                                                                           | 5210    | 5290    | 5371    | 5451    | 5531    | 5611    | 5691    | 5772    | 5852 |
| 550              | 5150                                                                                           | 5230    | 5311    | 5391    | 5472    | 5552    | 5633    | 5713    | 5794    | 5874 |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 551              | 5169                                                                                           | 5250    | 5331    | 5412    | 5493    | 5573    | 5654    | 5735    | 5816    | 5897 |
| 552              | 5189                                                                                           | 5270    | 5351    | 5432    | 5513    | 5595    | 5676    | 5757    | 5838    | 5919 |
| 553              | 5208                                                                                           | 5290    | 5371    | 5453    | 5534    | 5616    | 5697    | 5779    | 5860    | 5942 |
| 554              | 5228                                                                                           | 5310    | 5392    | 5473    | 5555    | 5637    | 5719    | 5801    | 5882    | 5964 |
| 555              | 5248                                                                                           | 5330    | 5412    | 5494    | 5576    | 5658    | 5740    | 5822    | 5905    | 5987 |
| 556              | 5267                                                                                           | 5350    | 5432    | 5515    | 5597    | 5679    | 5762    | 5844    | 5927    | 6009 |
| 557              | 5287                                                                                           | 5370    | 5452    | 5535    | 5618    | 5701    | 5783    | 5866    | 5949    | 6032 |
| 558              | 5307                                                                                           | 5390    | 5473    | 5556    | 5639    | 5722    | 5805    | 5888    | 5971    | 6054 |
| 559              | 5326                                                                                           | 5410    | 5493    | 5576    | 5660    | 5743    | 5826    | 5910    | 5993    | 6077 |
| 560              | 5346                                                                                           | 5430    | 5513    | 5597    | 5681    | 5764    | 5848    | 5932    | 6015    | 6099 |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 561              | 5364                                                                                           | 5448    | 5533    | 5617    | 5701    | 5785    | 5869    | 5953    | 6037    | 6122 |
| 562              | 5381                                                                                           | 5466    | 5550    | 5635    | 5719    | 5804    | 5888    | 5973    | 6057    | 6142 |
| 563              | 5399                                                                                           | 5483    | 5568    | 5653    | 5738    | 5823    | 5907    | 5992    | 6077    | 6162 |
| 564              | 5416                                                                                           | 5501    | 5586    | 5671    | 5756    | 5841    | 5926    | 6011    | 6097    | 6182 |
| 565              | 5433                                                                                           | 5518    | 5604    | 5689    | 5775    | 5860    | 5945    | 6031    | 6116    | 6202 |
| 566              | 5450                                                                                           | 5536    | 5621    | 5707    | 5793    | 5879    | 5964    | 6050    | 6136    | 6221 |
| 567              | 5467                                                                                           | 5553    | 5639    | 5725    | 5811    | 5897    | 5983    | 6069    | 6155    | 6241 |
| 568              | 5484                                                                                           | 5571    | 5657    | 5743    | 5830    | 5916    | 6002    | 6089    | 6175    | 6261 |
| 569              | 5501                                                                                           | 5588    | 5675    | 5761    | 5848    | 5935    | 6021    | 6108    | 6195    | 6281 |
| 570              | 5519                                                                                           | 5606    | 5692    | 5779    | 5866    | 5953    | 6040    | 6127    | 6214    | 6301 |
|                  |                                                                                                |         |         |         |         |         |         |         |         |      |
| 571              | 5536                                                                                           | 5623    | 5710    | 5797    | 5885    | 5972    | 6059    | 6146    | 6234    | 6321 |
| 572              | 5553                                                                                           | 5640    | 5728    | 5816    | 5903    | 5991    | 6078    | 6166    | 6253    | 6341 |
| 573              | 5570                                                                                           | 5658    | 5746    | 5834    | 5921    | 6009    | 6097    | 6185    | 6273    | 6361 |
| 574              | 5587                                                                                           | 5675    | 5763    | 5852    | 5940    | 6028    | 6116    | 6204    | 6292    | 6381 |
| 575              | 5604                                                                                           | 5693    | 5781    | 5870    | 5958    | 6047    | 6135    | 6224    | 6312    | 6401 |
| 576              | 5621                                                                                           | 5710    | 5799    | 5888    | 5977    | 6065    | 6154    | 6243    | 6332    | 6420 |
| 577              | 5639                                                                                           | 5728    | 5817    | 5906    | 5995    | 6084    | 6173    | 6262    | 6351    | 6440 |
| 578              | 5656                                                                                           | 5745    | 5834    | 5924    | 6013    | 6103    | 6192    | 6281    | 6371    | 6460 |
| 579              | 5673                                                                                           | 5763    | 5852    | 5942    | 6032    | 6121    | 6211    | 6301    | 6390    | 6480 |
| 580              | 5690                                                                                           | 5780    | 5870    | 5960    | 6050    | 6140    | 6230    | 6320    | 6410    | 6500 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 8.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 9 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 405              | 0                                                                                              | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0    |
| 406              | 110                                                                                            | 110     | 111     | 112     | 112     | 113     | 113     | 114     | 115     | 115  |
| 407              | 219                                                                                            | 221     | 222     | 223     | 224     | 226     | 227     | 228     | 230     | 231  |
| 408              | 329                                                                                            | 331     | 333     | 335     | 337     | 339     | 340     | 342     | 344     | 346  |
| 409              | 439                                                                                            | 441     | 444     | 446     | 449     | 451     | 454     | 457     | 459     | 462  |
| 410              | 549                                                                                            | 552     | 555     | 558     | 561     | 564     | 567     | 571     | 574     | 577  |
| 411              | 658                                                                                            | 662     | 666     | 670     | 673     | 677     | 681     | 685     | 689     | 692  |
| 412              | 768                                                                                            | 772     | 777     | 781     | 786     | 790     | 794     | 799     | 803     | 808  |
| 413              | 878                                                                                            | 883     | 888     | 893     | 898     | 903     | 908     | 913     | 918     | 923  |
| 414              | 987                                                                                            | 993     | 999     | 1004    | 1010    | 1016    | 1021    | 1027    | 1033    | 1038 |
| 415              | 1097                                                                                           | 1103    | 1110    | 1116    | 1122    | 1129    | 1135    | 1141    | 1148    | 1154 |
| 416              | 1207                                                                                           | 1214    | 1221    | 1228    | 1235    | 1242    | 1248    | 1255    | 1262    | 1269 |
| 417              | 1276                                                                                           | 1288    | 1300    | 1312    | 1324    | 1337    | 1349    | 1361    | 1373    | 1385 |
| 418              | 1346                                                                                           | 1363    | 1380    | 1397    | 1414    | 1431    | 1449    | 1466    | 1483    | 1500 |
| 419              | 1411                                                                                           | 1428    | 1446    | 1463    | 1481    | 1498    | 1516    | 1533    | 1551    | 1568 |
| 420              | 1475                                                                                           | 1493    | 1511    | 1529    | 1547    | 1565    | 1583    | 1601    | 1618    | 1636 |
| 421              | 1540                                                                                           | 1558    | 1577    | 1595    | 1613    | 1631    | 1650    | 1668    | 1686    | 1705 |
| 422              | 1605                                                                                           | 1623    | 1642    | 1661    | 1679    | 1698    | 1717    | 1735    | 1754    | 1773 |
| 423              | 1670                                                                                           | 1689    | 1708    | 1727    | 1746    | 1765    | 1784    | 1803    | 1822    | 1841 |
| 424              | 1734                                                                                           | 1754    | 1773    | 1793    | 1812    | 1831    | 1851    | 1870    | 1890    | 1909 |
| 425              | 1799                                                                                           | 1819    | 1839    | 1858    | 1878    | 1898    | 1918    | 1938    | 1957    | 1977 |
| 426              | 1864                                                                                           | 1884    | 1904    | 1924    | 1945    | 1965    | 1985    | 2005    | 2025    | 2045 |
| 427              | 1928                                                                                           | 1949    | 1970    | 1990    | 2011    | 2031    | 2052    | 2072    | 2093    | 2114 |
| 428              | 1993                                                                                           | 2014    | 2035    | 2056    | 2077    | 2098    | 2119    | 2140    | 2161    | 2182 |
| 429              | 2058                                                                                           | 2079    | 2101    | 2122    | 2143    | 2165    | 2186    | 2207    | 2229    | 2250 |
| 430              | 2123                                                                                           | 2144    | 2166    | 2188    | 2210    | 2231    | 2253    | 2275    | 2296    | 2318 |
| 431              | 2187                                                                                           | 2210    | 2232    | 2254    | 2276    | 2298    | 2320    | 2342    | 2364    | 2386 |
| 432              | 2252                                                                                           | 2275    | 2297    | 2320    | 2342    | 2365    | 2387    | 2410    | 2432    | 2455 |
| 433              | 2317                                                                                           | 2340    | 2363    | 2386    | 2408    | 2431    | 2454    | 2477    | 2500    | 2523 |
| 434              | 2382                                                                                           | 2405    | 2428    | 2451    | 2475    | 2498    | 2521    | 2544    | 2568    | 2591 |
| 435              | 2446                                                                                           | 2470    | 2494    | 2517    | 2541    | 2565    | 2588    | 2612    | 2635    | 2659 |
| 436              | 2511                                                                                           | 2535    | 2559    | 2583    | 2607    | 2631    | 2655    | 2679    | 2703    | 2727 |
| 437              | 2559                                                                                           | 2586    | 2612    | 2638    | 2664    | 2691    | 2717    | 2743    | 2769    | 2795 |
| 438              | 2603                                                                                           | 2632    | 2661    | 2690    | 2719    | 2748    | 2777    | 2806    | 2835    | 2864 |
| 439              | 2648                                                                                           | 2679    | 2711    | 2742    | 2774    | 2806    | 2837    | 2869    | 2900    | 2932 |
| 440              | 2692                                                                                           | 2726    | 2760    | 2794    | 2829    | 2863    | 2897    | 2931    | 2966    | 3000 |
| 441              | 2734                                                                                           | 2769    | 2804    | 2839    | 2874    | 2910    | 2945    | 2980    | 3015    | 3050 |
| 442              | 2776                                                                                           | 2812    | 2848    | 2884    | 2920    | 2956    | 2992    | 3028    | 3064    | 3100 |
| 443              | 2819                                                                                           | 2855    | 2892    | 2929    | 2966    | 3003    | 3040    | 3076    | 3113    | 3150 |
| 444              | 2861                                                                                           | 2899    | 2936    | 2974    | 3012    | 3049    | 3087    | 3125    | 3162    | 3200 |
| 445              | 2903                                                                                           | 2942    | 2980    | 3019    | 3057    | 3096    | 3134    | 3173    | 3211    | 3250 |
| 446              | 2946                                                                                           | 2985    | 3024    | 3064    | 3103    | 3142    | 3182    | 3221    | 3261    | 3300 |
| 447              | 2988                                                                                           | 3028    | 3068    | 3109    | 3149    | 3189    | 3229    | 3270    | 3310    | 3350 |
| 448              | 3030                                                                                           | 3071    | 3112    | 3153    | 3194    | 3236    | 3277    | 3318    | 3359    | 3400 |
| 449              | 3072                                                                                           | 3114    | 3156    | 3198    | 3240    | 3282    | 3324    | 3366    | 3408    | 3450 |
| 450              | 3115                                                                                           | 3157    | 3200    | 3243    | 3286    | 3329    | 3372    | 3414    | 3457    | 3500 |
| 451              | 3157                                                                                           | 3201    | 3244    | 3288    | 3332    | 3375    | 3419    | 3463    | 3506    | 3550 |
| 452              | 3199                                                                                           | 3244    | 3288    | 3333    | 3377    | 3422    | 3466    | 3511    | 3555    | 3600 |
| 453              | 3242                                                                                           | 3287    | 3332    | 3378    | 3423    | 3468    | 3514    | 3559    | 3605    | 3650 |
| 454              | 3284                                                                                           | 3330    | 3376    | 3423    | 3469    | 3515    | 3561    | 3608    | 3654    | 3700 |
| 455              | 3326                                                                                           | 3373    | 3420    | 3467    | 3515    | 3562    | 3609    | 3656    | 3703    | 3750 |
| 456              | 3368                                                                                           | 3416    | 3464    | 3512    | 3560    | 3608    | 3656    | 3704    | 3752    | 3800 |
| 457              | 3411                                                                                           | 3460    | 3508    | 3557    | 3606    | 3655    | 3704    | 3752    | 3801    | 3850 |
| 458              | 3453                                                                                           | 3503    | 3552    | 3602    | 3652    | 3701    | 3751    | 3801    | 3850    | 3900 |
| 459              | 3495                                                                                           | 3546    | 3596    | 3647    | 3697    | 3748    | 3798    | 3849    | 3899    | 3950 |
| 460              | 3538                                                                                           | 3589    | 3640    | 3692    | 3743    | 3795    | 3846    | 3897    | 3949    | 4000 |
| 461              | 3579                                                                                           | 3630    | 3681    | 3732    | 3783    | 3834    | 3885    | 3936    | 3987    | 4038 |
| 462              | 3611                                                                                           | 3663    | 3714    | 3766    | 3817    | 3869    | 3920    | 3972    | 4023    | 4075 |
| 463              | 3641                                                                                           | 3694    | 3746    | 3798    | 3851    | 3903    | 3955    | 4008    | 4060    | 4113 |
| 464              | 3671                                                                                           | 3724    | 3778    | 3831    | 3884    | 3937    | 3990    | 4044    | 4097    | 4150 |
| 465              | 3701                                                                                           | 3755    | 3809    | 3863    | 3917    | 3971    | 4025    | 4079    | 4133    | 4188 |
| 466              | 3732                                                                                           | 3786    | 3841    | 3896    | 3951    | 4006    | 4061    | 4115    | 4170    | 4225 |
| 467              | 3762                                                                                           | 3817    | 3873    | 3929    | 3984    | 4040    | 4096    | 4151    | 4207    | 4263 |
| 468              | 3792                                                                                           | 3848    | 3905    | 3961    | 4018    | 4074    | 4131    | 4187    | 4244    | 4300 |
| 469              | 3822                                                                                           | 3879    | 3937    | 3994    | 4051    | 4108    | 4166    | 4223    | 4280    | 4338 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
 OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 8.0 FT          |         |         |         |         |         |         |         |         |      |
|------------------|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT         | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 9 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs) |         |         |         |         |         |         |         |         |      |
| 470              | 3852            | 3910    | 3968    | 4026    | 4085    | 4143    | 4201    | 4259    | 4317    | 4375 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 8.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 9 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 471              | 3882                                                                                           | 3941    | 4000    | 4059    | 4118    | 4177    | 4236    | 4295    | 4354    | 4413 |
| 472              | 3912                                                                                           | 3972    | 4032    | 4092    | 4151    | 4211    | 4271    | 4331    | 4390    | 4450 |
| 473              | 3943                                                                                           | 4003    | 4064    | 4124    | 4185    | 4245    | 4306    | 4366    | 4427    | 4488 |
| 474              | 3973                                                                                           | 4034    | 4095    | 4157    | 4218    | 4280    | 4341    | 4402    | 4464    | 4525 |
| 475              | 4003                                                                                           | 4065    | 4127    | 4189    | 4252    | 4314    | 4376    | 4438    | 4500    | 4563 |
| 476              | 4033                                                                                           | 4096    | 4159    | 4222    | 4285    | 4348    | 4411    | 4474    | 4537    | 4600 |
| 477              | 4063                                                                                           | 4127    | 4191    | 4255    | 4318    | 4382    | 4446    | 4510    | 4574    | 4638 |
| 478              | 4093                                                                                           | 4158    | 4223    | 4287    | 4352    | 4416    | 4481    | 4546    | 4610    | 4675 |
| 479              | 4123                                                                                           | 4189    | 4254    | 4320    | 4385    | 4451    | 4516    | 4582    | 4647    | 4713 |
| 480              | 4153                                                                                           | 4220    | 4286    | 4352    | 4419    | 4485    | 4551    | 4617    | 4684    | 4750 |
| 481              | 4183                                                                                           | 4249    | 4315    | 4382    | 4448    | 4514    | 4580    | 4647    | 4713    | 4779 |
| 482              | 4212                                                                                           | 4278    | 4345    | 4411    | 4477    | 4543    | 4610    | 4676    | 4742    | 4808 |
| 483              | 4241                                                                                           | 4308    | 4374    | 4440    | 4506    | 4573    | 4639    | 4705    | 4771    | 4838 |
| 484              | 4271                                                                                           | 4337    | 4403    | 4469    | 4536    | 4602    | 4668    | 4734    | 4800    | 4867 |
| 485              | 4300                                                                                           | 4366    | 4432    | 4499    | 4565    | 4631    | 4697    | 4763    | 4830    | 4896 |
| 486              | 4329                                                                                           | 4396    | 4462    | 4528    | 4594    | 4660    | 4726    | 4793    | 4859    | 4925 |
| 487              | 4359                                                                                           | 4425    | 4491    | 4557    | 4623    | 4689    | 4756    | 4822    | 4888    | 4954 |
| 488              | 4388                                                                                           | 4454    | 4520    | 4586    | 4653    | 4719    | 4785    | 4851    | 4917    | 4983 |
| 489              | 4417                                                                                           | 4483    | 4550    | 4616    | 4682    | 4748    | 4814    | 4880    | 4946    | 5013 |
| 490              | 4447                                                                                           | 4513    | 4579    | 4645    | 4711    | 4777    | 4843    | 4909    | 4976    | 5042 |
| 491              | 4476                                                                                           | 4542    | 4608    | 4674    | 4740    | 4806    | 4873    | 4939    | 5005    | 5071 |
| 492              | 4505                                                                                           | 4571    | 4637    | 4703    | 4770    | 4836    | 4902    | 4968    | 5034    | 5100 |
| 493              | 4534                                                                                           | 4601    | 4667    | 4733    | 4799    | 4865    | 4931    | 4997    | 5063    | 5129 |
| 494              | 4564                                                                                           | 4630    | 4696    | 4762    | 4828    | 4894    | 4960    | 5026    | 5092    | 5158 |
| 495              | 4593                                                                                           | 4659    | 4725    | 4791    | 4857    | 4923    | 4989    | 5055    | 5121    | 5188 |
| 496              | 4622                                                                                           | 4688    | 4754    | 4820    | 4887    | 4953    | 5019    | 5085    | 5151    | 5217 |
| 497              | 4652                                                                                           | 4718    | 4784    | 4850    | 4916    | 4982    | 5048    | 5114    | 5180    | 5246 |
| 498              | 4681                                                                                           | 4747    | 4813    | 4879    | 4945    | 5011    | 5077    | 5143    | 5209    | 5275 |
| 499              | 4710                                                                                           | 4776    | 4842    | 4908    | 4974    | 5040    | 5106    | 5172    | 5238    | 5304 |
| 500              | 4740                                                                                           | 4806    | 4872    | 4938    | 5003    | 5069    | 5135    | 5201    | 5267    | 5333 |
| 501              | 4769                                                                                           | 4835    | 4901    | 4967    | 5033    | 5099    | 5165    | 5231    | 5297    | 5363 |
| 502              | 4798                                                                                           | 4864    | 4930    | 4996    | 5062    | 5128    | 5194    | 5260    | 5326    | 5392 |
| 503              | 4828                                                                                           | 4893    | 4959    | 5025    | 5091    | 5157    | 5223    | 5289    | 5355    | 5421 |
| 504              | 4857                                                                                           | 4923    | 4989    | 5055    | 5120    | 5186    | 5252    | 5318    | 5384    | 5450 |
| 505              | 4886                                                                                           | 4952    | 5018    | 5084    | 5150    | 5216    | 5281    | 5347    | 5413    | 5479 |
| 506              | 4915                                                                                           | 4981    | 5047    | 5113    | 5179    | 5245    | 5311    | 5377    | 5442    | 5508 |
| 507              | 4945                                                                                           | 5011    | 5076    | 5142    | 5208    | 5274    | 5340    | 5406    | 5472    | 5538 |
| 508              | 4974                                                                                           | 5040    | 5106    | 5172    | 5237    | 5303    | 5369    | 5435    | 5501    | 5567 |
| 509              | 5003                                                                                           | 5069    | 5135    | 5201    | 5267    | 5332    | 5398    | 5464    | 5530    | 5596 |
| 510              | 5033                                                                                           | 5098    | 5164    | 5230    | 5296    | 5362    | 5428    | 5493    | 5559    | 5625 |
| 511              | 5062                                                                                           | 5128    | 5194    | 5259    | 5325    | 5391    | 5457    | 5523    | 5588    | 5654 |
| 512              | 5086                                                                                           | 5153    | 5219    | 5285    | 5352    | 5418    | 5484    | 5551    | 5617    | 5683 |
| 513              | 5109                                                                                           | 5176    | 5243    | 5310    | 5377    | 5444    | 5511    | 5578    | 5645    | 5713 |
| 514              | 5133                                                                                           | 5200    | 5268    | 5336    | 5403    | 5471    | 5539    | 5606    | 5674    | 5742 |
| 515              | 5156                                                                                           | 5224    | 5292    | 5361    | 5429    | 5497    | 5566    | 5634    | 5702    | 5771 |
| 516              | 5179                                                                                           | 5248    | 5317    | 5386    | 5455    | 5524    | 5593    | 5662    | 5731    | 5800 |
| 517              | 5202                                                                                           | 5272    | 5341    | 5411    | 5481    | 5550    | 5620    | 5690    | 5759    | 5829 |
| 518              | 5225                                                                                           | 5296    | 5366    | 5436    | 5507    | 5577    | 5647    | 5718    | 5788    | 5858 |
| 519              | 5248                                                                                           | 5319    | 5390    | 5461    | 5532    | 5603    | 5674    | 5745    | 5816    | 5888 |
| 520              | 5272                                                                                           | 5343    | 5415    | 5487    | 5558    | 5630    | 5702    | 5773    | 5845    | 5917 |
| 521              | 5295                                                                                           | 5367    | 5439    | 5512    | 5584    | 5656    | 5729    | 5801    | 5873    | 5946 |
| 522              | 5318                                                                                           | 5391    | 5464    | 5537    | 5610    | 5683    | 5756    | 5829    | 5902    | 5975 |
| 523              | 5341                                                                                           | 5415    | 5488    | 5562    | 5636    | 5709    | 5783    | 5857    | 5930    | 6004 |
| 524              | 5364                                                                                           | 5438    | 5513    | 5587    | 5662    | 5736    | 5810    | 5885    | 5959    | 6033 |
| 525              | 5387                                                                                           | 5462    | 5537    | 5612    | 5687    | 5762    | 5837    | 5912    | 5987    | 6063 |
| 526              | 5410                                                                                           | 5486    | 5562    | 5637    | 5713    | 5789    | 5865    | 5940    | 6016    | 6092 |
| 527              | 5434                                                                                           | 5510    | 5586    | 5663    | 5739    | 5815    | 5892    | 5968    | 6044    | 6121 |
| 528              | 5457                                                                                           | 5534    | 5611    | 5688    | 5765    | 5842    | 5919    | 5996    | 6073    | 6150 |
| 529              | 5480                                                                                           | 5558    | 5635    | 5713    | 5791    | 5868    | 5946    | 6024    | 6101    | 6179 |
| 530              | 5503                                                                                           | 5581    | 5660    | 5738    | 5816    | 5895    | 5973    | 6052    | 6130    | 6208 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 1)

BOTH GATES PARTIALLY OPENED IN INTERVALS OF .10 FT

| GATE<br>OPENING  | 8.0 FT                                                                                         |         |         |         |         |         |         |         |         |      |
|------------------|------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|------|
|                  | 0.10 FT                                                                                        | 0.20 FT | 0.30 FT | 0.40 FT | 0.50 FT | 0.60 FT | 0.70 FT | 0.80 FT | 0.90 FT | 9 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |         |         |         |         |         |         |         |         |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |         |         |         |         |         |         |         |         |      |
| 531              | 5526                                                                                           | 5605    | 5684    | 5763    | 5842    | 5921    | 6000    | 6079    | 6158    | 6238 |
| 532              | 5549                                                                                           | 5629    | 5709    | 5788    | 5868    | 5948    | 6028    | 6107    | 6187    | 6267 |
| 533              | 5572                                                                                           | 5653    | 5733    | 5814    | 5894    | 5974    | 6055    | 6135    | 6215    | 6296 |
| 534              | 5596                                                                                           | 5677    | 5758    | 5839    | 5920    | 6001    | 6082    | 6163    | 6244    | 6325 |
| 535              | 5619                                                                                           | 5700    | 5782    | 5864    | 5946    | 6027    | 6109    | 6191    | 6272    | 6354 |
| 536              | 5642                                                                                           | 5724    | 5807    | 5889    | 5971    | 6054    | 6136    | 6219    | 6301    | 6383 |
| 537              | 5665                                                                                           | 5748    | 5831    | 5914    | 5997    | 6080    | 6163    | 6246    | 6329    | 6413 |
| 538              | 5688                                                                                           | 5772    | 5856    | 5939    | 6023    | 6107    | 6191    | 6274    | 6358    | 6442 |
| 539              | 5711                                                                                           | 5796    | 5880    | 5964    | 6049    | 6133    | 6218    | 6302    | 6386    | 6471 |
| 540              | 5734                                                                                           | 5820    | 5905    | 5990    | 6075    | 6160    | 6245    | 6330    | 6415    | 6500 |
| 541              | 5757                                                                                           | 5842    | 5927    | 6012    | 6097    | 6182    | 6267    | 6352    | 6437    | 6522 |
| 542              | 5779                                                                                           | 5864    | 5949    | 6034    | 6119    | 6204    | 6289    | 6374    | 6459    | 6544 |
| 543              | 5802                                                                                           | 5887    | 5971    | 6056    | 6141    | 6226    | 6311    | 6396    | 6481    | 6566 |
| 544              | 5824                                                                                           | 5909    | 5994    | 6079    | 6163    | 6248    | 6333    | 6418    | 6503    | 6588 |
| 545              | 5847                                                                                           | 5931    | 6016    | 6101    | 6186    | 6270    | 6355    | 6440    | 6525    | 6609 |
| 546              | 5869                                                                                           | 5954    | 6038    | 6123    | 6208    | 6292    | 6377    | 6462    | 6547    | 6631 |
| 547              | 5891                                                                                           | 5976    | 6061    | 6145    | 6230    | 6315    | 6399    | 6484    | 6568    | 6653 |
| 548              | 5914                                                                                           | 5998    | 6083    | 6168    | 6252    | 6337    | 6421    | 6506    | 6590    | 6675 |
| 549              | 5936                                                                                           | 6021    | 6105    | 6190    | 6274    | 6359    | 6443    | 6528    | 6612    | 6697 |
| 550              | 5959                                                                                           | 6043    | 6128    | 6212    | 6296    | 6381    | 6465    | 6550    | 6634    | 6719 |
| 551              | 5981                                                                                           | 6065    | 6150    | 6234    | 6319    | 6403    | 6487    | 6572    | 6656    | 6741 |
| 552              | 6004                                                                                           | 6088    | 6172    | 6257    | 6341    | 6425    | 6510    | 6594    | 6678    | 6763 |
| 553              | 6026                                                                                           | 6110    | 6194    | 6279    | 6363    | 6447    | 6532    | 6616    | 6700    | 6784 |
| 554              | 6048                                                                                           | 6133    | 6217    | 6301    | 6385    | 6469    | 6554    | 6638    | 6722    | 6806 |
| 555              | 6071                                                                                           | 6155    | 6239    | 6323    | 6407    | 6492    | 6576    | 6660    | 6744    | 6828 |
| 556              | 6093                                                                                           | 6177    | 6261    | 6345    | 6430    | 6514    | 6598    | 6682    | 6766    | 6850 |
| 557              | 6116                                                                                           | 6200    | 6284    | 6368    | 6452    | 6536    | 6620    | 6704    | 6788    | 6872 |
| 558              | 6138                                                                                           | 6222    | 6306    | 6390    | 6474    | 6558    | 6642    | 6726    | 6810    | 6894 |
| 559              | 6160                                                                                           | 6244    | 6328    | 6412    | 6496    | 6580    | 6664    | 6748    | 6832    | 6916 |
| 560              | 6183                                                                                           | 6267    | 6351    | 6434    | 6518    | 6602    | 6686    | 6770    | 6854    | 6938 |
| 561              | 6205                                                                                           | 6289    | 6373    | 6457    | 6540    | 6624    | 6708    | 6792    | 6876    | 6959 |
| 562              | 6226                                                                                           | 6310    | 6394    | 6478    | 6562    | 6646    | 6729    | 6813    | 6897    | 6981 |
| 563              | 6246                                                                                           | 6330    | 6414    | 6498    | 6582    | 6667    | 6751    | 6835    | 6919    | 7003 |
| 564              | 6266                                                                                           | 6350    | 6435    | 6519    | 6603    | 6688    | 6772    | 6856    | 6941    | 7025 |
| 565              | 6286                                                                                           | 6371    | 6455    | 6540    | 6624    | 6709    | 6793    | 6878    | 6962    | 7047 |
| 566              | 6306                                                                                           | 6391    | 6476    | 6560    | 6645    | 6730    | 6815    | 6899    | 6984    | 7069 |
| 567              | 6326                                                                                           | 6411    | 6496    | 6581    | 6666    | 6751    | 6836    | 6921    | 7006    | 7091 |
| 568              | 6346                                                                                           | 6432    | 6517    | 6602    | 6687    | 6772    | 6857    | 6942    | 7027    | 7113 |
| 569              | 6366                                                                                           | 6452    | 6537    | 6622    | 6708    | 6793    | 6878    | 6964    | 7049    | 7134 |
| 570              | 6387                                                                                           | 6472    | 6558    | 6643    | 6729    | 6814    | 6900    | 6985    | 7071    | 7156 |
| 571              | 6407                                                                                           | 6492    | 6578    | 6664    | 6750    | 6835    | 6921    | 7007    | 7092    | 7178 |
| 572              | 6427                                                                                           | 6513    | 6599    | 6685    | 6770    | 6856    | 6942    | 7028    | 7114    | 7200 |
| 573              | 6447                                                                                           | 6533    | 6619    | 6705    | 6791    | 6877    | 6964    | 7050    | 7136    | 7222 |
| 574              | 6467                                                                                           | 6553    | 6640    | 6726    | 6812    | 6899    | 6985    | 7071    | 7157    | 7244 |
| 575              | 6487                                                                                           | 6574    | 6660    | 6747    | 6833    | 6920    | 7006    | 7093    | 7179    | 7266 |
| 576              | 6507                                                                                           | 6594    | 6681    | 6767    | 6854    | 6941    | 7027    | 7114    | 7201    | 7288 |
| 577              | 6527                                                                                           | 6614    | 6701    | 6788    | 6875    | 6962    | 7049    | 7136    | 7222    | 7309 |
| 578              | 6547                                                                                           | 6634    | 6722    | 6809    | 6896    | 6983    | 7070    | 7157    | 7244    | 7331 |
| 579              | 6567                                                                                           | 6655    | 6742    | 6829    | 6917    | 7004    | 7091    | 7179    | 7266    | 7353 |
| 580              | 6588                                                                                           | 6675    | 6763    | 6850    | 6938    | 7025    | 7113    | 7200    | 7288    | 7375 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 405              | 0                                                                                              | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 406              | 1                                                                                              | 2    | 3    | 4    | 4    | 5    | 6    | 7    | 8    | 9    |
| 407              | 2                                                                                              | 4    | 5    | 7    | 9    | 11   | 12   | 14   | 16   | 18   |
| 408              | 4                                                                                              | 5    | 8    | 11   | 13   | 16   | 18   | 21   | 24   | 26   |
| 409              | 5                                                                                              | 7    | 11   | 14   | 18   | 21   | 25   | 28   | 32   | 35   |
| 410              | 6                                                                                              | 7    | 11   | 15   | 18   | 22   | 26   | 29   | 33   | 37   |
| 411              | 7                                                                                              | 8    | 12   | 15   | 19   | 23   | 27   | 31   | 35   | 38   |
| 412              | 7                                                                                              | 8    | 12   | 16   | 20   | 24   | 28   | 32   | 36   | 40   |
| 413              | 8                                                                                              | 8    | 13   | 17   | 21   | 25   | 29   | 33   | 38   | 42   |
| 414              | 8                                                                                              | 9    | 13   | 17   | 22   | 26   | 31   | 35   | 39   | 44   |
| 415              | 9                                                                                              | 9    | 14   | 18   | 23   | 27   | 32   | 36   | 41   | 45   |
| 416              | 9                                                                                              | 9    | 14   | 19   | 24   | 28   | 33   | 38   | 42   | 47   |
| 417              | 9                                                                                              | 10   | 15   | 20   | 24   | 29   | 34   | 39   | 44   | 49   |
| 418              | 10                                                                                             | 10   | 15   | 20   | 25   | 30   | 35   | 40   | 46   | 51   |
| 419              | 10                                                                                             | 10   | 16   | 21   | 26   | 31   | 37   | 42   | 47   | 52   |
| 420              | 11                                                                                             | 11   | 16   | 22   | 27   | 32   | 38   | 43   | 49   | 54   |
| 421              | 11                                                                                             | 11   | 17   | 22   | 28   | 34   | 39   | 45   | 50   | 56   |
| 422              | 11                                                                                             | 12   | 17   | 23   | 29   | 35   | 40   | 46   | 52   | 58   |
| 423              | 12                                                                                             | 12   | 18   | 24   | 30   | 36   | 42   | 48   | 53   | 59   |
| 424              | 12                                                                                             | 12   | 18   | 24   | 31   | 37   | 43   | 49   | 55   | 61   |
| 425              | 12                                                                                             | 13   | 19   | 25   | 31   | 38   | 44   | 50   | 57   | 63   |
| 426              | 13                                                                                             | 13   | 19   | 26   | 32   | 39   | 45   | 52   | 58   | 65   |
| 427              | 13                                                                                             | 13   | 20   | 27   | 33   | 40   | 47   | 53   | 60   | 66   |
| 428              | 13                                                                                             | 14   | 20   | 27   | 34   | 41   | 48   | 55   | 61   | 68   |
| 429              | 14                                                                                             | 14   | 21   | 28   | 35   | 42   | 49   | 56   | 63   | 70   |
| 430              | 14                                                                                             | 14   | 22   | 29   | 36   | 43   | 50   | 57   | 65   | 72   |
| 431              | 14                                                                                             | 15   | 22   | 29   | 37   | 44   | 51   | 59   | 66   | 73   |
| 432              | 15                                                                                             | 15   | 22   | 30   | 37   | 45   | 52   | 60   | 67   | 75   |
| 433              | 15                                                                                             | 15   | 23   | 30   | 38   | 45   | 53   | 61   | 68   | 76   |
| 434              | 15                                                                                             | 15   | 23   | 31   | 39   | 46   | 54   | 62   | 69   | 77   |
| 435              | 16                                                                                             | 16   | 23   | 31   | 39   | 47   | 55   | 63   | 70   | 78   |
| 436              | 16                                                                                             | 16   | 24   | 32   | 40   | 48   | 56   | 64   | 72   | 79   |
| 437              | 16                                                                                             | 16   | 24   | 32   | 40   | 48   | 56   | 65   | 73   | 81   |
| 438              | 16                                                                                             | 16   | 25   | 33   | 41   | 49   | 57   | 66   | 74   | 82   |
| 439              | 16                                                                                             | 17   | 25   | 33   | 42   | 50   | 58   | 67   | 75   | 83   |
| 440              | 17                                                                                             | 17   | 25   | 34   | 42   | 51   | 59   | 67   | 76   | 84   |
| 441              | 17                                                                                             | 17   | 26   | 34   | 43   | 51   | 60   | 68   | 77   | 86   |
| 442              | 17                                                                                             | 17   | 26   | 35   | 43   | 52   | 61   | 69   | 78   | 87   |
| 443              | 17                                                                                             | 18   | 26   | 35   | 44   | 53   | 62   | 70   | 79   | 88   |
| 444              | 18                                                                                             | 18   | 27   | 36   | 45   | 54   | 62   | 71   | 80   | 89   |
| 445              | 18                                                                                             | 18   | 27   | 36   | 45   | 54   | 63   | 72   | 81   | 90   |
| 446              | 18                                                                                             | 18   | 27   | 37   | 46   | 55   | 64   | 73   | 82   | 92   |
| 447              | 18                                                                                             | 19   | 28   | 37   | 46   | 56   | 65   | 74   | 84   | 93   |
| 448              | 19                                                                                             | 19   | 28   | 38   | 47   | 56   | 66   | 75   | 85   | 94   |
| 449              | 19                                                                                             | 19   | 29   | 38   | 48   | 57   | 67   | 76   | 86   | 95   |
| 450              | 19                                                                                             | 19   | 29   | 39   | 48   | 58   | 68   | 77   | 87   | 97   |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 451              | 19                                                                                             | 20   | 29   | 39   | 49   | 59   | 68   | 78   | 88   | 98   |
| 452              | 20                                                                                             | 20   | 30   | 40   | 49   | 59   | 69   | 79   | 89   | 99   |
| 453              | 20                                                                                             | 20   | 30   | 40   | 50   | 60   | 70   | 80   | 90   | 100  |
| 454              | 20                                                                                             | 20   | 30   | 41   | 51   | 61   | 71   | 81   | 91   | 101  |
| 455              | 20                                                                                             | 21   | 31   | 41   | 51   | 62   | 72   | 82   | 92   | 103  |
| 456              | 21                                                                                             | 21   | 31   | 42   | 52   | 62   | 73   | 83   | 93   | 104  |
| 457              | 21                                                                                             | 21   | 31   | 42   | 52   | 63   | 73   | 84   | 94   | 105  |
| 458              | 21                                                                                             | 21   | 32   | 42   | 53   | 63   | 74   | 84   | 95   | 105  |
| 459              | 21                                                                                             | 21   | 32   | 43   | 53   | 64   | 74   | 85   | 96   | 106  |
| 460              | 21                                                                                             | 21   | 32   | 43   | 54   | 64   | 75   | 86   | 96   | 107  |
| 461              | 22                                                                                             | 22   | 32   | 43   | 54   | 65   | 76   | 86   | 97   | 108  |
| 462              | 22                                                                                             | 22   | 33   | 44   | 54   | 65   | 76   | 87   | 98   | 109  |
| 463              | 22                                                                                             | 22   | 33   | 44   | 55   | 66   | 77   | 88   | 99   | 110  |
| 464              | 22                                                                                             | 22   | 33   | 44   | 55   | 66   | 77   | 89   | 100  | 111  |
| 465              | 22                                                                                             | 22   | 33   | 45   | 56   | 67   | 78   | 89   | 100  | 111  |
| 466              | 22                                                                                             | 22   | 34   | 45   | 56   | 67   | 79   | 90   | 101  | 112  |
| 467              | 23                                                                                             | 23   | 34   | 45   | 57   | 68   | 79   | 91   | 102  | 113  |
| 468              | 23                                                                                             | 23   | 34   | 46   | 57   | 68   | 80   | 91   | 103  | 114  |
| 469              | 23                                                                                             | 23   | 34   | 46   | 57   | 69   | 80   | 92   | 103  | 115  |
| 470              | 23                                                                                             | 23   | 35   | 46   | 58   | 69   | 81   | 93   | 104  | 116  |
| 471              | 23                                                                                             | 23   | 35   | 47   | 58   | 70   | 82   | 93   | 105  | 117  |
| 472              | 23                                                                                             | 24   | 35   | 47   | 59   | 71   | 82   | 94   | 106  | 118  |
| 473              | 24                                                                                             | 24   | 36   | 47   | 59   | 71   | 83   | 95   | 107  | 118  |
| 474              | 24                                                                                             | 24   | 36   | 48   | 60   | 72   | 83   | 95   | 107  | 119  |
| 475              | 24                                                                                             | 24   | 36   | 48   | 60   | 72   | 84   | 96   | 108  | 120  |
| 476              | 24                                                                                             | 24   | 36   | 48   | 60   | 73   | 85   | 97   | 109  | 121  |
| 477              | 24                                                                                             | 24   | 37   | 49   | 61   | 73   | 85   | 97   | 110  | 122  |
| 478              | 24                                                                                             | 25   | 37   | 49   | 61   | 74   | 86   | 98   | 110  | 123  |
| 479              | 25                                                                                             | 25   | 37   | 49   | 62   | 74   | 86   | 99   | 111  | 124  |
| 480              | 25                                                                                             | 25   | 37   | 50   | 62   | 75   | 87   | 100  | 112  | 124  |
| 481              | 25                                                                                             | 25   | 38   | 50   | 63   | 75   | 88   | 100  | 113  | 125  |
| 482              | 25                                                                                             | 25   | 38   | 50   | 63   | 76   | 88   | 101  | 114  | 126  |
| 483              | 25                                                                                             | 25   | 38   | 51   | 63   | 76   | 89   | 102  | 114  | 127  |
| 484              | 25                                                                                             | 26   | 38   | 51   | 64   | 77   | 89   | 102  | 115  | 128  |
| 485              | 26                                                                                             | 26   | 39   | 51   | 64   | 77   | 90   | 103  | 116  | 129  |
| 486              | 26                                                                                             | 26   | 39   | 52   | 65   | 78   | 91   | 104  | 117  | 130  |
| 487              | 26                                                                                             | 26   | 39   | 52   | 65   | 78   | 91   | 104  | 117  | 130  |
| 488              | 26                                                                                             | 26   | 39   | 53   | 66   | 79   | 92   | 105  | 118  | 131  |
| 489              | 26                                                                                             | 26   | 40   | 53   | 66   | 79   | 92   | 106  | 119  | 132  |
| 490              | 27                                                                                             | 27   | 40   | 53   | 66   | 80   | 93   | 106  | 120  | 133  |
| 491              | 27                                                                                             | 27   | 40   | 54   | 67   | 80   | 94   | 107  | 120  | 134  |
| 492              | 27                                                                                             | 27   | 40   | 54   | 67   | 81   | 94   | 108  | 121  | 135  |
| 493              | 27                                                                                             | 27   | 41   | 54   | 68   | 81   | 95   | 108  | 122  | 136  |
| 494              | 27                                                                                             | 27   | 41   | 55   | 68   | 82   | 96   | 109  | 123  | 136  |
| 495              | 27                                                                                             | 27   | 41   | 55   | 69   | 82   | 96   | 110  | 124  | 137  |
| 496              | 28                                                                                             | 28   | 41   | 55   | 69   | 83   | 97   | 111  | 124  | 138  |
| 497              | 28                                                                                             | 28   | 42   | 56   | 70   | 83   | 97   | 111  | 125  | 139  |
| 498              | 28                                                                                             | 28   | 42   | 56   | 70   | 84   | 98   | 112  | 126  | 140  |
| 499              | 28                                                                                             | 28   | 42   | 56   | 70   | 84   | 99   | 113  | 127  | 141  |
| 500              | 28                                                                                             | 28   | 42   | 57   | 71   | 85   | 99   | 113  | 127  | 142  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 501              | 28                                                                                             | 28   | 43   | 57   | 71   | 85   | 100  | 114  | 128  | 142  |
| 502              | 29                                                                                             | 29   | 43   | 57   | 72   | 86   | 100  | 115  | 129  | 143  |
| 503              | 29                                                                                             | 29   | 43   | 58   | 72   | 87   | 101  | 115  | 130  | 144  |
| 504              | 29                                                                                             | 29   | 44   | 58   | 73   | 87   | 102  | 116  | 131  | 145  |
| 505              | 29                                                                                             | 29   | 44   | 58   | 73   | 88   | 102  | 117  | 131  | 146  |
| 506              | 29                                                                                             | 29   | 44   | 59   | 73   | 88   | 103  | 117  | 132  | 147  |
| 507              | 29                                                                                             | 29   | 44   | 59   | 73   | 88   | 103  | 118  | 132  | 147  |
| 508              | 30                                                                                             | 29   | 44   | 59   | 74   | 88   | 103  | 118  | 133  | 147  |
| 509              | 30                                                                                             | 30   | 44   | 59   | 74   | 89   | 103  | 118  | 133  | 148  |
| 510              | 30                                                                                             | 30   | 44   | 59   | 74   | 89   | 103  | 118  | 133  | 148  |
| 511              | 30                                                                                             | 30   | 44   | 59   | 74   | 89   | 103  | 118  | 133  | 148  |
| 512              | 30                                                                                             | 30   | 44   | 59   | 74   | 89   | 103  | 118  | 133  | 148  |
| 513              | 30                                                                                             | 30   | 44   | 59   | 74   | 89   | 104  | 118  | 133  | 148  |
| 514              | 30                                                                                             | 30   | 44   | 59   | 74   | 89   | 104  | 118  | 133  | 148  |
| 515              | 30                                                                                             | 30   | 44   | 59   | 74   | 89   | 104  | 119  | 133  | 148  |
| 516              | 31                                                                                             | 30   | 44   | 59   | 74   | 89   | 104  | 119  | 133  | 148  |
| 517              | 31                                                                                             | 30   | 45   | 59   | 74   | 89   | 104  | 119  | 134  | 148  |
| 518              | 31                                                                                             | 30   | 45   | 59   | 74   | 89   | 104  | 119  | 134  | 148  |
| 519              | 31                                                                                             | 30   | 45   | 59   | 74   | 89   | 104  | 119  | 134  | 149  |
| 520              | 31                                                                                             | 30   | 45   | 59   | 74   | 89   | 104  | 119  | 134  | 149  |
| 521              | 31                                                                                             | 30   | 45   | 60   | 74   | 89   | 104  | 119  | 134  | 149  |
| 522              | 31                                                                                             | 30   | 45   | 60   | 74   | 89   | 104  | 119  | 134  | 149  |
| 523              | 32                                                                                             | 30   | 45   | 60   | 74   | 89   | 104  | 119  | 134  | 149  |
| 524              | 32                                                                                             | 30   | 45   | 60   | 75   | 89   | 104  | 119  | 134  | 149  |
| 525              | 32                                                                                             | 30   | 45   | 60   | 75   | 90   | 104  | 119  | 134  | 149  |
| 526              | 32                                                                                             | 30   | 45   | 60   | 75   | 90   | 105  | 119  | 134  | 149  |
| 527              | 32                                                                                             | 30   | 45   | 60   | 75   | 90   | 105  | 120  | 134  | 149  |
| 528              | 32                                                                                             | 30   | 45   | 60   | 75   | 90   | 105  | 120  | 135  | 150  |
| 529              | 32                                                                                             | 30   | 45   | 60   | 75   | 90   | 105  | 120  | 135  | 150  |
| 530              | 32                                                                                             | 30   | 45   | 60   | 75   | 90   | 105  | 120  | 135  | 150  |
| 531              | 33                                                                                             | 30   | 45   | 60   | 75   | 90   | 105  | 120  | 135  | 150  |
| 532              | 33                                                                                             | 30   | 45   | 60   | 75   | 90   | 105  | 120  | 135  | 150  |
| 533              | 33                                                                                             | 30   | 45   | 60   | 75   | 90   | 105  | 120  | 135  | 150  |
| 534              | 33                                                                                             | 30   | 46   | 61   | 76   | 91   | 106  | 121  | 137  | 152  |
| 535              | 33                                                                                             | 31   | 46   | 61   | 77   | 92   | 107  | 122  | 138  | 153  |
| 536              | 33                                                                                             | 31   | 46   | 62   | 77   | 93   | 108  | 123  | 139  | 154  |
| 537              | 33                                                                                             | 31   | 47   | 62   | 78   | 93   | 109  | 124  | 140  | 156  |
| 538              | 33                                                                                             | 31   | 47   | 63   | 78   | 94   | 110  | 126  | 141  | 157  |
| 539              | 34                                                                                             | 32   | 47   | 63   | 79   | 95   | 111  | 127  | 142  | 158  |
| 540              | 34                                                                                             | 32   | 48   | 64   | 80   | 96   | 112  | 128  | 143  | 159  |
| 541              | 34                                                                                             | 32   | 48   | 64   | 80   | 96   | 112  | 129  | 145  | 161  |
| 542              | 34                                                                                             | 32   | 49   | 65   | 81   | 97   | 113  | 130  | 146  | 162  |
| 543              | 34                                                                                             | 33   | 49   | 65   | 82   | 98   | 114  | 131  | 147  | 163  |
| 544              | 34                                                                                             | 33   | 49   | 66   | 82   | 99   | 115  | 132  | 148  | 165  |
| 545              | 34                                                                                             | 33   | 50   | 66   | 83   | 99   | 116  | 133  | 149  | 166  |
| 546              | 35                                                                                             | 33   | 50   | 67   | 84   | 100  | 117  | 134  | 150  | 167  |
| 547              | 35                                                                                             | 34   | 51   | 67   | 84   | 101  | 118  | 135  | 152  | 168  |
| 548              | 35                                                                                             | 34   | 51   | 68   | 85   | 102  | 119  | 136  | 153  | 170  |
| 549              | 35                                                                                             | 34   | 51   | 68   | 85   | 103  | 120  | 137  | 154  | 171  |
| 550              | 35                                                                                             | 34   | 52   | 69   | 86   | 103  | 121  | 138  | 155  | 172  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 551              | 35                                                                                             | 35   | 52   | 69   | 87   | 104  | 121  | 139  | 156  | 173  |
| 552              | 35                                                                                             | 35   | 52   | 70   | 87   | 105  | 122  | 140  | 157  | 175  |
| 553              | 35                                                                                             | 35   | 53   | 70   | 88   | 106  | 123  | 141  | 158  | 176  |
| 554              | 36                                                                                             | 35   | 53   | 71   | 89   | 106  | 124  | 142  | 160  | 177  |
| 555              | 36                                                                                             | 36   | 54   | 71   | 89   | 107  | 125  | 143  | 161  | 179  |
| 556              | 36                                                                                             | 36   | 54   | 72   | 90   | 108  | 126  | 144  | 162  | 180  |
| 557              | 36                                                                                             | 36   | 54   | 72   | 90   | 108  | 126  | 144  | 162  | 180  |
| 558              | 36                                                                                             | 36   | 54   | 72   | 90   | 108  | 126  | 144  | 162  | 180  |
| 559              | 36                                                                                             | 36   | 54   | 72   | 90   | 109  | 127  | 145  | 163  | 181  |
| 560              | 36                                                                                             | 36   | 54   | 73   | 91   | 109  | 127  | 145  | 163  | 181  |
| 561              | 36                                                                                             | 36   | 55   | 73   | 91   | 109  | 127  | 145  | 164  | 182  |
| 562              | 37                                                                                             | 36   | 55   | 73   | 91   | 109  | 128  | 146  | 164  | 182  |
| 563              | 37                                                                                             | 37   | 55   | 73   | 91   | 110  | 128  | 146  | 164  | 183  |
| 564              | 37                                                                                             | 37   | 55   | 73   | 92   | 110  | 128  | 146  | 165  | 183  |
| 565              | 37                                                                                             | 37   | 55   | 73   | 92   | 110  | 128  | 147  | 165  | 184  |
| 566              | 37                                                                                             | 37   | 55   | 74   | 92   | 110  | 129  | 147  | 166  | 184  |
| 567              | 37                                                                                             | 37   | 55   | 74   | 92   | 111  | 129  | 148  | 166  | 184  |
| 568              | 37                                                                                             | 37   | 55   | 74   | 92   | 111  | 129  | 148  | 166  | 185  |
| 569              | 37                                                                                             | 37   | 56   | 74   | 93   | 111  | 130  | 148  | 167  | 185  |
| 570              | 37                                                                                             | 37   | 56   | 74   | 93   | 111  | 130  | 149  | 167  | 186  |
| 571              | 38                                                                                             | 37   | 56   | 74   | 93   | 112  | 130  | 149  | 168  | 186  |
| 572              | 38                                                                                             | 37   | 56   | 75   | 93   | 112  | 131  | 149  | 168  | 187  |
| 573              | 38                                                                                             | 37   | 56   | 75   | 93   | 112  | 131  | 150  | 168  | 187  |
| 574              | 38                                                                                             | 37   | 56   | 75   | 94   | 112  | 131  | 150  | 169  | 187  |
| 575              | 38                                                                                             | 38   | 56   | 75   | 94   | 113  | 131  | 150  | 169  | 188  |
| 576              | 38                                                                                             | 38   | 56   | 75   | 94   | 113  | 132  | 151  | 169  | 188  |
| 577              | 38                                                                                             | 38   | 57   | 75   | 94   | 113  | 132  | 151  | 170  | 189  |
| 578              | 38                                                                                             | 38   | 57   | 76   | 95   | 113  | 132  | 151  | 170  | 189  |
| 579              | 38                                                                                             | 38   | 57   | 76   | 95   | 114  | 133  | 152  | 171  | 190  |
| 580              | 39                                                                                             | 38   | 57   | 76   | 95   | 114  | 133  | 152  | 171  | 190  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 1 FT |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 405              | 0                                                                                              | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 406              | 10                                                                                             | 11   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   |
| 407              | 19                                                                                             | 21   | 23   | 25   | 26   | 28   | 30   | 32   | 33   | 35   |
| 408              | 29                                                                                             | 32   | 34   | 37   | 39   | 42   | 45   | 47   | 50   | 53   |
| 409              | 39                                                                                             | 42   | 46   | 49   | 53   | 56   | 60   | 63   | 67   | 70   |
| 410              | 40                                                                                             | 44   | 48   | 51   | 55   | 59   | 62   | 66   | 70   | 73   |
| 411              | 42                                                                                             | 46   | 50   | 54   | 58   | 61   | 65   | 69   | 73   | 77   |
| 412              | 44                                                                                             | 48   | 52   | 56   | 60   | 64   | 68   | 72   | 76   | 80   |
| 413              | 46                                                                                             | 50   | 54   | 59   | 63   | 67   | 71   | 75   | 80   | 84   |
| 414              | 48                                                                                             | 52   | 57   | 61   | 65   | 70   | 74   | 78   | 83   | 87   |
| 415              | 50                                                                                             | 54   | 59   | 63   | 68   | 72   | 77   | 82   | 86   | 91   |
| 416              | 52                                                                                             | 56   | 61   | 66   | 71   | 75   | 80   | 85   | 89   | 94   |
| 417              | 54                                                                                             | 59   | 63   | 68   | 73   | 78   | 83   | 88   | 93   | 98   |
| 418              | 56                                                                                             | 61   | 66   | 71   | 76   | 81   | 86   | 91   | 96   | 101  |
| 419              | 58                                                                                             | 63   | 68   | 73   | 78   | 84   | 89   | 94   | 99   | 105  |
| 420              | 60                                                                                             | 65   | 70   | 76   | 81   | 87   | 92   | 97   | 103  | 108  |
| 421              | 61                                                                                             | 67   | 73   | 78   | 84   | 89   | 95   | 101  | 106  | 112  |
| 422              | 63                                                                                             | 69   | 75   | 81   | 86   | 92   | 98   | 104  | 109  | 115  |
| 423              | 65                                                                                             | 71   | 77   | 83   | 89   | 95   | 101  | 107  | 113  | 119  |
| 424              | 67                                                                                             | 73   | 80   | 86   | 92   | 98   | 104  | 110  | 116  | 122  |
| 425              | 69                                                                                             | 76   | 82   | 88   | 94   | 101  | 107  | 113  | 120  | 126  |
| 426              | 71                                                                                             | 78   | 84   | 91   | 97   | 104  | 110  | 116  | 123  | 129  |
| 427              | 73                                                                                             | 80   | 86   | 93   | 100  | 106  | 113  | 120  | 126  | 133  |
| 428              | 75                                                                                             | 82   | 89   | 96   | 102  | 109  | 116  | 123  | 130  | 136  |
| 429              | 77                                                                                             | 84   | 91   | 98   | 105  | 112  | 119  | 126  | 133  | 140  |
| 430              | 79                                                                                             | 86   | 93   | 100  | 108  | 115  | 122  | 129  | 136  | 144  |
| 431              | 81                                                                                             | 88   | 95   | 103  | 110  | 117  | 125  | 132  | 139  | 147  |
| 432              | 82                                                                                             | 90   | 97   | 104  | 112  | 119  | 127  | 134  | 142  | 149  |
| 433              | 83                                                                                             | 91   | 99   | 106  | 114  | 121  | 129  | 136  | 144  | 152  |
| 434              | 85                                                                                             | 92   | 100  | 108  | 116  | 123  | 131  | 139  | 146  | 154  |
| 435              | 86                                                                                             | 94   | 102  | 110  | 117  | 125  | 133  | 141  | 149  | 156  |
| 436              | 87                                                                                             | 95   | 103  | 111  | 119  | 127  | 135  | 143  | 151  | 159  |
| 437              | 89                                                                                             | 97   | 105  | 113  | 121  | 129  | 137  | 145  | 153  | 161  |
| 438              | 90                                                                                             | 98   | 106  | 115  | 123  | 131  | 139  | 147  | 156  | 164  |
| 439              | 91                                                                                             | 100  | 108  | 116  | 125  | 133  | 141  | 150  | 158  | 166  |
| 440              | 93                                                                                             | 101  | 110  | 118  | 127  | 135  | 143  | 152  | 160  | 169  |
| 441              | 94                                                                                             | 103  | 111  | 120  | 128  | 137  | 145  | 154  | 163  | 171  |
| 442              | 95                                                                                             | 104  | 113  | 122  | 130  | 139  | 148  | 156  | 165  | 174  |
| 443              | 97                                                                                             | 106  | 114  | 123  | 132  | 141  | 150  | 158  | 167  | 176  |
| 444              | 98                                                                                             | 107  | 116  | 125  | 134  | 143  | 152  | 161  | 170  | 178  |
| 445              | 99                                                                                             | 109  | 118  | 127  | 136  | 145  | 154  | 163  | 172  | 181  |
| 446              | 101                                                                                            | 110  | 119  | 128  | 137  | 147  | 156  | 165  | 174  | 183  |
| 447              | 102                                                                                            | 111  | 121  | 130  | 139  | 149  | 158  | 167  | 176  | 186  |
| 448              | 104                                                                                            | 113  | 122  | 132  | 141  | 151  | 160  | 169  | 179  | 188  |
| 449              | 105                                                                                            | 114  | 124  | 133  | 143  | 153  | 162  | 172  | 181  | 191  |
| 450              | 106                                                                                            | 116  | 126  | 135  | 145  | 154  | 164  | 174  | 183  | 193  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 1 FT |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 451              | 108                                                                                            | 117  | 127  | 137  | 147  | 156  | 166  | 176  | 186  | 196  |
| 452              | 109                                                                                            | 119  | 129  | 139  | 148  | 158  | 168  | 178  | 188  | 198  |
| 453              | 110                                                                                            | 120  | 130  | 140  | 150  | 160  | 170  | 180  | 190  | 200  |
| 454              | 112                                                                                            | 122  | 132  | 142  | 152  | 162  | 172  | 183  | 193  | 203  |
| 455              | 113                                                                                            | 123  | 133  | 144  | 154  | 164  | 174  | 185  | 195  | 205  |
| 456              | 114                                                                                            | 125  | 135  | 145  | 156  | 166  | 176  | 187  | 197  | 208  |
| 457              | 115                                                                                            | 126  | 136  | 146  | 157  | 167  | 178  | 188  | 199  | 209  |
| 458              | 116                                                                                            | 127  | 137  | 148  | 158  | 169  | 179  | 190  | 200  | 211  |
| 459              | 117                                                                                            | 128  | 138  | 149  | 160  | 170  | 181  | 191  | 202  | 213  |
| 460              | 118                                                                                            | 129  | 139  | 150  | 161  | 172  | 182  | 193  | 204  | 214  |
| 461              | 119                                                                                            | 130  | 140  | 151  | 162  | 173  | 184  | 195  | 205  | 216  |
| 462              | 120                                                                                            | 131  | 142  | 152  | 163  | 174  | 185  | 196  | 207  | 218  |
| 463              | 121                                                                                            | 132  | 143  | 154  | 165  | 176  | 187  | 198  | 209  | 220  |
| 464              | 122                                                                                            | 133  | 144  | 155  | 166  | 177  | 188  | 199  | 210  | 221  |
| 465              | 123                                                                                            | 134  | 145  | 156  | 167  | 178  | 190  | 201  | 212  | 223  |
| 466              | 124                                                                                            | 135  | 146  | 157  | 169  | 180  | 191  | 202  | 213  | 225  |
| 467              | 125                                                                                            | 136  | 147  | 159  | 170  | 181  | 192  | 204  | 215  | 226  |
| 468              | 125                                                                                            | 137  | 148  | 160  | 171  | 183  | 194  | 205  | 217  | 228  |
| 469              | 126                                                                                            | 138  | 149  | 161  | 172  | 184  | 195  | 207  | 218  | 230  |
| 470              | 127                                                                                            | 139  | 151  | 162  | 174  | 185  | 197  | 208  | 220  | 232  |
| 471              | 128                                                                                            | 140  | 152  | 163  | 175  | 187  | 198  | 210  | 222  | 233  |
| 472              | 129                                                                                            | 141  | 153  | 165  | 176  | 188  | 200  | 212  | 223  | 235  |
| 473              | 130                                                                                            | 142  | 154  | 166  | 178  | 189  | 201  | 213  | 225  | 237  |
| 474              | 131                                                                                            | 143  | 155  | 167  | 179  | 191  | 203  | 215  | 227  | 238  |
| 475              | 132                                                                                            | 144  | 156  | 168  | 180  | 192  | 204  | 216  | 228  | 240  |
| 476              | 133                                                                                            | 145  | 157  | 169  | 181  | 194  | 206  | 218  | 230  | 242  |
| 477              | 134                                                                                            | 146  | 158  | 171  | 183  | 195  | 207  | 219  | 231  | 244  |
| 478              | 135                                                                                            | 147  | 159  | 172  | 184  | 196  | 209  | 221  | 233  | 245  |
| 479              | 136                                                                                            | 148  | 161  | 173  | 185  | 198  | 210  | 222  | 235  | 247  |
| 480              | 137                                                                                            | 149  | 162  | 174  | 187  | 199  | 211  | 224  | 236  | 249  |
| 481              | 138                                                                                            | 150  | 163  | 175  | 188  | 200  | 213  | 225  | 238  | 251  |
| 482              | 139                                                                                            | 151  | 164  | 177  | 189  | 202  | 214  | 227  | 240  | 252  |
| 483              | 140                                                                                            | 152  | 165  | 178  | 190  | 203  | 216  | 229  | 241  | 254  |
| 484              | 141                                                                                            | 153  | 166  | 179  | 192  | 205  | 217  | 230  | 243  | 256  |
| 485              | 142                                                                                            | 154  | 167  | 180  | 193  | 206  | 219  | 232  | 245  | 257  |
| 486              | 143                                                                                            | 155  | 168  | 181  | 194  | 207  | 220  | 233  | 246  | 259  |
| 487              | 143                                                                                            | 157  | 170  | 183  | 196  | 209  | 222  | 235  | 248  | 261  |
| 488              | 144                                                                                            | 158  | 171  | 184  | 197  | 210  | 223  | 236  | 249  | 263  |
| 489              | 145                                                                                            | 159  | 172  | 185  | 198  | 211  | 225  | 238  | 251  | 264  |
| 490              | 146                                                                                            | 160  | 173  | 186  | 199  | 213  | 226  | 239  | 253  | 266  |
| 491              | 147                                                                                            | 161  | 174  | 187  | 201  | 214  | 228  | 241  | 254  | 268  |
| 492              | 148                                                                                            | 162  | 175  | 189  | 202  | 216  | 229  | 242  | 256  | 269  |
| 493              | 149                                                                                            | 163  | 176  | 190  | 203  | 217  | 230  | 244  | 258  | 271  |
| 494              | 150                                                                                            | 164  | 177  | 191  | 205  | 218  | 232  | 246  | 259  | 273  |
| 495              | 151                                                                                            | 165  | 178  | 192  | 206  | 220  | 233  | 247  | 261  | 275  |
| 496              | 152                                                                                            | 166  | 180  | 193  | 207  | 221  | 235  | 249  | 263  | 276  |
| 497              | 153                                                                                            | 167  | 181  | 195  | 209  | 222  | 236  | 250  | 264  | 278  |
| 498              | 154                                                                                            | 168  | 182  | 196  | 210  | 224  | 238  | 252  | 266  | 280  |
| 499              | 155                                                                                            | 169  | 183  | 197  | 211  | 225  | 239  | 253  | 267  | 281  |
| 500              | 156                                                                                            | 170  | 184  | 198  | 212  | 227  | 241  | 255  | 269  | 283  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 1 FT |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 501              | 157                                                                                            | 171  | 185  | 199  | 214  | 228  | 242  | 256  | 271  | 285  |
| 502              | 158                                                                                            | 172  | 186  | 201  | 215  | 229  | 244  | 258  | 272  | 287  |
| 503              | 159                                                                                            | 173  | 187  | 202  | 216  | 231  | 245  | 260  | 274  | 288  |
| 504              | 160                                                                                            | 174  | 189  | 203  | 218  | 232  | 247  | 261  | 276  | 290  |
| 505              | 160                                                                                            | 175  | 190  | 204  | 219  | 233  | 248  | 263  | 277  | 292  |
| 506              | 161                                                                                            | 176  | 191  | 205  | 220  | 235  | 249  | 264  | 279  | 293  |
| 507              | 162                                                                                            | 176  | 191  | 206  | 220  | 235  | 250  | 264  | 279  | 294  |
| 508              | 162                                                                                            | 177  | 191  | 206  | 221  | 236  | 250  | 265  | 280  | 295  |
| 509              | 162                                                                                            | 177  | 192  | 207  | 221  | 236  | 251  | 266  | 280  | 295  |
| 510              | 162                                                                                            | 177  | 192  | 207  | 221  | 236  | 251  | 266  | 280  | 295  |
| 511              | 163                                                                                            | 177  | 192  | 207  | 222  | 236  | 251  | 266  | 281  | 295  |
| 512              | 163                                                                                            | 177  | 192  | 207  | 222  | 237  | 251  | 266  | 281  | 296  |
| 513              | 163                                                                                            | 178  | 192  | 207  | 222  | 237  | 252  | 266  | 281  | 296  |
| 514              | 163                                                                                            | 178  | 192  | 207  | 222  | 237  | 252  | 266  | 281  | 296  |
| 515              | 163                                                                                            | 178  | 193  | 207  | 222  | 237  | 252  | 267  | 281  | 296  |
| 516              | 163                                                                                            | 178  | 193  | 208  | 222  | 237  | 252  | 267  | 282  | 297  |
| 517              | 163                                                                                            | 178  | 193  | 208  | 223  | 237  | 252  | 267  | 282  | 297  |
| 518              | 163                                                                                            | 178  | 193  | 208  | 223  | 238  | 252  | 267  | 282  | 297  |
| 519              | 163                                                                                            | 178  | 193  | 208  | 223  | 238  | 253  | 267  | 282  | 297  |
| 520              | 164                                                                                            | 178  | 193  | 208  | 223  | 238  | 253  | 268  | 282  | 297  |
| 521              | 164                                                                                            | 179  | 193  | 208  | 223  | 238  | 253  | 268  | 283  | 298  |
| 522              | 164                                                                                            | 179  | 194  | 208  | 223  | 238  | 253  | 268  | 283  | 298  |
| 523              | 164                                                                                            | 179  | 194  | 209  | 223  | 238  | 253  | 268  | 283  | 298  |
| 524              | 164                                                                                            | 179  | 194  | 209  | 224  | 239  | 253  | 268  | 283  | 298  |
| 525              | 164                                                                                            | 179  | 194  | 209  | 224  | 239  | 254  | 269  | 283  | 298  |
| 526              | 164                                                                                            | 179  | 194  | 209  | 224  | 239  | 254  | 269  | 284  | 299  |
| 527              | 164                                                                                            | 179  | 194  | 209  | 224  | 239  | 254  | 269  | 284  | 299  |
| 528              | 164                                                                                            | 179  | 194  | 209  | 224  | 239  | 254  | 269  | 284  | 299  |
| 529              | 165                                                                                            | 180  | 195  | 209  | 224  | 239  | 254  | 269  | 284  | 299  |
| 530              | 165                                                                                            | 180  | 195  | 210  | 225  | 240  | 255  | 270  | 284  | 299  |
| 531              | 165                                                                                            | 180  | 195  | 210  | 225  | 240  | 255  | 270  | 285  | 300  |
| 532              | 165                                                                                            | 180  | 195  | 210  | 225  | 240  | 255  | 270  | 285  | 300  |
| 533              | 166                                                                                            | 181  | 196  | 211  | 226  | 241  | 256  | 271  | 286  | 301  |
| 534              | 167                                                                                            | 182  | 197  | 212  | 228  | 243  | 258  | 273  | 288  | 304  |
| 535              | 168                                                                                            | 184  | 199  | 214  | 230  | 245  | 260  | 275  | 291  | 306  |
| 536              | 170                                                                                            | 185  | 201  | 216  | 231  | 247  | 262  | 278  | 293  | 309  |
| 537              | 171                                                                                            | 187  | 202  | 218  | 233  | 249  | 265  | 280  | 296  | 311  |
| 538              | 173                                                                                            | 188  | 204  | 220  | 235  | 251  | 267  | 282  | 298  | 314  |
| 539              | 174                                                                                            | 190  | 206  | 221  | 237  | 253  | 269  | 285  | 300  | 316  |
| 540              | 175                                                                                            | 191  | 207  | 223  | 239  | 255  | 271  | 287  | 303  | 319  |
| 541              | 177                                                                                            | 193  | 209  | 225  | 241  | 257  | 273  | 289  | 305  | 321  |
| 542              | 178                                                                                            | 194  | 211  | 227  | 243  | 259  | 275  | 292  | 308  | 324  |
| 543              | 180                                                                                            | 196  | 212  | 229  | 245  | 261  | 278  | 294  | 310  | 327  |
| 544              | 181                                                                                            | 197  | 214  | 230  | 247  | 263  | 280  | 296  | 313  | 329  |
| 545              | 182                                                                                            | 199  | 216  | 232  | 249  | 265  | 282  | 298  | 315  | 332  |
| 546              | 184                                                                                            | 201  | 217  | 234  | 251  | 267  | 284  | 301  | 317  | 334  |
| 547              | 185                                                                                            | 202  | 219  | 236  | 253  | 269  | 286  | 303  | 320  | 337  |
| 548              | 187                                                                                            | 204  | 221  | 238  | 254  | 271  | 288  | 305  | 322  | 339  |
| 549              | 188                                                                                            | 205  | 222  | 239  | 256  | 273  | 291  | 308  | 325  | 342  |
| 550              | 189                                                                                            | 207  | 224  | 241  | 258  | 276  | 293  | 310  | 327  | 344  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 1 FT |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 551              | 191                                                                                            | 208  | 226  | 243  | 260  | 278  | 295  | 312  | 330  | 347  |
| 552              | 192                                                                                            | 210  | 227  | 245  | 262  | 280  | 297  | 315  | 332  | 350  |
| 553              | 194                                                                                            | 211  | 229  | 246  | 264  | 282  | 299  | 317  | 334  | 352  |
| 554              | 195                                                                                            | 213  | 231  | 248  | 266  | 284  | 301  | 319  | 337  | 355  |
| 555              | 196                                                                                            | 214  | 232  | 250  | 268  | 286  | 304  | 321  | 339  | 357  |
| 556              | 198                                                                                            | 216  | 234  | 251  | 269  | 287  | 305  | 323  | 341  | 359  |
| 557              | 198                                                                                            | 216  | 234  | 252  | 270  | 288  | 306  | 324  | 342  | 360  |
| 558              | 199                                                                                            | 217  | 235  | 253  | 271  | 289  | 307  | 325  | 343  | 361  |
| 559              | 199                                                                                            | 217  | 235  | 253  | 271  | 289  | 308  | 326  | 344  | 362  |
| 560              | 199                                                                                            | 218  | 236  | 254  | 272  | 290  | 308  | 326  | 345  | 363  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 561              | 200                                                                                            | 218  | 236  | 255  | 273  | 291  | 309  | 327  | 345  | 364  |
| 562              | 200                                                                                            | 219  | 237  | 255  | 273  | 292  | 310  | 328  | 346  | 364  |
| 563              | 201                                                                                            | 219  | 237  | 256  | 274  | 292  | 311  | 329  | 347  | 365  |
| 564              | 201                                                                                            | 220  | 238  | 256  | 275  | 293  | 311  | 330  | 348  | 366  |
| 565              | 202                                                                                            | 220  | 239  | 257  | 275  | 294  | 312  | 330  | 349  | 367  |
| 566              | 202                                                                                            | 221  | 239  | 258  | 276  | 294  | 313  | 331  | 350  | 368  |
| 567              | 203                                                                                            | 221  | 240  | 258  | 277  | 295  | 313  | 332  | 350  | 369  |
| 568              | 203                                                                                            | 222  | 240  | 259  | 277  | 296  | 314  | 333  | 351  | 370  |
| 569              | 204                                                                                            | 222  | 241  | 259  | 278  | 296  | 315  | 333  | 352  | 370  |
| 570              | 204                                                                                            | 223  | 241  | 260  | 279  | 297  | 316  | 334  | 353  | 371  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 571              | 205                                                                                            | 223  | 242  | 261  | 279  | 298  | 316  | 335  | 354  | 372  |
| 572              | 205                                                                                            | 224  | 243  | 261  | 280  | 298  | 317  | 336  | 354  | 373  |
| 573              | 206                                                                                            | 224  | 243  | 262  | 280  | 299  | 318  | 337  | 355  | 374  |
| 574              | 206                                                                                            | 225  | 244  | 262  | 281  | 300  | 319  | 337  | 356  | 375  |
| 575              | 207                                                                                            | 225  | 244  | 263  | 282  | 301  | 319  | 338  | 357  | 376  |
| 576              | 207                                                                                            | 226  | 245  | 264  | 282  | 301  | 320  | 339  | 358  | 377  |
| 577              | 208                                                                                            | 226  | 245  | 264  | 283  | 302  | 321  | 340  | 359  | 377  |
| 578              | 208                                                                                            | 227  | 246  | 265  | 284  | 303  | 322  | 340  | 359  | 378  |
| 579              | 209                                                                                            | 227  | 246  | 265  | 284  | 303  | 322  | 341  | 360  | 379  |
| 580              | 209                                                                                            | 228  | 247  | 266  | 285  | 304  | 323  | 342  | 361  | 380  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 1 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 405              | 0                                                                                              | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 406              | 1                                                                                              | 2    | 4    | 5    | 6    | 7    | 8    | 9    | 11   | 12   |
| 407              | 2                                                                                              | 5    | 7    | 9    | 12   | 14   | 17   | 19   | 21   | 24   |
| 408              | 4                                                                                              | 7    | 11   | 14   | 18   | 21   | 25   | 28   | 32   | 35   |
| 409              | 5                                                                                              | 9    | 14   | 19   | 24   | 28   | 33   | 38   | 43   | 47   |
| 410              | 6                                                                                              | 12   | 18   | 24   | 30   | 35   | 41   | 47   | 53   | 59   |
| 411              | 7                                                                                              | 13   | 20   | 27   | 34   | 40   | 47   | 54   | 61   | 67   |
| 412              | 7                                                                                              | 14   | 22   | 29   | 36   | 43   | 50   | 58   | 65   | 72   |
| 413              | 8                                                                                              | 15   | 23   | 31   | 38   | 46   | 54   | 61   | 69   | 77   |
| 414              | 8                                                                                              | 16   | 24   | 33   | 41   | 49   | 57   | 65   | 73   | 81   |
| 415              | 9                                                                                              | 17   | 26   | 34   | 43   | 52   | 60   | 69   | 77   | 86   |
| 416              | 9                                                                                              | 18   | 27   | 36   | 45   | 54   | 63   | 73   | 82   | 91   |
| 417              | 9                                                                                              | 19   | 28   | 38   | 47   | 57   | 66   | 76   | 85   | 95   |
| 418              | 10                                                                                             | 20   | 30   | 39   | 49   | 59   | 69   | 79   | 89   | 98   |
| 419              | 10                                                                                             | 20   | 31   | 41   | 51   | 61   | 71   | 82   | 92   | 102  |
| 420              | 11                                                                                             | 21   | 32   | 42   | 53   | 63   | 74   | 84   | 95   | 105  |
| 421              | 11                                                                                             | 22   | 33   | 44   | 55   | 65   | 76   | 87   | 98   | 109  |
| 422              | 11                                                                                             | 23   | 34   | 45   | 56   | 68   | 79   | 90   | 101  | 113  |
| 423              | 12                                                                                             | 23   | 35   | 46   | 58   | 70   | 81   | 93   | 105  | 116  |
| 424              | 12                                                                                             | 24   | 36   | 48   | 60   | 72   | 84   | 96   | 108  | 120  |
| 425              | 12                                                                                             | 25   | 37   | 49   | 62   | 74   | 86   | 99   | 111  | 123  |
| 426              | 13                                                                                             | 25   | 38   | 51   | 63   | 76   | 89   | 102  | 114  | 127  |
| 427              | 13                                                                                             | 26   | 39   | 52   | 65   | 78   | 91   | 104  | 117  | 130  |
| 428              | 13                                                                                             | 27   | 40   | 54   | 67   | 80   | 94   | 107  | 121  | 134  |
| 429              | 14                                                                                             | 28   | 41   | 55   | 69   | 83   | 96   | 110  | 124  | 138  |
| 430              | 14                                                                                             | 28   | 42   | 56   | 71   | 85   | 99   | 113  | 127  | 141  |
| 431              | 14                                                                                             | 29   | 43   | 58   | 72   | 87   | 101  | 116  | 130  | 145  |
| 432              | 15                                                                                             | 30   | 44   | 59   | 74   | 89   | 103  | 118  | 133  | 148  |
| 433              | 15                                                                                             | 30   | 45   | 60   | 75   | 90   | 105  | 120  | 135  | 150  |
| 434              | 15                                                                                             | 31   | 46   | 61   | 76   | 92   | 107  | 122  | 137  | 153  |
| 435              | 16                                                                                             | 31   | 47   | 62   | 78   | 93   | 109  | 124  | 140  | 155  |
| 436              | 16                                                                                             | 31   | 47   | 63   | 79   | 94   | 110  | 126  | 142  | 157  |
| 437              | 16                                                                                             | 32   | 48   | 64   | 80   | 96   | 112  | 128  | 144  | 160  |
| 438              | 16                                                                                             | 32   | 49   | 65   | 81   | 97   | 114  | 130  | 146  | 162  |
| 439              | 16                                                                                             | 33   | 49   | 66   | 82   | 99   | 115  | 132  | 148  | 165  |
| 440              | 17                                                                                             | 33   | 50   | 67   | 84   | 100  | 117  | 134  | 151  | 167  |
| 441              | 17                                                                                             | 34   | 51   | 68   | 85   | 102  | 119  | 136  | 153  | 170  |
| 442              | 17                                                                                             | 34   | 52   | 69   | 86   | 103  | 120  | 138  | 155  | 172  |
| 443              | 17                                                                                             | 35   | 52   | 70   | 87   | 105  | 122  | 140  | 157  | 175  |
| 444              | 18                                                                                             | 35   | 53   | 71   | 89   | 106  | 124  | 142  | 159  | 177  |
| 445              | 18                                                                                             | 36   | 54   | 72   | 90   | 108  | 126  | 144  | 161  | 179  |
| 446              | 18                                                                                             | 36   | 55   | 73   | 91   | 109  | 127  | 146  | 164  | 182  |
| 447              | 18                                                                                             | 37   | 55   | 74   | 92   | 111  | 129  | 147  | 166  | 184  |
| 448              | 19                                                                                             | 37   | 56   | 75   | 93   | 112  | 131  | 149  | 168  | 187  |
| 449              | 19                                                                                             | 38   | 57   | 76   | 95   | 114  | 132  | 151  | 170  | 189  |
| 450              | 19                                                                                             | 38   | 57   | 77   | 96   | 115  | 134  | 153  | 172  | 192  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 1 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 451              | 19                                                                                             | 39   | 58   | 78   | 97   | 116  | 136  | 155  | 175  | 194  |
| 452              | 20                                                                                             | 39   | 59   | 79   | 98   | 118  | 138  | 157  | 177  | 197  |
| 453              | 20                                                                                             | 40   | 60   | 80   | 99   | 119  | 139  | 159  | 179  | 199  |
| 454              | 20                                                                                             | 40   | 60   | 81   | 101  | 121  | 141  | 161  | 181  | 201  |
| 455              | 20                                                                                             | 41   | 61   | 82   | 102  | 122  | 143  | 163  | 183  | 204  |
| 456              | 21                                                                                             | 41   | 62   | 83   | 103  | 124  | 144  | 165  | 186  | 206  |
| 457              | 21                                                                                             | 42   | 63   | 83   | 104  | 125  | 146  | 167  | 188  | 208  |
| 458              | 21                                                                                             | 42   | 63   | 84   | 105  | 126  | 147  | 168  | 189  | 210  |
| 459              | 21                                                                                             | 42   | 64   | 85   | 106  | 127  | 148  | 169  | 191  | 212  |
| 460              | 21                                                                                             | 43   | 64   | 85   | 107  | 128  | 149  | 171  | 192  | 214  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 461              | 22                                                                                             | 43   | 65   | 86   | 108  | 129  | 151  | 172  | 194  | 215  |
| 462              | 22                                                                                             | 43   | 65   | 87   | 108  | 130  | 152  | 174  | 195  | 217  |
| 463              | 22                                                                                             | 44   | 66   | 87   | 109  | 131  | 153  | 175  | 197  | 219  |
| 464              | 22                                                                                             | 44   | 66   | 88   | 110  | 132  | 154  | 176  | 198  | 220  |
| 465              | 22                                                                                             | 44   | 67   | 89   | 111  | 133  | 155  | 178  | 200  | 222  |
| 466              | 22                                                                                             | 45   | 67   | 90   | 112  | 134  | 157  | 179  | 201  | 224  |
| 467              | 23                                                                                             | 45   | 68   | 90   | 113  | 135  | 158  | 180  | 203  | 226  |
| 468              | 23                                                                                             | 45   | 68   | 91   | 114  | 136  | 159  | 182  | 205  | 227  |
| 469              | 23                                                                                             | 46   | 69   | 92   | 115  | 137  | 160  | 183  | 206  | 229  |
| 470              | 23                                                                                             | 46   | 69   | 92   | 115  | 138  | 162  | 185  | 208  | 231  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 471              | 23                                                                                             | 46   | 70   | 93   | 116  | 139  | 163  | 186  | 209  | 232  |
| 472              | 23                                                                                             | 47   | 70   | 94   | 117  | 140  | 164  | 187  | 211  | 234  |
| 473              | 24                                                                                             | 47   | 71   | 94   | 118  | 142  | 165  | 189  | 212  | 236  |
| 474              | 24                                                                                             | 48   | 71   | 95   | 119  | 143  | 166  | 190  | 214  | 238  |
| 475              | 24                                                                                             | 48   | 72   | 96   | 120  | 144  | 168  | 191  | 215  | 239  |
| 476              | 24                                                                                             | 48   | 72   | 96   | 121  | 145  | 169  | 193  | 217  | 241  |
| 477              | 24                                                                                             | 49   | 73   | 97   | 121  | 146  | 170  | 194  | 218  | 243  |
| 478              | 24                                                                                             | 49   | 73   | 98   | 122  | 147  | 171  | 196  | 220  | 244  |
| 479              | 25                                                                                             | 49   | 74   | 98   | 123  | 148  | 172  | 197  | 222  | 246  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 480              | 25                                                                                             | 50   | 74   | 99   | 124  | 149  | 174  | 198  | 223  | 248  |
| 481              | 25                                                                                             | 50   | 75   | 100  | 125  | 150  | 175  | 200  | 225  | 250  |
| 482              | 25                                                                                             | 50   | 75   | 101  | 126  | 151  | 176  | 201  | 226  | 251  |
| 483              | 25                                                                                             | 51   | 76   | 101  | 127  | 152  | 177  | 202  | 228  | 253  |
| 484              | 25                                                                                             | 51   | 76   | 102  | 127  | 153  | 178  | 204  | 229  | 255  |
| 485              | 26                                                                                             | 51   | 77   | 103  | 128  | 154  | 180  | 205  | 231  | 257  |
| 486              | 26                                                                                             | 52   | 77   | 103  | 129  | 155  | 181  | 207  | 232  | 258  |
| 487              | 26                                                                                             | 52   | 78   | 104  | 130  | 156  | 182  | 208  | 234  | 260  |
| 488              | 26                                                                                             | 52   | 79   | 105  | 131  | 157  | 183  | 209  | 236  | 262  |
| 489              | 26                                                                                             | 53   | 79   | 105  | 132  | 158  | 184  | 211  | 237  | 263  |
| 490              | 27                                                                                             | 53   | 80   | 106  | 133  | 159  | 186  | 212  | 239  | 265  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 491              | 27                                                                                             | 53   | 80   | 107  | 133  | 160  | 187  | 213  | 240  | 267  |
| 492              | 27                                                                                             | 54   | 81   | 107  | 134  | 161  | 188  | 215  | 242  | 269  |
| 493              | 27                                                                                             | 54   | 81   | 108  | 135  | 162  | 189  | 216  | 243  | 270  |
| 494              | 27                                                                                             | 54   | 82   | 109  | 136  | 163  | 190  | 218  | 245  | 272  |
| 495              | 27                                                                                             | 55   | 82   | 109  | 137  | 164  | 192  | 219  | 246  | 274  |
| 496              | 28                                                                                             | 55   | 83   | 110  | 138  | 165  | 193  | 220  | 248  | 275  |
| 497              | 28                                                                                             | 55   | 83   | 111  | 139  | 166  | 194  | 222  | 249  | 277  |
| 498              | 28                                                                                             | 56   | 84   | 112  | 139  | 167  | 195  | 223  | 251  | 279  |
| 499              | 28                                                                                             | 56   | 84   | 112  | 140  | 168  | 196  | 224  | 253  | 281  |
| 500              | 28                                                                                             | 56   | 85   | 113  | 141  | 169  | 198  | 226  | 254  | 282  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 1 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 501              | 28                                                                                             | 57   | 85   | 114  | 142  | 170  | 199  | 227  | 256  | 284  |
| 502              | 29                                                                                             | 57   | 86   | 114  | 143  | 171  | 200  | 229  | 257  | 286  |
| 503              | 29                                                                                             | 57   | 86   | 115  | 144  | 172  | 201  | 230  | 259  | 287  |
| 504              | 29                                                                                             | 58   | 87   | 116  | 145  | 174  | 202  | 231  | 260  | 289  |
| 505              | 29                                                                                             | 58   | 87   | 116  | 145  | 175  | 204  | 233  | 262  | 291  |
| 506              | 29                                                                                             | 59   | 88   | 117  | 146  | 176  | 205  | 234  | 263  | 293  |
| 507              | 29                                                                                             | 59   | 88   | 118  | 147  | 176  | 206  | 235  | 265  | 294  |
| 508              | 30                                                                                             | 59   | 89   | 118  | 148  | 177  | 207  | 236  | 266  | 295  |
| 509              | 30                                                                                             | 59   | 89   | 119  | 148  | 178  | 208  | 237  | 267  | 297  |
| 510              | 30                                                                                             | 60   | 89   | 119  | 149  | 179  | 209  | 238  | 268  | 298  |
| 511              | 30                                                                                             | 60   | 90   | 120  | 150  | 180  | 210  | 240  | 269  | 299  |
| 512              | 30                                                                                             | 60   | 90   | 120  | 150  | 180  | 210  | 241  | 271  | 301  |
| 513              | 30                                                                                             | 60   | 91   | 121  | 151  | 181  | 211  | 242  | 272  | 302  |
| 514              | 30                                                                                             | 61   | 91   | 121  | 152  | 182  | 212  | 243  | 273  | 303  |
| 515              | 30                                                                                             | 61   | 91   | 122  | 152  | 183  | 213  | 244  | 274  | 305  |
| 516              | 31                                                                                             | 61   | 92   | 122  | 153  | 184  | 214  | 245  | 275  | 306  |
| 517              | 31                                                                                             | 61   | 92   | 123  | 154  | 184  | 215  | 246  | 277  | 307  |
| 518              | 31                                                                                             | 62   | 93   | 123  | 154  | 185  | 216  | 247  | 278  | 309  |
| 519              | 31                                                                                             | 62   | 93   | 124  | 155  | 186  | 217  | 248  | 279  | 310  |
| 520              | 31                                                                                             | 62   | 93   | 124  | 156  | 187  | 218  | 249  | 280  | 311  |
| 521              | 31                                                                                             | 62   | 94   | 125  | 156  | 187  | 219  | 250  | 281  | 312  |
| 522              | 31                                                                                             | 63   | 94   | 126  | 157  | 188  | 220  | 251  | 282  | 314  |
| 523              | 32                                                                                             | 63   | 95   | 126  | 158  | 189  | 221  | 252  | 284  | 315  |
| 524              | 32                                                                                             | 63   | 95   | 127  | 158  | 190  | 221  | 253  | 285  | 316  |
| 525              | 32                                                                                             | 64   | 95   | 127  | 159  | 191  | 222  | 254  | 286  | 318  |
| 526              | 32                                                                                             | 64   | 96   | 128  | 160  | 191  | 223  | 255  | 287  | 319  |
| 527              | 32                                                                                             | 64   | 96   | 128  | 160  | 192  | 224  | 256  | 288  | 320  |
| 528              | 32                                                                                             | 64   | 96   | 129  | 161  | 193  | 225  | 257  | 289  | 322  |
| 529              | 32                                                                                             | 65   | 97   | 129  | 161  | 194  | 226  | 258  | 291  | 323  |
| 530              | 32                                                                                             | 65   | 97   | 130  | 162  | 195  | 227  | 259  | 292  | 324  |
| 531              | 33                                                                                             | 65   | 98   | 130  | 163  | 195  | 228  | 260  | 293  | 326  |
| 532              | 33                                                                                             | 65   | 98   | 131  | 163  | 196  | 229  | 262  | 294  | 327  |
| 533              | 33                                                                                             | 66   | 98   | 131  | 164  | 197  | 230  | 263  | 295  | 328  |
| 534              | 33                                                                                             | 66   | 99   | 132  | 165  | 198  | 231  | 264  | 297  | 330  |
| 535              | 33                                                                                             | 66   | 99   | 132  | 165  | 199  | 232  | 265  | 298  | 331  |
| 536              | 33                                                                                             | 66   | 100  | 133  | 166  | 199  | 233  | 266  | 299  | 332  |
| 537              | 33                                                                                             | 67   | 100  | 133  | 167  | 200  | 233  | 267  | 300  | 333  |
| 538              | 33                                                                                             | 67   | 100  | 134  | 167  | 201  | 234  | 268  | 301  | 335  |
| 539              | 34                                                                                             | 67   | 101  | 134  | 168  | 202  | 235  | 269  | 302  | 336  |
| 540              | 34                                                                                             | 67   | 101  | 135  | 169  | 202  | 236  | 270  | 304  | 337  |
| 541              | 34                                                                                             | 68   | 102  | 135  | 169  | 203  | 237  | 271  | 305  | 339  |
| 542              | 34                                                                                             | 68   | 102  | 136  | 170  | 204  | 238  | 272  | 306  | 340  |
| 543              | 34                                                                                             | 68   | 102  | 137  | 171  | 205  | 239  | 273  | 307  | 341  |
| 544              | 34                                                                                             | 69   | 103  | 137  | 171  | 206  | 240  | 274  | 308  | 343  |
| 545              | 34                                                                                             | 69   | 103  | 138  | 172  | 206  | 241  | 275  | 310  | 344  |
| 546              | 35                                                                                             | 69   | 104  | 138  | 173  | 207  | 242  | 276  | 311  | 345  |
| 547              | 35                                                                                             | 69   | 104  | 139  | 173  | 208  | 243  | 277  | 312  | 347  |
| 548              | 35                                                                                             | 70   | 104  | 139  | 174  | 209  | 244  | 278  | 313  | 348  |
| 549              | 35                                                                                             | 70   | 105  | 140  | 175  | 210  | 244  | 279  | 314  | 349  |
| 550              | 35                                                                                             | 70   | 105  | 140  | 175  | 210  | 245  | 280  | 315  | 350  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 1 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 551              | 35                                                                                             | 70   | 106  | 141  | 176  | 211  | 246  | 281  | 317  | 352  |
| 552              | 35                                                                                             | 71   | 106  | 141  | 177  | 212  | 247  | 282  | 318  | 353  |
| 553              | 35                                                                                             | 71   | 106  | 142  | 177  | 213  | 248  | 284  | 319  | 354  |
| 554              | 36                                                                                             | 71   | 107  | 142  | 178  | 213  | 249  | 285  | 320  | 356  |
| 555              | 36                                                                                             | 71   | 107  | 143  | 179  | 214  | 250  | 286  | 321  | 357  |
| 556              | 36                                                                                             | 72   | 108  | 143  | 179  | 215  | 251  | 287  | 323  | 358  |
| 557              | 36                                                                                             | 72   | 108  | 144  | 180  | 216  | 252  | 288  | 324  | 360  |
| 558              | 36                                                                                             | 72   | 108  | 144  | 180  | 216  | 252  | 289  | 325  | 361  |
| 559              | 36                                                                                             | 72   | 109  | 145  | 181  | 217  | 253  | 289  | 326  | 362  |
| 560              | 36                                                                                             | 73   | 109  | 145  | 181  | 218  | 254  | 290  | 327  | 363  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 561              | 36                                                                                             | 73   | 109  | 146  | 182  | 218  | 255  | 291  | 328  | 364  |
| 562              | 37                                                                                             | 73   | 110  | 146  | 183  | 219  | 256  | 292  | 329  | 365  |
| 563              | 37                                                                                             | 73   | 110  | 146  | 183  | 220  | 256  | 293  | 330  | 366  |
| 564              | 37                                                                                             | 73   | 110  | 147  | 184  | 220  | 257  | 294  | 331  | 367  |
| 565              | 37                                                                                             | 74   | 111  | 147  | 184  | 221  | 258  | 295  | 332  | 368  |
| 566              | 37                                                                                             | 74   | 111  | 148  | 185  | 222  | 259  | 296  | 333  | 370  |
| 567              | 37                                                                                             | 74   | 111  | 148  | 185  | 222  | 259  | 296  | 334  | 371  |
| 568              | 37                                                                                             | 74   | 112  | 149  | 186  | 223  | 260  | 297  | 335  | 372  |
| 569              | 37                                                                                             | 75   | 112  | 149  | 186  | 224  | 261  | 298  | 336  | 373  |
| 570              | 37                                                                                             | 75   | 112  | 150  | 187  | 224  | 262  | 299  | 337  | 374  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 571              | 38                                                                                             | 75   | 113  | 150  | 188  | 225  | 263  | 300  | 338  | 375  |
| 572              | 38                                                                                             | 75   | 113  | 150  | 188  | 226  | 263  | 301  | 339  | 376  |
| 573              | 38                                                                                             | 75   | 113  | 151  | 189  | 226  | 264  | 302  | 340  | 377  |
| 574              | 38                                                                                             | 76   | 114  | 151  | 189  | 227  | 265  | 303  | 341  | 378  |
| 575              | 38                                                                                             | 76   | 114  | 152  | 190  | 228  | 266  | 304  | 342  | 379  |
| 576              | 38                                                                                             | 76   | 114  | 152  | 190  | 228  | 266  | 304  | 343  | 381  |
| 577              | 38                                                                                             | 76   | 115  | 153  | 191  | 229  | 267  | 305  | 344  | 382  |
| 578              | 38                                                                                             | 77   | 115  | 153  | 191  | 230  | 268  | 306  | 345  | 383  |
| 579              | 38                                                                                             | 77   | 115  | 154  | 192  | 230  | 269  | 307  | 346  | 384  |
| 580              | 39                                                                                             | 77   | 116  | 154  | 193  | 231  | 270  | 308  | 347  | 385  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 1 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 2 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 405              | 0                                                                                              | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 406              | 13                                                                                             | 14   | 15   | 17   | 18   | 19   | 20   | 21   | 22   | 24   |
| 407              | 26                                                                                             | 28   | 31   | 33   | 35   | 38   | 40   | 43   | 45   | 47   |
| 408              | 39                                                                                             | 43   | 46   | 50   | 53   | 57   | 60   | 64   | 67   | 71   |
| 409              | 52                                                                                             | 57   | 61   | 66   | 71   | 76   | 80   | 85   | 90   | 95   |
| 410              | 65                                                                                             | 71   | 77   | 83   | 89   | 95   | 100  | 106  | 112  | 118  |
| 411              | 74                                                                                             | 81   | 88   | 94   | 101  | 108  | 114  | 121  | 128  | 135  |
| 412              | 79                                                                                             | 86   | 94   | 101  | 108  | 115  | 122  | 130  | 137  | 144  |
| 413              | 84                                                                                             | 92   | 100  | 107  | 115  | 123  | 130  | 138  | 146  | 153  |
| 414              | 89                                                                                             | 98   | 106  | 114  | 122  | 130  | 138  | 146  | 155  | 163  |
| 415              | 95                                                                                             | 103  | 112  | 120  | 129  | 138  | 146  | 155  | 163  | 172  |
| 416              | 100                                                                                            | 109  | 118  | 127  | 136  | 145  | 154  | 163  | 172  | 181  |
| 417              | 104                                                                                            | 114  | 123  | 133  | 142  | 152  | 161  | 171  | 180  | 190  |
| 418              | 108                                                                                            | 118  | 128  | 138  | 148  | 157  | 167  | 177  | 187  | 197  |
| 419              | 112                                                                                            | 122  | 132  | 143  | 153  | 163  | 173  | 183  | 194  | 204  |
| 420              | 116                                                                                            | 127  | 137  | 148  | 158  | 169  | 179  | 190  | 200  | 211  |
| 421              | 120                                                                                            | 131  | 142  | 153  | 164  | 174  | 185  | 196  | 207  | 218  |
| 422              | 124                                                                                            | 135  | 146  | 158  | 169  | 180  | 191  | 203  | 214  | 225  |
| 423              | 128                                                                                            | 139  | 151  | 163  | 174  | 186  | 198  | 209  | 221  | 232  |
| 424              | 132                                                                                            | 144  | 156  | 168  | 180  | 192  | 204  | 216  | 228  | 240  |
| 425              | 136                                                                                            | 148  | 160  | 173  | 185  | 197  | 210  | 222  | 234  | 247  |
| 426              | 140                                                                                            | 152  | 165  | 178  | 190  | 203  | 216  | 228  | 241  | 254  |
| 427              | 143                                                                                            | 157  | 170  | 183  | 196  | 209  | 222  | 235  | 248  | 261  |
| 428              | 147                                                                                            | 161  | 174  | 188  | 201  | 214  | 228  | 241  | 255  | 268  |
| 429              | 151                                                                                            | 165  | 179  | 193  | 206  | 220  | 234  | 248  | 261  | 275  |
| 430              | 155                                                                                            | 169  | 183  | 198  | 212  | 226  | 240  | 254  | 268  | 282  |
| 431              | 159                                                                                            | 174  | 188  | 203  | 217  | 232  | 246  | 260  | 275  | 289  |
| 432              | 162                                                                                            | 177  | 192  | 207  | 222  | 236  | 251  | 266  | 281  | 295  |
| 433              | 165                                                                                            | 180  | 195  | 210  | 225  | 240  | 255  | 270  | 285  | 300  |
| 434              | 168                                                                                            | 183  | 198  | 214  | 229  | 244  | 259  | 275  | 290  | 305  |
| 435              | 171                                                                                            | 186  | 202  | 217  | 233  | 248  | 264  | 279  | 295  | 310  |
| 436              | 173                                                                                            | 189  | 205  | 220  | 236  | 252  | 268  | 283  | 299  | 315  |
| 437              | 176                                                                                            | 192  | 208  | 224  | 240  | 256  | 272  | 288  | 304  | 320  |
| 438              | 179                                                                                            | 195  | 211  | 227  | 244  | 260  | 276  | 292  | 308  | 325  |
| 439              | 181                                                                                            | 198  | 214  | 231  | 247  | 264  | 280  | 297  | 313  | 330  |
| 440              | 184                                                                                            | 201  | 217  | 234  | 251  | 268  | 284  | 301  | 318  | 334  |
| 441              | 187                                                                                            | 204  | 221  | 238  | 255  | 271  | 288  | 305  | 322  | 339  |
| 442              | 189                                                                                            | 207  | 224  | 241  | 258  | 275  | 293  | 310  | 327  | 344  |
| 443              | 192                                                                                            | 209  | 227  | 244  | 262  | 279  | 297  | 314  | 332  | 349  |
| 444              | 195                                                                                            | 212  | 230  | 248  | 266  | 283  | 301  | 319  | 336  | 354  |
| 445              | 197                                                                                            | 215  | 233  | 251  | 269  | 287  | 305  | 323  | 341  | 359  |
| 446              | 200                                                                                            | 218  | 236  | 255  | 273  | 291  | 309  | 327  | 346  | 364  |
| 447              | 203                                                                                            | 221  | 240  | 258  | 276  | 295  | 313  | 332  | 350  | 369  |
| 448              | 205                                                                                            | 224  | 243  | 261  | 280  | 299  | 317  | 336  | 355  | 374  |
| 449              | 208                                                                                            | 227  | 246  | 265  | 284  | 303  | 322  | 341  | 359  | 378  |
| 450              | 211                                                                                            | 230  | 249  | 268  | 287  | 307  | 326  | 345  | 364  | 383  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 1 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 2 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 451              | 213                                                                                            | 233  | 252  | 272  | 291  | 311  | 330  | 349  | 369  | 388  |
| 452              | 216                                                                                            | 236  | 255  | 275  | 295  | 314  | 334  | 354  | 373  | 393  |
| 453              | 219                                                                                            | 239  | 259  | 279  | 298  | 318  | 338  | 358  | 378  | 398  |
| 454              | 222                                                                                            | 242  | 262  | 282  | 302  | 322  | 342  | 363  | 383  | 403  |
| 455              | 224                                                                                            | 245  | 265  | 285  | 306  | 326  | 347  | 367  | 387  | 408  |
| 456              | 227                                                                                            | 248  | 268  | 289  | 309  | 330  | 351  | 371  | 392  | 413  |
| 457              | 229                                                                                            | 250  | 271  | 292  | 313  | 333  | 354  | 375  | 396  | 417  |
| 458              | 231                                                                                            | 252  | 273  | 294  | 315  | 336  | 357  | 378  | 399  | 420  |
| 459              | 233                                                                                            | 254  | 275  | 297  | 318  | 339  | 360  | 381  | 402  | 424  |
| 460              | 235                                                                                            | 256  | 278  | 299  | 320  | 342  | 363  | 384  | 406  | 427  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 461              | 237                                                                                            | 258  | 280  | 301  | 323  | 344  | 366  | 387  | 409  | 430  |
| 462              | 239                                                                                            | 260  | 282  | 304  | 325  | 347  | 369  | 391  | 412  | 434  |
| 463              | 241                                                                                            | 262  | 284  | 306  | 328  | 350  | 372  | 394  | 415  | 437  |
| 464              | 242                                                                                            | 264  | 287  | 309  | 331  | 353  | 375  | 397  | 419  | 441  |
| 465              | 244                                                                                            | 267  | 289  | 311  | 333  | 355  | 378  | 400  | 422  | 444  |
| 466              | 246                                                                                            | 269  | 291  | 313  | 336  | 358  | 381  | 403  | 425  | 448  |
| 467              | 248                                                                                            | 271  | 293  | 316  | 338  | 361  | 383  | 406  | 429  | 451  |
| 468              | 250                                                                                            | 273  | 295  | 318  | 341  | 364  | 386  | 409  | 432  | 455  |
| 469              | 252                                                                                            | 275  | 298  | 321  | 344  | 366  | 389  | 412  | 435  | 458  |
| 470              | 254                                                                                            | 277  | 300  | 323  | 346  | 369  | 392  | 415  | 438  | 461  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 471              | 256                                                                                            | 279  | 302  | 325  | 349  | 372  | 395  | 418  | 442  | 465  |
| 472              | 258                                                                                            | 281  | 304  | 328  | 351  | 375  | 398  | 421  | 445  | 468  |
| 473              | 259                                                                                            | 283  | 307  | 330  | 354  | 377  | 401  | 425  | 448  | 472  |
| 474              | 261                                                                                            | 285  | 309  | 333  | 356  | 380  | 404  | 428  | 451  | 475  |
| 475              | 263                                                                                            | 287  | 311  | 335  | 359  | 383  | 407  | 431  | 455  | 479  |
| 476              | 265                                                                                            | 289  | 313  | 337  | 362  | 386  | 410  | 434  | 458  | 482  |
| 477              | 267                                                                                            | 291  | 316  | 340  | 364  | 388  | 413  | 437  | 461  | 486  |
| 478              | 269                                                                                            | 293  | 318  | 342  | 367  | 391  | 416  | 440  | 465  | 489  |
| 479              | 271                                                                                            | 295  | 320  | 345  | 369  | 394  | 419  | 443  | 468  | 492  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 480              | 273                                                                                            | 298  | 322  | 347  | 372  | 397  | 421  | 446  | 471  | 496  |
| 481              | 275                                                                                            | 300  | 325  | 349  | 374  | 399  | 424  | 449  | 474  | 499  |
| 482              | 276                                                                                            | 302  | 327  | 352  | 377  | 402  | 427  | 452  | 478  | 503  |
| 483              | 278                                                                                            | 304  | 329  | 354  | 380  | 405  | 430  | 456  | 481  | 506  |
| 484              | 280                                                                                            | 306  | 331  | 357  | 382  | 408  | 433  | 459  | 484  | 510  |
| 485              | 282                                                                                            | 308  | 333  | 359  | 385  | 410  | 436  | 462  | 487  | 513  |
| 486              | 284                                                                                            | 310  | 336  | 362  | 387  | 413  | 439  | 465  | 491  | 516  |
| 487              | 286                                                                                            | 312  | 338  | 364  | 390  | 416  | 442  | 468  | 494  | 520  |
| 488              | 288                                                                                            | 314  | 340  | 366  | 393  | 419  | 445  | 471  | 497  | 523  |
| 489              | 290                                                                                            | 316  | 342  | 369  | 395  | 421  | 448  | 474  | 500  | 527  |
| 490              | 292                                                                                            | 318  | 345  | 371  | 398  | 424  | 451  | 477  | 504  | 530  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 491              | 294                                                                                            | 320  | 347  | 374  | 400  | 427  | 454  | 480  | 507  | 534  |
| 492              | 295                                                                                            | 322  | 349  | 376  | 403  | 430  | 457  | 483  | 510  | 537  |
| 493              | 297                                                                                            | 324  | 351  | 378  | 405  | 432  | 459  | 487  | 514  | 541  |
| 494              | 299                                                                                            | 326  | 354  | 381  | 408  | 435  | 462  | 490  | 517  | 544  |
| 495              | 301                                                                                            | 328  | 356  | 383  | 411  | 438  | 465  | 493  | 520  | 547  |
| 496              | 303                                                                                            | 331  | 358  | 386  | 413  | 441  | 468  | 496  | 523  | 551  |
| 497              | 305                                                                                            | 333  | 360  | 388  | 416  | 443  | 471  | 499  | 527  | 554  |
| 498              | 307                                                                                            | 335  | 363  | 390  | 418  | 446  | 474  | 502  | 530  | 558  |
| 499              | 309                                                                                            | 337  | 365  | 393  | 421  | 449  | 477  | 505  | 533  | 561  |
| 500              | 311                                                                                            | 339  | 367  | 395  | 423  | 452  | 480  | 508  | 536  | 565  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 1 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 2 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 501              | 312                                                                                            | 341  | 369  | 398  | 426  | 454  | 483  | 511  | 540  | 568  |
| 502              | 314                                                                                            | 343  | 371  | 400  | 429  | 457  | 486  | 514  | 543  | 572  |
| 503              | 316                                                                                            | 345  | 374  | 402  | 431  | 460  | 489  | 517  | 546  | 575  |
| 504              | 318                                                                                            | 347  | 376  | 405  | 434  | 463  | 492  | 521  | 549  | 578  |
| 505              | 320                                                                                            | 349  | 378  | 407  | 436  | 465  | 495  | 524  | 553  | 582  |
| 506              | 322                                                                                            | 351  | 380  | 410  | 439  | 468  | 497  | 527  | 556  | 585  |
| 507              | 324                                                                                            | 353  | 382  | 412  | 441  | 471  | 500  | 529  | 559  | 588  |
| 508              | 325                                                                                            | 355  | 384  | 414  | 443  | 473  | 502  | 532  | 561  | 591  |
| 509              | 326                                                                                            | 356  | 386  | 415  | 445  | 475  | 505  | 534  | 564  | 594  |
| 510              | 328                                                                                            | 358  | 388  | 417  | 447  | 477  | 507  | 537  | 566  | 596  |
| 511              | 329                                                                                            | 359  | 389  | 419  | 449  | 479  | 509  | 539  | 569  | 599  |
| 512              | 331                                                                                            | 361  | 391  | 421  | 451  | 481  | 511  | 541  | 571  | 601  |
| 513              | 332                                                                                            | 362  | 393  | 423  | 453  | 483  | 513  | 544  | 574  | 604  |
| 514              | 334                                                                                            | 364  | 394  | 425  | 455  | 485  | 516  | 546  | 576  | 607  |
| 515              | 335                                                                                            | 366  | 396  | 426  | 457  | 487  | 518  | 548  | 579  | 609  |
| 516              | 337                                                                                            | 367  | 398  | 428  | 459  | 490  | 520  | 551  | 581  | 612  |
| 517              | 338                                                                                            | 369  | 399  | 430  | 461  | 492  | 522  | 553  | 584  | 615  |
| 518              | 339                                                                                            | 370  | 401  | 432  | 463  | 494  | 525  | 555  | 586  | 617  |
| 519              | 341                                                                                            | 372  | 403  | 434  | 465  | 496  | 527  | 558  | 589  | 620  |
| 520              | 342                                                                                            | 373  | 405  | 436  | 467  | 498  | 529  | 560  | 591  | 622  |
| 521              | 344                                                                                            | 375  | 406  | 437  | 469  | 500  | 531  | 562  | 594  | 625  |
| 522              | 345                                                                                            | 377  | 408  | 439  | 471  | 502  | 533  | 565  | 596  | 628  |
| 523              | 347                                                                                            | 378  | 410  | 441  | 473  | 504  | 536  | 567  | 599  | 630  |
| 524              | 348                                                                                            | 380  | 411  | 443  | 475  | 506  | 538  | 570  | 601  | 633  |
| 525              | 350                                                                                            | 381  | 413  | 445  | 477  | 508  | 540  | 572  | 604  | 635  |
| 526              | 351                                                                                            | 383  | 415  | 447  | 479  | 510  | 542  | 574  | 606  | 638  |
| 527              | 352                                                                                            | 384  | 416  | 448  | 481  | 513  | 545  | 577  | 609  | 641  |
| 528              | 354                                                                                            | 386  | 418  | 450  | 482  | 515  | 547  | 579  | 611  | 643  |
| 529              | 355                                                                                            | 388  | 420  | 452  | 484  | 517  | 549  | 581  | 614  | 646  |
| 530              | 357                                                                                            | 389  | 422  | 454  | 486  | 519  | 551  | 584  | 616  | 649  |
| 531              | 358                                                                                            | 391  | 423  | 456  | 488  | 521  | 554  | 586  | 619  | 651  |
| 532              | 360                                                                                            | 392  | 425  | 458  | 490  | 523  | 556  | 588  | 621  | 654  |
| 533              | 361                                                                                            | 394  | 427  | 460  | 492  | 525  | 558  | 591  | 624  | 656  |
| 534              | 362                                                                                            | 395  | 428  | 461  | 494  | 527  | 560  | 593  | 626  | 659  |
| 535              | 364                                                                                            | 397  | 430  | 463  | 496  | 529  | 562  | 596  | 629  | 662  |
| 536              | 365                                                                                            | 399  | 432  | 465  | 498  | 531  | 565  | 598  | 631  | 664  |
| 537              | 367                                                                                            | 400  | 433  | 467  | 500  | 534  | 567  | 600  | 634  | 667  |
| 538              | 368                                                                                            | 402  | 435  | 469  | 502  | 536  | 569  | 603  | 636  | 670  |
| 539              | 370                                                                                            | 403  | 437  | 471  | 504  | 538  | 571  | 605  | 639  | 672  |
| 540              | 371                                                                                            | 405  | 439  | 472  | 506  | 540  | 574  | 607  | 641  | 675  |
| 541              | 373                                                                                            | 406  | 440  | 474  | 508  | 542  | 576  | 610  | 644  | 677  |
| 542              | 374                                                                                            | 408  | 442  | 476  | 510  | 544  | 578  | 612  | 646  | 680  |
| 543              | 375                                                                                            | 410  | 444  | 478  | 512  | 546  | 580  | 614  | 648  | 683  |
| 544              | 377                                                                                            | 411  | 445  | 480  | 514  | 548  | 582  | 617  | 651  | 685  |
| 545              | 378                                                                                            | 413  | 447  | 482  | 516  | 550  | 585  | 619  | 653  | 688  |
| 546              | 380                                                                                            | 414  | 449  | 483  | 518  | 552  | 587  | 621  | 656  | 690  |
| 547              | 381                                                                                            | 416  | 451  | 485  | 520  | 554  | 589  | 624  | 658  | 693  |
| 548              | 383                                                                                            | 417  | 452  | 487  | 522  | 557  | 591  | 626  | 661  | 696  |
| 549              | 384                                                                                            | 419  | 454  | 489  | 524  | 559  | 594  | 629  | 663  | 698  |
| 550              | 386                                                                                            | 421  | 456  | 491  | 526  | 561  | 596  | 631  | 666  | 701  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 1 FT                                                                                           |      |      |      |      |      |      |      |      | 2 FT |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 |      |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 551              | 387                                                                                            | 422  | 457  | 493  | 528  | 563  | 598  | 633  | 668  | 704  |
| 552              | 388                                                                                            | 424  | 459  | 494  | 530  | 565  | 600  | 636  | 671  | 706  |
| 553              | 390                                                                                            | 425  | 461  | 496  | 532  | 567  | 603  | 638  | 673  | 709  |
| 554              | 391                                                                                            | 427  | 462  | 498  | 534  | 569  | 605  | 640  | 676  | 711  |
| 555              | 393                                                                                            | 428  | 464  | 500  | 536  | 571  | 607  | 643  | 678  | 714  |
| 556              | 394                                                                                            | 430  | 466  | 502  | 538  | 573  | 609  | 645  | 681  | 717  |
| 557              | 396                                                                                            | 431  | 467  | 503  | 539  | 575  | 611  | 647  | 683  | 719  |
| 558              | 397                                                                                            | 433  | 469  | 505  | 541  | 577  | 613  | 649  | 685  | 721  |
| 559              | 398                                                                                            | 434  | 470  | 506  | 543  | 579  | 615  | 651  | 687  | 724  |
| 560              | 399                                                                                            | 435  | 472  | 508  | 544  | 581  | 617  | 653  | 689  | 726  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 561              | 400                                                                                            | 437  | 473  | 510  | 546  | 582  | 619  | 655  | 692  | 728  |
| 562              | 402                                                                                            | 438  | 475  | 511  | 548  | 584  | 621  | 657  | 694  | 730  |
| 563              | 403                                                                                            | 439  | 476  | 513  | 549  | 586  | 623  | 659  | 696  | 732  |
| 564              | 404                                                                                            | 441  | 477  | 514  | 551  | 588  | 624  | 661  | 698  | 735  |
| 565              | 405                                                                                            | 442  | 479  | 516  | 553  | 589  | 626  | 663  | 700  | 737  |
| 566              | 406                                                                                            | 443  | 480  | 517  | 554  | 591  | 628  | 665  | 702  | 739  |
| 567              | 408                                                                                            | 445  | 482  | 519  | 556  | 593  | 630  | 667  | 704  | 741  |
| 568              | 409                                                                                            | 446  | 483  | 520  | 558  | 595  | 632  | 669  | 706  | 743  |
| 569              | 410                                                                                            | 447  | 485  | 522  | 559  | 597  | 634  | 671  | 708  | 746  |
| 570              | 411                                                                                            | 449  | 486  | 524  | 561  | 598  | 636  | 673  | 710  | 748  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 571              | 413                                                                                            | 450  | 488  | 525  | 563  | 600  | 638  | 675  | 713  | 750  |
| 572              | 414                                                                                            | 451  | 489  | 527  | 564  | 602  | 639  | 677  | 715  | 752  |
| 573              | 415                                                                                            | 453  | 490  | 528  | 566  | 604  | 641  | 679  | 717  | 755  |
| 574              | 416                                                                                            | 454  | 492  | 530  | 568  | 605  | 643  | 681  | 719  | 757  |
| 575              | 417                                                                                            | 455  | 493  | 531  | 569  | 607  | 645  | 683  | 721  | 759  |
| 576              | 419                                                                                            | 457  | 495  | 533  | 571  | 609  | 647  | 685  | 723  | 761  |
| 577              | 420                                                                                            | 458  | 496  | 534  | 573  | 611  | 649  | 687  | 725  | 763  |
| 578              | 421                                                                                            | 459  | 498  | 536  | 574  | 612  | 651  | 689  | 727  | 766  |
| 579              | 422                                                                                            | 461  | 499  | 537  | 576  | 614  | 653  | 691  | 729  | 768  |
| 580              | 424                                                                                            | 462  | 501  | 539  | 578  | 616  | 655  | 693  | 732  | 770  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 2 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 405              | 0                                                                                              | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 406              | 2                                                                                              | 3    | 5    | 6    | 8    | 10   | 11   | 13   | 14   | 16   |
| 407              | 3                                                                                              | 6    | 10   | 13   | 16   | 19   | 23   | 26   | 29   | 32   |
| 408              | 5                                                                                              | 10   | 14   | 19   | 24   | 29   | 34   | 39   | 43   | 48   |
| 409              | 6                                                                                              | 13   | 19   | 26   | 32   | 39   | 45   | 51   | 58   | 64   |
| 410              | 8                                                                                              | 16   | 24   | 32   | 40   | 48   | 56   | 64   | 72   | 80   |
| 411              | 10                                                                                             | 19   | 29   | 39   | 48   | 58   | 68   | 77   | 87   | 96   |
| 412              | 11                                                                                             | 23   | 34   | 45   | 56   | 68   | 79   | 90   | 101  | 113  |
| 413              | 12                                                                                             | 24   | 35   | 47   | 59   | 71   | 82   | 94   | 106  | 118  |
| 414              | 12                                                                                             | 25   | 37   | 49   | 61   | 74   | 86   | 98   | 111  | 123  |
| 415              | 13                                                                                             | 26   | 38   | 51   | 64   | 77   | 90   | 102  | 115  | 128  |
| 416              | 13                                                                                             | 27   | 40   | 53   | 67   | 80   | 93   | 107  | 120  | 133  |
| 417              | 14                                                                                             | 28   | 42   | 55   | 69   | 83   | 97   | 111  | 125  | 138  |
| 418              | 14                                                                                             | 29   | 43   | 58   | 72   | 86   | 101  | 115  | 129  | 144  |
| 419              | 15                                                                                             | 30   | 45   | 60   | 75   | 90   | 104  | 119  | 134  | 149  |
| 420              | 15                                                                                             | 31   | 46   | 62   | 77   | 93   | 108  | 124  | 139  | 155  |
| 421              | 16                                                                                             | 32   | 48   | 64   | 80   | 96   | 112  | 128  | 144  | 160  |
| 422              | 17                                                                                             | 33   | 50   | 66   | 83   | 99   | 116  | 132  | 149  | 166  |
| 423              | 17                                                                                             | 34   | 51   | 68   | 86   | 103  | 120  | 137  | 154  | 171  |
| 424              | 18                                                                                             | 35   | 53   | 71   | 88   | 106  | 124  | 141  | 159  | 176  |
| 425              | 18                                                                                             | 36   | 55   | 73   | 91   | 109  | 127  | 146  | 164  | 182  |
| 426              | 19                                                                                             | 37   | 56   | 75   | 94   | 112  | 131  | 150  | 169  | 187  |
| 427              | 19                                                                                             | 39   | 58   | 77   | 96   | 116  | 135  | 154  | 173  | 193  |
| 428              | 20                                                                                             | 40   | 59   | 79   | 99   | 119  | 139  | 159  | 178  | 198  |
| 429              | 20                                                                                             | 41   | 61   | 81   | 102  | 122  | 143  | 163  | 183  | 204  |
| 430              | 21                                                                                             | 42   | 63   | 84   | 105  | 125  | 146  | 167  | 188  | 209  |
| 431              | 21                                                                                             | 43   | 64   | 86   | 107  | 129  | 150  | 172  | 193  | 214  |
| 432              | 22                                                                                             | 44   | 66   | 88   | 110  | 132  | 154  | 176  | 198  | 220  |
| 433              | 22                                                                                             | 45   | 67   | 90   | 112  | 134  | 157  | 179  | 202  | 224  |
| 434              | 23                                                                                             | 46   | 68   | 91   | 114  | 137  | 159  | 182  | 205  | 228  |
| 435              | 23                                                                                             | 46   | 69   | 92   | 116  | 139  | 162  | 185  | 208  | 231  |
| 436              | 23                                                                                             | 47   | 70   | 94   | 117  | 141  | 164  | 188  | 211  | 235  |
| 437              | 24                                                                                             | 48   | 72   | 95   | 119  | 143  | 167  | 191  | 215  | 239  |
| 438              | 24                                                                                             | 48   | 73   | 97   | 121  | 145  | 170  | 194  | 218  | 242  |
| 439              | 25                                                                                             | 49   | 74   | 98   | 123  | 148  | 172  | 197  | 221  | 246  |
| 440              | 25                                                                                             | 50   | 75   | 100  | 125  | 150  | 175  | 200  | 225  | 250  |
| 441              | 25                                                                                             | 51   | 76   | 101  | 127  | 152  | 177  | 203  | 228  | 253  |
| 442              | 26                                                                                             | 51   | 77   | 103  | 128  | 154  | 180  | 205  | 231  | 257  |
| 443              | 26                                                                                             | 52   | 78   | 104  | 130  | 156  | 182  | 208  | 234  | 261  |
| 444              | 26                                                                                             | 53   | 79   | 106  | 132  | 159  | 185  | 211  | 238  | 264  |
| 445              | 27                                                                                             | 54   | 80   | 107  | 134  | 161  | 187  | 214  | 241  | 268  |
| 446              | 27                                                                                             | 54   | 81   | 109  | 136  | 163  | 190  | 217  | 244  | 272  |
| 447              | 28                                                                                             | 55   | 83   | 110  | 138  | 165  | 193  | 220  | 248  | 275  |
| 448              | 28                                                                                             | 56   | 84   | 112  | 139  | 167  | 195  | 223  | 251  | 279  |
| 449              | 28                                                                                             | 56   | 85   | 113  | 141  | 169  | 198  | 226  | 254  | 282  |
| 450              | 29                                                                                             | 57   | 86   | 114  | 143  | 172  | 200  | 229  | 258  | 286  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 2 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 451              | 29                                                                                             | 58   | 87   | 116  | 145  | 174  | 203  | 232  | 261  | 290  |
| 452              | 29                                                                                             | 59   | 88   | 117  | 147  | 176  | 205  | 235  | 264  | 293  |
| 453              | 30                                                                                             | 59   | 89   | 119  | 149  | 178  | 208  | 238  | 267  | 297  |
| 454              | 30                                                                                             | 60   | 90   | 120  | 150  | 180  | 211  | 241  | 271  | 301  |
| 455              | 30                                                                                             | 61   | 91   | 122  | 152  | 183  | 213  | 244  | 274  | 304  |
| 456              | 31                                                                                             | 62   | 92   | 123  | 154  | 185  | 216  | 246  | 277  | 308  |
| 457              | 31                                                                                             | 62   | 94   | 125  | 156  | 187  | 218  | 249  | 281  | 312  |
| 458              | 31                                                                                             | 63   | 94   | 126  | 157  | 189  | 220  | 252  | 283  | 315  |
| 459              | 32                                                                                             | 63   | 95   | 127  | 159  | 190  | 222  | 254  | 285  | 317  |
| 460              | 32                                                                                             | 64   | 96   | 128  | 160  | 192  | 224  | 256  | 288  | 320  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 461              | 32                                                                                             | 64   | 97   | 129  | 161  | 193  | 226  | 258  | 290  | 322  |
| 462              | 32                                                                                             | 65   | 97   | 130  | 162  | 195  | 227  | 260  | 292  | 325  |
| 463              | 33                                                                                             | 66   | 98   | 131  | 164  | 197  | 229  | 262  | 295  | 328  |
| 464              | 33                                                                                             | 66   | 99   | 132  | 165  | 198  | 231  | 264  | 297  | 330  |
| 465              | 33                                                                                             | 67   | 100  | 133  | 166  | 200  | 233  | 266  | 299  | 333  |
| 466              | 34                                                                                             | 67   | 101  | 134  | 168  | 201  | 235  | 268  | 302  | 335  |
| 467              | 34                                                                                             | 68   | 101  | 135  | 169  | 203  | 237  | 270  | 304  | 338  |
| 468              | 34                                                                                             | 68   | 102  | 136  | 170  | 204  | 238  | 272  | 306  | 340  |
| 469              | 34                                                                                             | 69   | 103  | 137  | 172  | 206  | 240  | 274  | 309  | 343  |
| 470              | 35                                                                                             | 69   | 104  | 138  | 173  | 207  | 242  | 277  | 311  | 346  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 471              | 35                                                                                             | 70   | 104  | 139  | 174  | 209  | 244  | 279  | 313  | 348  |
| 472              | 35                                                                                             | 70   | 105  | 140  | 175  | 210  | 246  | 281  | 316  | 351  |
| 473              | 35                                                                                             | 71   | 106  | 141  | 177  | 212  | 247  | 283  | 318  | 353  |
| 474              | 36                                                                                             | 71   | 107  | 142  | 178  | 214  | 249  | 285  | 320  | 356  |
| 475              | 36                                                                                             | 72   | 108  | 143  | 179  | 215  | 251  | 287  | 323  | 359  |
| 476              | 36                                                                                             | 72   | 108  | 144  | 181  | 217  | 253  | 289  | 325  | 361  |
| 477              | 36                                                                                             | 73   | 109  | 146  | 182  | 218  | 255  | 291  | 327  | 364  |
| 478              | 37                                                                                             | 73   | 110  | 147  | 183  | 220  | 256  | 293  | 330  | 366  |
| 479              | 37                                                                                             | 74   | 111  | 148  | 184  | 221  | 258  | 295  | 332  | 369  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 480              | 37                                                                                             | 74   | 111  | 149  | 186  | 223  | 260  | 297  | 334  | 372  |
| 481              | 37                                                                                             | 75   | 112  | 150  | 187  | 224  | 262  | 299  | 337  | 374  |
| 482              | 38                                                                                             | 75   | 113  | 151  | 188  | 226  | 264  | 301  | 339  | 377  |
| 483              | 38                                                                                             | 76   | 114  | 152  | 190  | 228  | 266  | 303  | 341  | 379  |
| 484              | 38                                                                                             | 76   | 115  | 153  | 191  | 229  | 267  | 306  | 344  | 382  |
| 485              | 38                                                                                             | 77   | 115  | 154  | 192  | 231  | 269  | 308  | 346  | 385  |
| 486              | 39                                                                                             | 77   | 116  | 155  | 194  | 232  | 271  | 310  | 348  | 387  |
| 487              | 39                                                                                             | 78   | 117  | 156  | 195  | 234  | 273  | 312  | 351  | 390  |
| 488              | 39                                                                                             | 78   | 118  | 157  | 196  | 235  | 275  | 314  | 353  | 392  |
| 489              | 39                                                                                             | 79   | 118  | 158  | 197  | 237  | 276  | 316  | 355  | 395  |
| 490              | 40                                                                                             | 79   | 119  | 159  | 199  | 238  | 278  | 318  | 358  | 397  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 491              | 40                                                                                             | 80   | 120  | 160  | 200  | 240  | 280  | 320  | 360  | 400  |
| 492              | 40                                                                                             | 81   | 121  | 161  | 201  | 242  | 282  | 322  | 362  | 403  |
| 493              | 41                                                                                             | 81   | 122  | 162  | 203  | 243  | 284  | 324  | 365  | 405  |
| 494              | 41                                                                                             | 82   | 122  | 163  | 204  | 245  | 285  | 326  | 367  | 408  |
| 495              | 41                                                                                             | 82   | 123  | 164  | 205  | 246  | 287  | 328  | 369  | 410  |
| 496              | 41                                                                                             | 83   | 124  | 165  | 206  | 248  | 289  | 330  | 372  | 413  |
| 497              | 42                                                                                             | 83   | 125  | 166  | 208  | 249  | 291  | 332  | 374  | 416  |
| 498              | 42                                                                                             | 84   | 125  | 167  | 209  | 251  | 293  | 335  | 376  | 418  |
| 499              | 42                                                                                             | 84   | 126  | 168  | 210  | 252  | 295  | 337  | 379  | 421  |
| 500              | 42                                                                                             | 85   | 127  | 169  | 212  | 254  | 296  | 339  | 381  | 423  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 2 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 501              | 43                                                                                             | 85   | 128  | 170  | 213  | 256  | 298  | 341  | 383  | 426  |
| 502              | 43                                                                                             | 86   | 129  | 171  | 214  | 257  | 300  | 343  | 386  | 429  |
| 503              | 43                                                                                             | 86   | 129  | 172  | 216  | 259  | 302  | 345  | 388  | 431  |
| 504              | 43                                                                                             | 87   | 130  | 173  | 217  | 260  | 304  | 347  | 390  | 434  |
| 505              | 44                                                                                             | 87   | 131  | 175  | 218  | 262  | 305  | 349  | 393  | 436  |
| 506              | 44                                                                                             | 88   | 132  | 176  | 219  | 263  | 307  | 351  | 395  | 439  |
| 507              | 44                                                                                             | 88   | 132  | 177  | 221  | 265  | 309  | 353  | 397  | 441  |
| 508              | 44                                                                                             | 89   | 133  | 177  | 222  | 266  | 311  | 355  | 399  | 444  |
| 509              | 45                                                                                             | 89   | 134  | 178  | 223  | 267  | 312  | 356  | 401  | 446  |
| 510              | 45                                                                                             | 90   | 134  | 179  | 224  | 269  | 313  | 358  | 403  | 448  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 511              | 45                                                                                             | 90   | 135  | 180  | 225  | 270  | 315  | 360  | 405  | 450  |
| 512              | 45                                                                                             | 90   | 135  | 181  | 226  | 271  | 316  | 361  | 406  | 452  |
| 513              | 45                                                                                             | 91   | 136  | 181  | 227  | 272  | 317  | 363  | 408  | 453  |
| 514              | 46                                                                                             | 91   | 137  | 182  | 228  | 273  | 319  | 364  | 410  | 455  |
| 515              | 46                                                                                             | 91   | 137  | 183  | 229  | 274  | 320  | 366  | 412  | 457  |
| 516              | 46                                                                                             | 92   | 138  | 184  | 230  | 276  | 322  | 368  | 413  | 459  |
| 517              | 46                                                                                             | 92   | 138  | 185  | 231  | 277  | 323  | 369  | 415  | 461  |
| 518              | 46                                                                                             | 93   | 139  | 185  | 232  | 278  | 324  | 371  | 417  | 463  |
| 519              | 47                                                                                             | 93   | 140  | 186  | 233  | 279  | 326  | 372  | 419  | 465  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 520              | 47                                                                                             | 93   | 140  | 187  | 234  | 280  | 327  | 374  | 421  | 467  |
| 521              | 47                                                                                             | 94   | 141  | 188  | 235  | 282  | 329  | 375  | 422  | 469  |
| 522              | 47                                                                                             | 94   | 141  | 189  | 236  | 283  | 330  | 377  | 424  | 471  |
| 523              | 47                                                                                             | 95   | 142  | 189  | 237  | 284  | 331  | 379  | 426  | 473  |
| 524              | 48                                                                                             | 95   | 143  | 190  | 238  | 285  | 333  | 380  | 428  | 475  |
| 525              | 48                                                                                             | 95   | 143  | 191  | 239  | 286  | 334  | 382  | 430  | 477  |
| 526              | 48                                                                                             | 96   | 144  | 192  | 240  | 288  | 335  | 383  | 431  | 479  |
| 527              | 48                                                                                             | 96   | 144  | 192  | 241  | 289  | 337  | 385  | 433  | 481  |
| 528              | 48                                                                                             | 97   | 145  | 193  | 242  | 290  | 338  | 387  | 435  | 483  |
| 529              | 49                                                                                             | 97   | 146  | 194  | 243  | 291  | 340  | 388  | 437  | 485  |
| 530              | 49                                                                                             | 97   | 146  | 195  | 244  | 292  | 341  | 390  | 438  | 487  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 531              | 49                                                                                             | 98   | 147  | 196  | 245  | 293  | 342  | 391  | 440  | 489  |
| 532              | 49                                                                                             | 98   | 147  | 196  | 246  | 295  | 344  | 393  | 442  | 491  |
| 533              | 49                                                                                             | 99   | 148  | 197  | 247  | 296  | 345  | 394  | 444  | 493  |
| 534              | 50                                                                                             | 99   | 149  | 198  | 248  | 297  | 347  | 396  | 446  | 495  |
| 535              | 50                                                                                             | 99   | 149  | 199  | 249  | 298  | 348  | 398  | 447  | 497  |
| 536              | 50                                                                                             | 100  | 150  | 200  | 250  | 299  | 349  | 399  | 449  | 499  |
| 537              | 50                                                                                             | 100  | 150  | 200  | 251  | 301  | 351  | 401  | 451  | 501  |
| 538              | 50                                                                                             | 101  | 151  | 201  | 251  | 302  | 352  | 402  | 453  | 503  |
| 539              | 50                                                                                             | 101  | 151  | 202  | 252  | 303  | 353  | 404  | 454  | 505  |
| 540              | 51                                                                                             | 101  | 152  | 203  | 253  | 304  | 355  | 406  | 456  | 507  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 541              | 51                                                                                             | 102  | 153  | 204  | 254  | 305  | 356  | 407  | 458  | 509  |
| 542              | 51                                                                                             | 102  | 153  | 204  | 255  | 307  | 358  | 409  | 460  | 511  |
| 543              | 51                                                                                             | 103  | 154  | 205  | 256  | 308  | 359  | 410  | 462  | 513  |
| 544              | 51                                                                                             | 103  | 154  | 206  | 257  | 309  | 360  | 412  | 463  | 515  |
| 545              | 52                                                                                             | 103  | 155  | 207  | 258  | 310  | 362  | 413  | 465  | 517  |
| 546              | 52                                                                                             | 104  | 156  | 208  | 259  | 311  | 363  | 415  | 467  | 519  |
| 547              | 52                                                                                             | 104  | 156  | 208  | 260  | 312  | 365  | 417  | 469  | 521  |
| 548              | 52                                                                                             | 105  | 157  | 209  | 261  | 314  | 366  | 418  | 471  | 523  |
| 549              | 52                                                                                             | 105  | 157  | 210  | 262  | 315  | 367  | 420  | 472  | 525  |
| 550              | 53                                                                                             | 105  | 158  | 211  | 263  | 316  | 369  | 421  | 474  | 527  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 2 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 551              | 53                                                                                             | 106  | 159  | 211  | 264  | 317  | 370  | 423  | 476  | 529  |
| 552              | 53                                                                                             | 106  | 159  | 212  | 265  | 318  | 371  | 425  | 478  | 531  |
| 553              | 53                                                                                             | 107  | 160  | 213  | 266  | 320  | 373  | 426  | 479  | 533  |
| 554              | 53                                                                                             | 107  | 160  | 214  | 267  | 321  | 374  | 428  | 481  | 535  |
| 555              | 54                                                                                             | 107  | 161  | 215  | 268  | 322  | 376  | 429  | 483  | 537  |
| 556              | 54                                                                                             | 108  | 162  | 215  | 269  | 323  | 377  | 431  | 485  | 539  |
| 557              | 54                                                                                             | 108  | 162  | 216  | 270  | 324  | 378  | 432  | 487  | 541  |
| 558              | 54                                                                                             | 108  | 163  | 217  | 271  | 325  | 380  | 434  | 488  | 542  |
| 559              | 54                                                                                             | 109  | 163  | 218  | 272  | 326  | 381  | 435  | 489  | 544  |
| 560              | 55                                                                                             | 109  | 164  | 218  | 273  | 327  | 382  | 436  | 491  | 545  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 561              | 55                                                                                             | 109  | 164  | 219  | 274  | 328  | 383  | 438  | 492  | 547  |
| 562              | 55                                                                                             | 110  | 165  | 219  | 274  | 329  | 384  | 439  | 494  | 549  |
| 563              | 55                                                                                             | 110  | 165  | 220  | 275  | 330  | 385  | 440  | 495  | 550  |
| 564              | 55                                                                                             | 110  | 166  | 221  | 276  | 331  | 386  | 442  | 497  | 552  |
| 565              | 55                                                                                             | 111  | 166  | 221  | 277  | 332  | 387  | 443  | 498  | 553  |
| 566              | 56                                                                                             | 111  | 167  | 222  | 278  | 333  | 389  | 444  | 500  | 555  |
| 567              | 56                                                                                             | 111  | 167  | 223  | 278  | 334  | 390  | 445  | 501  | 557  |
| 568              | 56                                                                                             | 112  | 167  | 223  | 279  | 335  | 391  | 447  | 502  | 558  |
| 569              | 56                                                                                             | 112  | 168  | 224  | 280  | 336  | 392  | 448  | 504  | 560  |
| 570              | 56                                                                                             | 112  | 168  | 225  | 281  | 337  | 393  | 449  | 505  | 561  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 571              | 56                                                                                             | 113  | 169  | 225  | 282  | 338  | 394  | 450  | 507  | 563  |
| 572              | 56                                                                                             | 113  | 169  | 226  | 282  | 339  | 395  | 452  | 508  | 565  |
| 573              | 57                                                                                             | 113  | 170  | 227  | 283  | 340  | 396  | 453  | 510  | 566  |
| 574              | 57                                                                                             | 114  | 170  | 227  | 284  | 341  | 398  | 454  | 511  | 568  |
| 575              | 57                                                                                             | 114  | 171  | 228  | 285  | 342  | 399  | 456  | 513  | 569  |
| 576              | 57                                                                                             | 114  | 171  | 228  | 286  | 343  | 400  | 457  | 514  | 571  |
| 577              | 57                                                                                             | 115  | 172  | 229  | 286  | 344  | 401  | 458  | 515  | 573  |
| 578              | 57                                                                                             | 115  | 172  | 230  | 287  | 345  | 402  | 459  | 517  | 574  |
| 579              | 58                                                                                             | 115  | 173  | 230  | 288  | 346  | 403  | 461  | 518  | 576  |
| 580              | 58                                                                                             | 116  | 173  | 231  | 289  | 347  | 404  | 462  | 520  | 578  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 2 FT                                                                                           |      |      |      |      |      |      |      |      | 3 FT |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 |      |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 405              | 0                                                                                              | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 406              | 18                                                                                             | 19   | 21   | 23   | 24   | 26   | 27   | 29   | 31   | 32   |
| 407              | 35                                                                                             | 39   | 42   | 45   | 48   | 51   | 55   | 58   | 61   | 64   |
| 408              | 53                                                                                             | 58   | 63   | 68   | 72   | 77   | 82   | 87   | 92   | 96   |
| 409              | 71                                                                                             | 77   | 84   | 90   | 96   | 103  | 109  | 116  | 122  | 129  |
| 410              | 88                                                                                             | 96   | 104  | 113  | 121  | 129  | 137  | 145  | 153  | 161  |
| 411              | 106                                                                                            | 116  | 125  | 135  | 145  | 154  | 164  | 174  | 183  | 193  |
| 412              | 124                                                                                            | 135  | 146  | 158  | 169  | 180  | 191  | 203  | 214  | 225  |
| 413              | 129                                                                                            | 141  | 153  | 165  | 177  | 188  | 200  | 212  | 224  | 235  |
| 414              | 135                                                                                            | 147  | 160  | 172  | 184  | 197  | 209  | 221  | 233  | 246  |
| 415              | 141                                                                                            | 154  | 167  | 179  | 192  | 205  | 218  | 231  | 243  | 256  |
| 416              | 147                                                                                            | 160  | 173  | 187  | 200  | 213  | 227  | 240  | 253  | 267  |
| 417              | 152                                                                                            | 166  | 180  | 194  | 208  | 222  | 235  | 249  | 263  | 277  |
| 418              | 158                                                                                            | 173  | 187  | 201  | 216  | 230  | 245  | 259  | 273  | 288  |
| 419              | 164                                                                                            | 179  | 194  | 209  | 224  | 239  | 254  | 269  | 284  | 299  |
| 420              | 170                                                                                            | 186  | 201  | 217  | 232  | 248  | 263  | 278  | 294  | 309  |
| 421              | 176                                                                                            | 192  | 208  | 224  | 240  | 256  | 272  | 288  | 304  | 320  |
| 422              | 182                                                                                            | 199  | 215  | 232  | 248  | 265  | 281  | 298  | 315  | 331  |
| 423              | 188                                                                                            | 205  | 222  | 239  | 257  | 274  | 291  | 308  | 325  | 342  |
| 424              | 194                                                                                            | 212  | 229  | 247  | 265  | 282  | 300  | 318  | 335  | 353  |
| 425              | 200                                                                                            | 218  | 236  | 255  | 273  | 291  | 309  | 327  | 346  | 364  |
| 426              | 206                                                                                            | 225  | 244  | 262  | 281  | 300  | 318  | 337  | 356  | 375  |
| 427              | 212                                                                                            | 231  | 251  | 270  | 289  | 308  | 328  | 347  | 366  | 385  |
| 428              | 218                                                                                            | 238  | 258  | 277  | 297  | 317  | 337  | 357  | 377  | 396  |
| 429              | 224                                                                                            | 244  | 265  | 285  | 305  | 326  | 346  | 367  | 387  | 407  |
| 430              | 230                                                                                            | 251  | 272  | 293  | 314  | 334  | 355  | 376  | 397  | 418  |
| 431              | 236                                                                                            | 257  | 279  | 300  | 322  | 343  | 365  | 386  | 408  | 429  |
| 432              | 242                                                                                            | 264  | 286  | 308  | 330  | 352  | 374  | 396  | 418  | 440  |
| 433              | 246                                                                                            | 269  | 291  | 313  | 336  | 358  | 381  | 403  | 425  | 448  |
| 434              | 250                                                                                            | 273  | 296  | 319  | 341  | 364  | 387  | 410  | 432  | 455  |
| 435              | 254                                                                                            | 277  | 301  | 324  | 347  | 370  | 393  | 416  | 439  | 462  |
| 436              | 258                                                                                            | 282  | 305  | 329  | 352  | 376  | 399  | 423  | 446  | 470  |
| 437              | 262                                                                                            | 286  | 310  | 334  | 358  | 382  | 406  | 429  | 453  | 477  |
| 438              | 266                                                                                            | 291  | 315  | 339  | 363  | 388  | 412  | 436  | 460  | 484  |
| 439              | 270                                                                                            | 295  | 320  | 344  | 369  | 393  | 418  | 443  | 467  | 492  |
| 440              | 275                                                                                            | 299  | 324  | 349  | 374  | 399  | 424  | 449  | 474  | 499  |
| 441              | 279                                                                                            | 304  | 329  | 354  | 380  | 405  | 430  | 456  | 481  | 506  |
| 442              | 283                                                                                            | 308  | 334  | 360  | 385  | 411  | 437  | 462  | 488  | 514  |
| 443              | 287                                                                                            | 313  | 339  | 365  | 391  | 417  | 443  | 469  | 495  | 521  |
| 444              | 291                                                                                            | 317  | 343  | 370  | 396  | 423  | 449  | 476  | 502  | 528  |
| 445              | 295                                                                                            | 321  | 348  | 375  | 402  | 429  | 455  | 482  | 509  | 536  |
| 446              | 299                                                                                            | 326  | 353  | 380  | 407  | 434  | 462  | 489  | 516  | 543  |
| 447              | 303                                                                                            | 330  | 358  | 385  | 413  | 440  | 468  | 495  | 523  | 550  |
| 448              | 307                                                                                            | 335  | 362  | 390  | 418  | 446  | 474  | 502  | 530  | 558  |
| 449              | 311                                                                                            | 339  | 367  | 395  | 424  | 452  | 480  | 508  | 537  | 565  |
| 450              | 315                                                                                            | 343  | 372  | 401  | 429  | 458  | 486  | 515  | 544  | 572  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 2 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 3 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 451              | 319                                                                                            | 348  | 377  | 406  | 435  | 464  | 493  | 522  | 551  | 580  |
| 452              | 323                                                                                            | 352  | 382  | 411  | 440  | 470  | 499  | 528  | 558  | 587  |
| 453              | 327                                                                                            | 357  | 386  | 416  | 446  | 475  | 505  | 535  | 565  | 594  |
| 454              | 331                                                                                            | 361  | 391  | 421  | 451  | 481  | 511  | 541  | 571  | 602  |
| 455              | 335                                                                                            | 365  | 396  | 426  | 457  | 487  | 518  | 548  | 578  | 609  |
| 456              | 339                                                                                            | 370  | 401  | 431  | 462  | 493  | 524  | 555  | 585  | 616  |
| 457              | 343                                                                                            | 374  | 405  | 436  | 468  | 499  | 530  | 561  | 592  | 624  |
| 458              | 346                                                                                            | 377  | 409  | 440  | 472  | 503  | 535  | 566  | 598  | 629  |
| 459              | 349                                                                                            | 381  | 412  | 444  | 476  | 507  | 539  | 571  | 603  | 634  |
| 460              | 352                                                                                            | 384  | 416  | 448  | 480  | 512  | 544  | 576  | 608  | 640  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 461              | 355                                                                                            | 387  | 419  | 451  | 484  | 516  | 548  | 580  | 612  | 645  |
| 462              | 357                                                                                            | 390  | 422  | 455  | 487  | 520  | 552  | 585  | 617  | 650  |
| 463              | 360                                                                                            | 393  | 426  | 459  | 491  | 524  | 557  | 590  | 622  | 655  |
| 464              | 363                                                                                            | 396  | 429  | 462  | 495  | 528  | 561  | 594  | 627  | 660  |
| 465              | 366                                                                                            | 399  | 433  | 466  | 499  | 532  | 566  | 599  | 632  | 665  |
| 466              | 369                                                                                            | 402  | 436  | 469  | 503  | 536  | 570  | 604  | 637  | 671  |
| 467              | 372                                                                                            | 405  | 439  | 473  | 507  | 541  | 574  | 608  | 642  | 676  |
| 468              | 375                                                                                            | 409  | 443  | 477  | 511  | 545  | 579  | 613  | 647  | 681  |
| 469              | 377                                                                                            | 412  | 446  | 480  | 515  | 549  | 583  | 618  | 652  | 686  |
| 470              | 380                                                                                            | 415  | 449  | 484  | 518  | 553  | 588  | 622  | 657  | 691  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 471              | 383                                                                                            | 418  | 453  | 488  | 522  | 557  | 592  | 627  | 662  | 696  |
| 472              | 386                                                                                            | 421  | 456  | 491  | 526  | 561  | 596  | 631  | 667  | 702  |
| 473              | 389                                                                                            | 424  | 459  | 495  | 530  | 565  | 601  | 636  | 672  | 707  |
| 474              | 392                                                                                            | 427  | 463  | 498  | 534  | 570  | 605  | 641  | 676  | 712  |
| 475              | 394                                                                                            | 430  | 466  | 502  | 538  | 574  | 610  | 645  | 681  | 717  |
| 476              | 397                                                                                            | 433  | 470  | 506  | 542  | 578  | 614  | 650  | 686  | 722  |
| 477              | 400                                                                                            | 437  | 473  | 509  | 546  | 582  | 618  | 655  | 691  | 728  |
| 478              | 403                                                                                            | 440  | 476  | 513  | 550  | 586  | 623  | 659  | 696  | 733  |
| 479              | 406                                                                                            | 443  | 480  | 517  | 553  | 590  | 627  | 664  | 701  | 738  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 480              | 409                                                                                            | 446  | 483  | 520  | 557  | 594  | 632  | 669  | 706  | 743  |
| 481              | 412                                                                                            | 449  | 486  | 524  | 561  | 599  | 636  | 673  | 711  | 748  |
| 482              | 414                                                                                            | 452  | 490  | 527  | 565  | 603  | 640  | 678  | 716  | 753  |
| 483              | 417                                                                                            | 455  | 493  | 531  | 569  | 607  | 645  | 683  | 721  | 759  |
| 484              | 420                                                                                            | 458  | 496  | 535  | 573  | 611  | 649  | 687  | 726  | 764  |
| 485              | 423                                                                                            | 461  | 500  | 538  | 577  | 615  | 654  | 692  | 731  | 769  |
| 486              | 426                                                                                            | 465  | 503  | 542  | 581  | 619  | 658  | 697  | 735  | 774  |
| 487              | 429                                                                                            | 468  | 507  | 546  | 585  | 623  | 662  | 701  | 740  | 779  |
| 488              | 431                                                                                            | 471  | 510  | 549  | 588  | 628  | 667  | 706  | 745  | 785  |
| 489              | 434                                                                                            | 474  | 513  | 553  | 592  | 632  | 671  | 711  | 750  | 790  |
| 490              | 437                                                                                            | 477  | 517  | 556  | 596  | 636  | 676  | 715  | 755  | 795  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 491              | 440                                                                                            | 480  | 520  | 560  | 600  | 640  | 680  | 720  | 760  | 800  |
| 492              | 443                                                                                            | 483  | 523  | 564  | 604  | 644  | 684  | 725  | 765  | 805  |
| 493              | 446                                                                                            | 486  | 527  | 567  | 608  | 648  | 689  | 729  | 770  | 810  |
| 494              | 449                                                                                            | 489  | 530  | 571  | 612  | 652  | 693  | 734  | 775  | 816  |
| 495              | 451                                                                                            | 492  | 534  | 575  | 616  | 657  | 698  | 739  | 780  | 821  |
| 496              | 454                                                                                            | 496  | 537  | 578  | 619  | 661  | 702  | 743  | 785  | 826  |
| 497              | 457                                                                                            | 499  | 540  | 582  | 623  | 665  | 706  | 748  | 790  | 831  |
| 498              | 460                                                                                            | 502  | 544  | 585  | 627  | 669  | 711  | 753  | 795  | 836  |
| 499              | 463                                                                                            | 505  | 547  | 589  | 631  | 673  | 715  | 757  | 799  | 842  |
| 500              | 466                                                                                            | 508  | 550  | 593  | 635  | 677  | 720  | 762  | 804  | 847  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 2 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 3 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 501              | 469                                                                                            | 511  | 554  | 596  | 639  | 682  | 724  | 767  | 809  | 852  |
| 502              | 471                                                                                            | 514  | 557  | 600  | 643  | 686  | 729  | 771  | 814  | 857  |
| 503              | 474                                                                                            | 517  | 560  | 604  | 647  | 690  | 733  | 776  | 819  | 862  |
| 504              | 477                                                                                            | 520  | 564  | 607  | 651  | 694  | 737  | 781  | 824  | 867  |
| 505              | 480                                                                                            | 524  | 567  | 611  | 654  | 698  | 742  | 785  | 829  | 873  |
| 506              | 483                                                                                            | 527  | 571  | 614  | 658  | 702  | 746  | 790  | 834  | 878  |
| 507              | 486                                                                                            | 530  | 574  | 618  | 662  | 706  | 751  | 795  | 839  | 883  |
| 508              | 488                                                                                            | 532  | 577  | 621  | 665  | 710  | 754  | 798  | 843  | 887  |
| 509              | 490                                                                                            | 535  | 579  | 624  | 668  | 713  | 757  | 802  | 847  | 891  |
| 510              | 492                                                                                            | 537  | 582  | 627  | 671  | 716  | 761  | 806  | 850  | 895  |
| 511              | 494                                                                                            | 539  | 584  | 629  | 674  | 719  | 764  | 809  | 854  | 899  |
| 512              | 497                                                                                            | 542  | 587  | 632  | 677  | 722  | 768  | 813  | 858  | 903  |
| 513              | 499                                                                                            | 544  | 590  | 635  | 680  | 726  | 771  | 816  | 862  | 907  |
| 514              | 501                                                                                            | 547  | 592  | 638  | 683  | 729  | 774  | 820  | 865  | 911  |
| 515              | 503                                                                                            | 549  | 595  | 640  | 686  | 732  | 778  | 823  | 869  | 915  |
| 516              | 505                                                                                            | 551  | 597  | 643  | 689  | 735  | 781  | 827  | 873  | 919  |
| 517              | 508                                                                                            | 554  | 600  | 646  | 692  | 738  | 784  | 831  | 877  | 923  |
| 518              | 510                                                                                            | 556  | 602  | 649  | 695  | 741  | 788  | 834  | 880  | 927  |
| 519              | 512                                                                                            | 558  | 605  | 652  | 698  | 745  | 791  | 838  | 884  | 931  |
| 520              | 514                                                                                            | 561  | 608  | 654  | 701  | 748  | 794  | 841  | 888  | 935  |
| 521              | 516                                                                                            | 563  | 610  | 657  | 704  | 751  | 798  | 845  | 892  | 939  |
| 522              | 518                                                                                            | 566  | 613  | 660  | 707  | 754  | 801  | 848  | 895  | 943  |
| 523              | 521                                                                                            | 568  | 615  | 663  | 710  | 757  | 805  | 852  | 899  | 947  |
| 524              | 523                                                                                            | 570  | 618  | 665  | 713  | 760  | 808  | 855  | 903  | 951  |
| 525              | 525                                                                                            | 573  | 620  | 668  | 716  | 764  | 811  | 859  | 907  | 954  |
| 526              | 527                                                                                            | 575  | 623  | 671  | 719  | 767  | 815  | 863  | 911  | 958  |
| 527              | 529                                                                                            | 577  | 626  | 674  | 722  | 770  | 818  | 866  | 914  | 962  |
| 528              | 532                                                                                            | 580  | 628  | 676  | 725  | 773  | 821  | 870  | 918  | 966  |
| 529              | 534                                                                                            | 582  | 631  | 679  | 728  | 776  | 825  | 873  | 922  | 970  |
| 530              | 536                                                                                            | 585  | 633  | 682  | 731  | 779  | 828  | 877  | 926  | 974  |
| 531              | 538                                                                                            | 587  | 636  | 685  | 734  | 783  | 832  | 880  | 929  | 978  |
| 532              | 540                                                                                            | 589  | 638  | 688  | 737  | 786  | 835  | 884  | 933  | 982  |
| 533              | 542                                                                                            | 592  | 641  | 690  | 740  | 789  | 838  | 888  | 937  | 986  |
| 534              | 545                                                                                            | 594  | 644  | 693  | 743  | 792  | 842  | 891  | 941  | 990  |
| 535              | 547                                                                                            | 596  | 646  | 696  | 746  | 795  | 845  | 895  | 944  | 994  |
| 536              | 549                                                                                            | 599  | 649  | 699  | 749  | 798  | 848  | 898  | 948  | 998  |
| 537              | 551                                                                                            | 601  | 651  | 701  | 752  | 802  | 852  | 902  | 952  | 1002 |
| 538              | 553                                                                                            | 604  | 654  | 704  | 754  | 805  | 855  | 905  | 956  | 1006 |
| 539              | 555                                                                                            | 606  | 656  | 707  | 757  | 808  | 858  | 909  | 959  | 1010 |
| 540              | 558                                                                                            | 608  | 659  | 710  | 760  | 811  | 862  | 912  | 963  | 1014 |
| 541              | 560                                                                                            | 611  | 662  | 712  | 763  | 814  | 865  | 916  | 967  | 1018 |
| 542              | 562                                                                                            | 613  | 664  | 715  | 766  | 817  | 869  | 920  | 971  | 1022 |
| 543              | 564                                                                                            | 615  | 667  | 718  | 769  | 821  | 872  | 923  | 974  | 1026 |
| 544              | 566                                                                                            | 618  | 669  | 721  | 772  | 824  | 875  | 927  | 978  | 1030 |
| 545              | 569                                                                                            | 620  | 672  | 724  | 775  | 827  | 879  | 930  | 982  | 1034 |
| 546              | 571                                                                                            | 623  | 674  | 726  | 778  | 830  | 882  | 934  | 986  | 1038 |
| 547              | 573                                                                                            | 625  | 677  | 729  | 781  | 833  | 885  | 937  | 990  | 1042 |
| 548              | 575                                                                                            | 627  | 680  | 732  | 784  | 836  | 889  | 941  | 993  | 1046 |
| 549              | 577                                                                                            | 630  | 682  | 735  | 787  | 840  | 892  | 945  | 997  | 1050 |
| 550              | 579                                                                                            | 632  | 685  | 737  | 790  | 843  | 895  | 948  | 1001 | 1053 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 2 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 3 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 551              | 582                                                                                            | 634  | 687  | 740  | 793  | 846  | 899  | 952  | 1005 | 1057 |
| 552              | 584                                                                                            | 637  | 690  | 743  | 796  | 849  | 902  | 955  | 1008 | 1061 |
| 553              | 586                                                                                            | 639  | 692  | 746  | 799  | 852  | 906  | 959  | 1012 | 1065 |
| 554              | 588                                                                                            | 642  | 695  | 749  | 802  | 855  | 909  | 962  | 1016 | 1069 |
| 555              | 590                                                                                            | 644  | 698  | 751  | 805  | 859  | 912  | 966  | 1020 | 1073 |
| 556              | 592                                                                                            | 646  | 700  | 754  | 808  | 862  | 916  | 970  | 1023 | 1077 |
| 557              | 595                                                                                            | 649  | 703  | 757  | 811  | 865  | 919  | 973  | 1027 | 1081 |
| 558              | 597                                                                                            | 651  | 705  | 759  | 813  | 868  | 922  | 976  | 1030 | 1085 |
| 559              | 598                                                                                            | 653  | 707  | 761  | 816  | 870  | 925  | 979  | 1033 | 1088 |
| 560              | 600                                                                                            | 655  | 709  | 764  | 818  | 873  | 927  | 982  | 1036 | 1091 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 561              | 602                                                                                            | 657  | 711  | 766  | 821  | 875  | 930  | 985  | 1039 | 1094 |
| 562              | 604                                                                                            | 658  | 713  | 768  | 823  | 878  | 933  | 988  | 1043 | 1097 |
| 563              | 605                                                                                            | 660  | 715  | 770  | 825  | 880  | 935  | 991  | 1046 | 1101 |
| 564              | 607                                                                                            | 662  | 717  | 773  | 828  | 883  | 938  | 993  | 1049 | 1104 |
| 565              | 609                                                                                            | 664  | 720  | 775  | 830  | 886  | 941  | 996  | 1052 | 1107 |
| 566              | 611                                                                                            | 666  | 722  | 777  | 833  | 888  | 944  | 999  | 1055 | 1110 |
| 567              | 612                                                                                            | 668  | 724  | 779  | 835  | 891  | 946  | 1002 | 1058 | 1113 |
| 568              | 614                                                                                            | 670  | 726  | 782  | 837  | 893  | 949  | 1005 | 1061 | 1117 |
| 569              | 616                                                                                            | 672  | 728  | 784  | 840  | 896  | 952  | 1008 | 1064 | 1120 |
| 570              | 618                                                                                            | 674  | 730  | 786  | 842  | 898  | 955  | 1011 | 1067 | 1123 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 571              | 619                                                                                            | 676  | 732  | 788  | 845  | 901  | 957  | 1014 | 1070 | 1126 |
| 572              | 621                                                                                            | 678  | 734  | 791  | 847  | 904  | 960  | 1016 | 1073 | 1129 |
| 573              | 623                                                                                            | 680  | 736  | 793  | 849  | 906  | 963  | 1019 | 1076 | 1133 |
| 574              | 625                                                                                            | 681  | 738  | 795  | 852  | 909  | 965  | 1022 | 1079 | 1136 |
| 575              | 626                                                                                            | 683  | 740  | 797  | 854  | 911  | 968  | 1025 | 1082 | 1139 |
| 576              | 628                                                                                            | 685  | 742  | 800  | 857  | 914  | 971  | 1028 | 1085 | 1142 |
| 577              | 630                                                                                            | 687  | 745  | 802  | 859  | 916  | 974  | 1031 | 1088 | 1145 |
| 578              | 632                                                                                            | 689  | 747  | 804  | 861  | 919  | 976  | 1034 | 1091 | 1149 |
| 579              | 633                                                                                            | 691  | 749  | 806  | 864  | 921  | 979  | 1037 | 1094 | 1152 |
| 580              | 635                                                                                            | 693  | 751  | 809  | 866  | 924  | 982  | 1040 | 1097 | 1155 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 3 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 405              | 0                                                                                              | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 406              | 2                                                                                              | 4    | 6    | 8    | 10   | 12   | 14   | 15   | 17   | 19   |
| 407              | 4                                                                                              | 8    | 12   | 15   | 19   | 23   | 27   | 31   | 35   | 39   |
| 408              | 6                                                                                              | 12   | 17   | 23   | 29   | 35   | 41   | 46   | 52   | 58   |
| 409              | 8                                                                                              | 15   | 23   | 31   | 39   | 46   | 54   | 62   | 70   | 77   |
| 410              | 10                                                                                             | 19   | 29   | 39   | 48   | 58   | 68   | 77   | 87   | 97   |
| 411              | 12                                                                                             | 23   | 35   | 46   | 58   | 70   | 81   | 93   | 104  | 116  |
| 412              | 14                                                                                             | 27   | 41   | 54   | 68   | 81   | 95   | 108  | 122  | 135  |
| 413              | 15                                                                                             | 31   | 46   | 62   | 77   | 93   | 108  | 124  | 139  | 155  |
| 414              | 16                                                                                             | 32   | 49   | 65   | 81   | 97   | 114  | 130  | 146  | 162  |
| 415              | 17                                                                                             | 34   | 51   | 68   | 84   | 101  | 118  | 135  | 152  | 169  |
| 416              | 18                                                                                             | 35   | 53   | 70   | 88   | 105  | 123  | 140  | 158  | 175  |
| 417              | 18                                                                                             | 36   | 55   | 73   | 91   | 109  | 127  | 146  | 164  | 182  |
| 418              | 19                                                                                             | 38   | 57   | 75   | 94   | 113  | 132  | 151  | 170  | 189  |
| 419              | 20                                                                                             | 39   | 59   | 78   | 98   | 117  | 137  | 157  | 176  | 196  |
| 420              | 20                                                                                             | 41   | 61   | 81   | 102  | 122  | 142  | 162  | 183  | 203  |
| 421              | 21                                                                                             | 42   | 63   | 84   | 105  | 126  | 147  | 168  | 189  | 210  |
| 422              | 22                                                                                             | 44   | 65   | 87   | 109  | 131  | 152  | 174  | 196  | 218  |
| 423              | 23                                                                                             | 45   | 68   | 90   | 113  | 135  | 158  | 180  | 203  | 225  |
| 424              | 23                                                                                             | 46   | 70   | 93   | 116  | 139  | 163  | 186  | 209  | 232  |
| 425              | 24                                                                                             | 48   | 72   | 96   | 120  | 144  | 168  | 192  | 216  | 240  |
| 426              | 25                                                                                             | 49   | 74   | 99   | 123  | 148  | 173  | 198  | 222  | 247  |
| 427              | 25                                                                                             | 51   | 76   | 102  | 127  | 153  | 178  | 203  | 229  | 254  |
| 428              | 26                                                                                             | 52   | 78   | 105  | 131  | 157  | 183  | 209  | 235  | 262  |
| 429              | 27                                                                                             | 54   | 81   | 108  | 134  | 161  | 188  | 215  | 242  | 269  |
| 430              | 28                                                                                             | 55   | 83   | 110  | 138  | 166  | 193  | 221  | 248  | 276  |
| 431              | 28                                                                                             | 57   | 85   | 113  | 142  | 170  | 198  | 227  | 255  | 283  |
| 432              | 29                                                                                             | 58   | 87   | 116  | 145  | 174  | 203  | 233  | 262  | 291  |
| 433              | 30                                                                                             | 60   | 89   | 119  | 149  | 179  | 209  | 238  | 268  | 298  |
| 434              | 30                                                                                             | 61   | 91   | 121  | 151  | 182  | 212  | 242  | 273  | 303  |
| 435              | 31                                                                                             | 62   | 92   | 123  | 154  | 185  | 216  | 246  | 277  | 308  |
| 436              | 31                                                                                             | 63   | 94   | 125  | 156  | 188  | 219  | 250  | 282  | 313  |
| 437              | 32                                                                                             | 64   | 95   | 127  | 159  | 191  | 222  | 254  | 286  | 318  |
| 438              | 32                                                                                             | 65   | 97   | 129  | 161  | 194  | 226  | 258  | 290  | 323  |
| 439              | 33                                                                                             | 66   | 98   | 131  | 164  | 197  | 229  | 262  | 295  | 328  |
| 440              | 33                                                                                             | 67   | 100  | 133  | 166  | 200  | 233  | 266  | 299  | 333  |
| 441              | 34                                                                                             | 68   | 101  | 135  | 169  | 203  | 236  | 270  | 304  | 338  |
| 442              | 34                                                                                             | 68   | 103  | 137  | 171  | 205  | 240  | 274  | 308  | 342  |
| 443              | 35                                                                                             | 69   | 104  | 139  | 174  | 208  | 243  | 278  | 313  | 347  |
| 444              | 35                                                                                             | 70   | 106  | 141  | 176  | 211  | 247  | 282  | 317  | 352  |
| 445              | 36                                                                                             | 71   | 107  | 143  | 179  | 214  | 250  | 286  | 322  | 357  |
| 446              | 36                                                                                             | 72   | 109  | 145  | 181  | 217  | 254  | 290  | 326  | 362  |
| 447              | 37                                                                                             | 73   | 110  | 147  | 184  | 220  | 257  | 294  | 330  | 367  |
| 448              | 37                                                                                             | 74   | 112  | 149  | 186  | 223  | 260  | 298  | 335  | 372  |
| 449              | 38                                                                                             | 75   | 113  | 151  | 189  | 226  | 264  | 302  | 339  | 377  |
| 450              | 38                                                                                             | 76   | 115  | 153  | 191  | 229  | 267  | 306  | 344  | 382  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 3 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 451              | 39                                                                                             | 77   | 116  | 155  | 193  | 232  | 271  | 310  | 348  | 387  |
| 452              | 39                                                                                             | 78   | 118  | 157  | 196  | 235  | 274  | 313  | 353  | 392  |
| 453              | 40                                                                                             | 79   | 119  | 159  | 198  | 238  | 278  | 317  | 357  | 397  |
| 454              | 40                                                                                             | 80   | 121  | 161  | 201  | 241  | 281  | 321  | 362  | 402  |
| 455              | 41                                                                                             | 81   | 122  | 163  | 203  | 244  | 285  | 325  | 366  | 407  |
| 456              | 41                                                                                             | 82   | 123  | 165  | 206  | 247  | 288  | 329  | 370  | 412  |
| 457              | 42                                                                                             | 83   | 125  | 167  | 208  | 250  | 292  | 333  | 375  | 417  |
| 458              | 42                                                                                             | 84   | 126  | 169  | 211  | 253  | 295  | 337  | 379  | 422  |
| 459              | 43                                                                                             | 85   | 128  | 170  | 213  | 255  | 298  | 340  | 383  | 425  |
| 460              | 43                                                                                             | 86   | 129  | 171  | 214  | 257  | 300  | 343  | 386  | 429  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 461              | 43                                                                                             | 86   | 130  | 173  | 216  | 259  | 302  | 346  | 389  | 432  |
| 462              | 44                                                                                             | 87   | 131  | 174  | 218  | 261  | 305  | 348  | 392  | 436  |
| 463              | 44                                                                                             | 88   | 132  | 176  | 220  | 263  | 307  | 351  | 395  | 439  |
| 464              | 44                                                                                             | 89   | 133  | 177  | 221  | 266  | 310  | 354  | 398  | 443  |
| 465              | 45                                                                                             | 89   | 134  | 178  | 223  | 268  | 312  | 357  | 401  | 446  |
| 466              | 45                                                                                             | 90   | 135  | 180  | 225  | 270  | 315  | 360  | 405  | 450  |
| 467              | 45                                                                                             | 91   | 136  | 181  | 227  | 272  | 317  | 362  | 408  | 453  |
| 468              | 46                                                                                             | 91   | 137  | 183  | 228  | 274  | 320  | 365  | 411  | 457  |
| 469              | 46                                                                                             | 92   | 138  | 184  | 230  | 276  | 322  | 368  | 414  | 460  |
| 470              | 46                                                                                             | 93   | 139  | 185  | 232  | 278  | 324  | 371  | 417  | 464  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 471              | 47                                                                                             | 93   | 140  | 187  | 234  | 280  | 327  | 374  | 420  | 467  |
| 472              | 47                                                                                             | 94   | 141  | 188  | 235  | 282  | 329  | 376  | 423  | 471  |
| 473              | 47                                                                                             | 95   | 142  | 190  | 237  | 284  | 332  | 379  | 427  | 474  |
| 474              | 48                                                                                             | 96   | 143  | 191  | 239  | 287  | 334  | 382  | 430  | 478  |
| 475              | 48                                                                                             | 96   | 144  | 192  | 241  | 289  | 337  | 385  | 433  | 481  |
| 476              | 48                                                                                             | 97   | 145  | 194  | 242  | 291  | 339  | 388  | 436  | 485  |
| 477              | 49                                                                                             | 98   | 146  | 195  | 244  | 293  | 342  | 390  | 439  | 488  |
| 478              | 49                                                                                             | 98   | 147  | 197  | 246  | 295  | 344  | 393  | 442  | 492  |
| 479              | 50                                                                                             | 99   | 149  | 198  | 248  | 297  | 347  | 396  | 446  | 495  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 480              | 50                                                                                             | 100  | 150  | 199  | 249  | 299  | 349  | 399  | 449  | 499  |
| 481              | 50                                                                                             | 100  | 151  | 201  | 251  | 301  | 351  | 402  | 452  | 502  |
| 482              | 51                                                                                             | 101  | 152  | 202  | 253  | 303  | 354  | 404  | 455  | 506  |
| 483              | 51                                                                                             | 102  | 153  | 204  | 255  | 305  | 356  | 407  | 458  | 509  |
| 484              | 51                                                                                             | 103  | 154  | 205  | 256  | 308  | 359  | 410  | 461  | 513  |
| 485              | 52                                                                                             | 103  | 155  | 206  | 258  | 310  | 361  | 413  | 464  | 516  |
| 486              | 52                                                                                             | 104  | 156  | 208  | 260  | 312  | 364  | 416  | 468  | 520  |
| 487              | 52                                                                                             | 105  | 157  | 209  | 262  | 314  | 366  | 418  | 471  | 523  |
| 488              | 53                                                                                             | 105  | 158  | 211  | 263  | 316  | 369  | 421  | 474  | 527  |
| 489              | 53                                                                                             | 106  | 159  | 212  | 265  | 318  | 371  | 424  | 477  | 530  |
| 490              | 53                                                                                             | 107  | 160  | 213  | 267  | 320  | 373  | 427  | 480  | 534  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 491              | 54                                                                                             | 107  | 161  | 215  | 269  | 322  | 376  | 430  | 483  | 537  |
| 492              | 54                                                                                             | 108  | 162  | 216  | 270  | 324  | 378  | 432  | 486  | 541  |
| 493              | 54                                                                                             | 109  | 163  | 218  | 272  | 326  | 381  | 435  | 490  | 544  |
| 494              | 55                                                                                             | 110  | 164  | 219  | 274  | 329  | 383  | 438  | 493  | 548  |
| 495              | 55                                                                                             | 110  | 165  | 220  | 276  | 331  | 386  | 441  | 496  | 551  |
| 496              | 55                                                                                             | 111  | 166  | 222  | 277  | 333  | 388  | 444  | 499  | 555  |
| 497              | 56                                                                                             | 112  | 167  | 223  | 279  | 335  | 391  | 446  | 502  | 558  |
| 498              | 56                                                                                             | 112  | 168  | 225  | 281  | 337  | 393  | 449  | 505  | 562  |
| 499              | 57                                                                                             | 113  | 170  | 226  | 283  | 339  | 396  | 452  | 509  | 565  |
| 500              | 57                                                                                             | 114  | 171  | 227  | 284  | 341  | 398  | 455  | 512  | 569  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 3 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 501              | 57                                                                                             | 114  | 172  | 229  | 286  | 343  | 400  | 458  | 515  | 572  |
| 502              | 58                                                                                             | 115  | 173  | 230  | 288  | 345  | 403  | 460  | 518  | 576  |
| 503              | 58                                                                                             | 116  | 174  | 232  | 290  | 347  | 405  | 463  | 521  | 579  |
| 504              | 58                                                                                             | 117  | 175  | 233  | 291  | 350  | 408  | 466  | 524  | 583  |
| 505              | 59                                                                                             | 117  | 176  | 234  | 293  | 352  | 410  | 469  | 527  | 586  |
| 506              | 59                                                                                             | 118  | 177  | 236  | 295  | 354  | 413  | 472  | 531  | 590  |
| 507              | 59                                                                                             | 119  | 178  | 237  | 297  | 356  | 415  | 474  | 534  | 593  |
| 508              | 60                                                                                             | 119  | 179  | 239  | 298  | 358  | 418  | 477  | 537  | 597  |
| 509              | 60                                                                                             | 120  | 180  | 240  | 300  | 360  | 419  | 479  | 539  | 599  |
| 510              | 60                                                                                             | 120  | 181  | 241  | 301  | 361  | 421  | 481  | 542  | 602  |
| 511              | 60                                                                                             | 121  | 181  | 242  | 302  | 363  | 423  | 484  | 544  | 605  |
| 512              | 61                                                                                             | 121  | 182  | 243  | 304  | 364  | 425  | 486  | 546  | 607  |
| 513              | 61                                                                                             | 122  | 183  | 244  | 305  | 366  | 427  | 488  | 549  | 610  |
| 514              | 61                                                                                             | 123  | 184  | 245  | 306  | 368  | 429  | 490  | 551  | 613  |
| 515              | 62                                                                                             | 123  | 185  | 246  | 308  | 369  | 431  | 492  | 554  | 615  |
| 516              | 62                                                                                             | 124  | 185  | 247  | 309  | 371  | 433  | 494  | 556  | 618  |
| 517              | 62                                                                                             | 124  | 186  | 248  | 310  | 372  | 434  | 496  | 558  | 621  |
| 518              | 62                                                                                             | 125  | 187  | 249  | 312  | 374  | 436  | 499  | 561  | 623  |
| 519              | 63                                                                                             | 125  | 188  | 250  | 313  | 376  | 438  | 501  | 563  | 626  |
| 520              | 63                                                                                             | 126  | 189  | 251  | 314  | 377  | 440  | 503  | 566  | 629  |
| 521              | 63                                                                                             | 126  | 189  | 252  | 316  | 379  | 442  | 505  | 568  | 631  |
| 522              | 63                                                                                             | 127  | 190  | 254  | 317  | 380  | 444  | 507  | 570  | 634  |
| 523              | 64                                                                                             | 127  | 191  | 255  | 318  | 382  | 446  | 509  | 573  | 637  |
| 524              | 64                                                                                             | 128  | 192  | 256  | 320  | 384  | 447  | 511  | 575  | 639  |
| 525              | 64                                                                                             | 128  | 193  | 257  | 321  | 385  | 449  | 514  | 578  | 642  |
| 526              | 64                                                                                             | 129  | 193  | 258  | 322  | 387  | 451  | 516  | 580  | 645  |
| 527              | 65                                                                                             | 129  | 194  | 259  | 324  | 388  | 453  | 518  | 583  | 647  |
| 528              | 65                                                                                             | 130  | 195  | 260  | 325  | 390  | 455  | 520  | 585  | 650  |
| 529              | 65                                                                                             | 131  | 196  | 261  | 326  | 392  | 457  | 522  | 587  | 653  |
| 530              | 66                                                                                             | 131  | 197  | 262  | 328  | 393  | 459  | 524  | 590  | 655  |
| 531              | 66                                                                                             | 132  | 197  | 263  | 329  | 395  | 461  | 526  | 592  | 658  |
| 532              | 66                                                                                             | 132  | 198  | 264  | 330  | 396  | 462  | 528  | 595  | 661  |
| 533              | 66                                                                                             | 133  | 199  | 265  | 332  | 398  | 464  | 531  | 597  | 663  |
| 534              | 67                                                                                             | 133  | 200  | 266  | 333  | 400  | 466  | 533  | 599  | 666  |
| 535              | 67                                                                                             | 134  | 201  | 267  | 334  | 401  | 468  | 535  | 602  | 669  |
| 536              | 67                                                                                             | 134  | 201  | 269  | 336  | 403  | 470  | 537  | 604  | 671  |
| 537              | 67                                                                                             | 135  | 202  | 270  | 337  | 404  | 472  | 539  | 607  | 674  |
| 538              | 68                                                                                             | 135  | 203  | 271  | 338  | 406  | 474  | 541  | 609  | 677  |
| 539              | 68                                                                                             | 136  | 204  | 272  | 340  | 408  | 475  | 543  | 611  | 679  |
| 540              | 68                                                                                             | 136  | 205  | 273  | 341  | 409  | 477  | 546  | 614  | 682  |
| 541              | 68                                                                                             | 137  | 205  | 274  | 342  | 411  | 479  | 548  | 616  | 685  |
| 542              | 69                                                                                             | 137  | 206  | 275  | 344  | 412  | 481  | 550  | 619  | 687  |
| 543              | 69                                                                                             | 138  | 207  | 276  | 345  | 414  | 483  | 552  | 621  | 690  |
| 544              | 69                                                                                             | 139  | 208  | 277  | 346  | 416  | 485  | 554  | 623  | 693  |
| 545              | 70                                                                                             | 139  | 209  | 278  | 348  | 417  | 487  | 556  | 626  | 695  |
| 546              | 70                                                                                             | 140  | 209  | 279  | 349  | 419  | 489  | 558  | 628  | 698  |
| 547              | 70                                                                                             | 140  | 210  | 280  | 350  | 420  | 490  | 561  | 631  | 701  |
| 548              | 70                                                                                             | 141  | 211  | 281  | 352  | 422  | 492  | 563  | 633  | 703  |
| 549              | 71                                                                                             | 141  | 212  | 282  | 353  | 424  | 494  | 565  | 635  | 706  |
| 550              | 71                                                                                             | 142  | 213  | 283  | 354  | 425  | 496  | 567  | 638  | 709  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 3 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 551              | 71                                                                                             | 142  | 213  | 285  | 356  | 427  | 498  | 569  | 640  | 711  |
| 552              | 71                                                                                             | 143  | 214  | 286  | 357  | 428  | 500  | 571  | 643  | 714  |
| 553              | 72                                                                                             | 143  | 215  | 287  | 358  | 430  | 502  | 573  | 645  | 717  |
| 554              | 72                                                                                             | 144  | 216  | 288  | 360  | 432  | 504  | 575  | 647  | 719  |
| 555              | 72                                                                                             | 144  | 217  | 289  | 361  | 433  | 505  | 578  | 650  | 722  |
| 556              | 72                                                                                             | 145  | 217  | 290  | 362  | 435  | 507  | 580  | 652  | 725  |
| 557              | 73                                                                                             | 145  | 218  | 291  | 364  | 436  | 509  | 582  | 655  | 727  |
| 558              | 73                                                                                             | 146  | 219  | 292  | 365  | 438  | 511  | 584  | 657  | 730  |
| 559              | 73                                                                                             | 146  | 220  | 293  | 366  | 439  | 512  | 586  | 659  | 732  |
| 560              | 73                                                                                             | 147  | 220  | 294  | 367  | 440  | 514  | 587  | 661  | 734  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 561              | 74                                                                                             | 147  | 221  | 294  | 368  | 442  | 515  | 589  | 663  | 736  |
| 562              | 74                                                                                             | 148  | 221  | 295  | 369  | 443  | 517  | 591  | 664  | 738  |
| 563              | 74                                                                                             | 148  | 222  | 296  | 370  | 444  | 518  | 592  | 666  | 740  |
| 564              | 74                                                                                             | 148  | 223  | 297  | 371  | 445  | 520  | 594  | 668  | 742  |
| 565              | 74                                                                                             | 149  | 223  | 298  | 372  | 447  | 521  | 595  | 670  | 744  |
| 566              | 75                                                                                             | 149  | 224  | 299  | 373  | 448  | 522  | 597  | 672  | 746  |
| 567              | 75                                                                                             | 150  | 225  | 299  | 374  | 449  | 524  | 599  | 674  | 748  |
| 568              | 75                                                                                             | 150  | 225  | 300  | 375  | 450  | 525  | 600  | 675  | 750  |
| 569              | 75                                                                                             | 151  | 226  | 301  | 376  | 452  | 527  | 602  | 677  | 753  |
| 570              | 75                                                                                             | 151  | 226  | 302  | 377  | 453  | 528  | 604  | 679  | 755  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 571              | 76                                                                                             | 151  | 227  | 303  | 378  | 454  | 530  | 605  | 681  | 757  |
| 572              | 76                                                                                             | 152  | 228  | 303  | 379  | 455  | 531  | 607  | 683  | 759  |
| 573              | 76                                                                                             | 152  | 228  | 304  | 380  | 456  | 532  | 609  | 685  | 761  |
| 574              | 76                                                                                             | 153  | 229  | 305  | 381  | 458  | 534  | 610  | 686  | 763  |
| 575              | 76                                                                                             | 153  | 229  | 306  | 382  | 459  | 535  | 612  | 688  | 765  |
| 576              | 77                                                                                             | 153  | 230  | 307  | 383  | 460  | 537  | 613  | 690  | 767  |
| 577              | 77                                                                                             | 154  | 231  | 308  | 384  | 461  | 538  | 615  | 692  | 769  |
| 578              | 77                                                                                             | 154  | 231  | 308  | 385  | 463  | 540  | 617  | 694  | 771  |
| 579              | 77                                                                                             | 155  | 232  | 309  | 386  | 464  | 541  | 618  | 696  | 773  |
| 580              | 78                                                                                             | 155  | 233  | 310  | 388  | 465  | 543  | 620  | 698  | 775  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 3 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 4 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 405              | 0                                                                                              | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 406              | 21                                                                                             | 23   | 25   | 27   | 29   | 31   | 33   | 35   | 37   | 39   |
| 407              | 43                                                                                             | 46   | 50   | 54   | 58   | 62   | 66   | 70   | 73   | 77   |
| 408              | 64                                                                                             | 70   | 75   | 81   | 87   | 93   | 99   | 104  | 110  | 116  |
| 409              | 85                                                                                             | 93   | 100  | 108  | 116  | 124  | 131  | 139  | 147  | 155  |
| 410              | 106                                                                                            | 116  | 126  | 135  | 145  | 155  | 164  | 174  | 184  | 193  |
| 411              | 128                                                                                            | 139  | 151  | 162  | 174  | 185  | 197  | 209  | 220  | 232  |
| 412              | 149                                                                                            | 162  | 176  | 189  | 203  | 216  | 230  | 243  | 257  | 270  |
| 413              | 170                                                                                            | 185  | 201  | 216  | 232  | 247  | 263  | 278  | 294  | 309  |
| 414              | 179                                                                                            | 195  | 211  | 227  | 244  | 260  | 276  | 292  | 309  | 325  |
| 415              | 186                                                                                            | 203  | 220  | 236  | 253  | 270  | 287  | 304  | 321  | 338  |
| 416              | 193                                                                                            | 211  | 228  | 246  | 263  | 281  | 298  | 316  | 333  | 351  |
| 417              | 200                                                                                            | 218  | 237  | 255  | 273  | 291  | 309  | 328  | 346  | 364  |
| 418              | 207                                                                                            | 226  | 245  | 264  | 283  | 302  | 320  | 339  | 358  | 377  |
| 419              | 215                                                                                            | 235  | 255  | 274  | 294  | 313  | 333  | 352  | 372  | 392  |
| 420              | 223                                                                                            | 244  | 264  | 284  | 305  | 325  | 345  | 366  | 386  | 406  |
| 421              | 231                                                                                            | 252  | 274  | 295  | 316  | 337  | 358  | 379  | 400  | 421  |
| 422              | 239                                                                                            | 261  | 283  | 305  | 327  | 348  | 370  | 392  | 414  | 435  |
| 423              | 248                                                                                            | 270  | 293  | 315  | 338  | 360  | 383  | 405  | 428  | 450  |
| 424              | 256                                                                                            | 279  | 302  | 325  | 348  | 372  | 395  | 418  | 441  | 465  |
| 425              | 264                                                                                            | 288  | 311  | 335  | 359  | 383  | 407  | 431  | 455  | 479  |
| 426              | 272                                                                                            | 296  | 321  | 346  | 370  | 395  | 420  | 444  | 469  | 494  |
| 427              | 280                                                                                            | 305  | 330  | 356  | 381  | 407  | 432  | 458  | 483  | 508  |
| 428              | 288                                                                                            | 314  | 340  | 366  | 392  | 418  | 445  | 471  | 497  | 523  |
| 429              | 296                                                                                            | 323  | 349  | 376  | 403  | 430  | 457  | 484  | 511  | 538  |
| 430              | 304                                                                                            | 331  | 359  | 387  | 414  | 442  | 469  | 497  | 525  | 552  |
| 431              | 312                                                                                            | 340  | 368  | 397  | 425  | 453  | 482  | 510  | 538  | 567  |
| 432              | 320                                                                                            | 349  | 378  | 407  | 436  | 465  | 494  | 523  | 552  | 581  |
| 433              | 328                                                                                            | 358  | 387  | 417  | 447  | 477  | 507  | 536  | 566  | 596  |
| 434              | 333                                                                                            | 364  | 394  | 424  | 454  | 485  | 515  | 545  | 576  | 606  |
| 435              | 339                                                                                            | 369  | 400  | 431  | 462  | 493  | 523  | 554  | 585  | 616  |
| 436              | 344                                                                                            | 375  | 407  | 438  | 469  | 501  | 532  | 563  | 594  | 626  |
| 437              | 350                                                                                            | 381  | 413  | 445  | 477  | 508  | 540  | 572  | 604  | 636  |
| 438              | 355                                                                                            | 387  | 420  | 452  | 484  | 516  | 549  | 581  | 613  | 645  |
| 439              | 360                                                                                            | 393  | 426  | 459  | 491  | 524  | 557  | 590  | 623  | 655  |
| 440              | 366                                                                                            | 399  | 432  | 466  | 499  | 532  | 565  | 599  | 632  | 665  |
| 441              | 371                                                                                            | 405  | 439  | 473  | 506  | 540  | 574  | 608  | 641  | 675  |
| 442              | 377                                                                                            | 411  | 445  | 479  | 514  | 548  | 582  | 616  | 651  | 685  |
| 443              | 382                                                                                            | 417  | 452  | 486  | 521  | 556  | 591  | 625  | 660  | 695  |
| 444              | 388                                                                                            | 423  | 458  | 493  | 529  | 564  | 599  | 634  | 669  | 705  |
| 445              | 393                                                                                            | 429  | 464  | 500  | 536  | 572  | 607  | 643  | 679  | 715  |
| 446              | 398                                                                                            | 435  | 471  | 507  | 543  | 580  | 616  | 652  | 688  | 724  |
| 447              | 404                                                                                            | 441  | 477  | 514  | 551  | 587  | 624  | 661  | 698  | 734  |
| 448              | 409                                                                                            | 447  | 484  | 521  | 558  | 595  | 633  | 670  | 707  | 744  |
| 449              | 415                                                                                            | 452  | 490  | 528  | 566  | 603  | 641  | 679  | 716  | 754  |
| 450              | 420                                                                                            | 458  | 497  | 535  | 573  | 611  | 649  | 688  | 726  | 764  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 3 FT                                                                                           |      |      |      |      |      |      |      |      | 4 FT |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 |      |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 451              | 426                                                                                            | 464  | 503  | 542  | 580  | 619  | 658  | 696  | 735  | 774  |
| 452              | 431                                                                                            | 470  | 509  | 549  | 588  | 627  | 666  | 705  | 745  | 784  |
| 453              | 436                                                                                            | 476  | 516  | 556  | 595  | 635  | 675  | 714  | 754  | 794  |
| 454              | 442                                                                                            | 482  | 522  | 562  | 603  | 643  | 683  | 723  | 763  | 803  |
| 455              | 447                                                                                            | 488  | 529  | 569  | 610  | 651  | 691  | 732  | 773  | 813  |
| 456              | 453                                                                                            | 494  | 535  | 576  | 617  | 659  | 700  | 741  | 782  | 823  |
| 457              | 458                                                                                            | 500  | 542  | 583  | 625  | 666  | 708  | 750  | 791  | 833  |
| 458              | 464                                                                                            | 506  | 548  | 590  | 632  | 674  | 717  | 759  | 801  | 843  |
| 459              | 468                                                                                            | 510  | 553  | 595  | 638  | 680  | 723  | 765  | 808  | 850  |
| 460              | 471                                                                                            | 514  | 557  | 600  | 643  | 686  | 728  | 771  | 814  | 857  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 461              | 475                                                                                            | 518  | 562  | 605  | 648  | 691  | 734  | 778  | 821  | 864  |
| 462              | 479                                                                                            | 523  | 566  | 610  | 653  | 697  | 740  | 784  | 827  | 871  |
| 463              | 483                                                                                            | 527  | 571  | 615  | 659  | 702  | 746  | 790  | 834  | 878  |
| 464              | 487                                                                                            | 531  | 575  | 620  | 664  | 708  | 752  | 797  | 841  | 885  |
| 465              | 491                                                                                            | 535  | 580  | 624  | 669  | 714  | 758  | 803  | 847  | 892  |
| 466              | 494                                                                                            | 539  | 584  | 629  | 674  | 719  | 764  | 809  | 854  | 899  |
| 467              | 498                                                                                            | 544  | 589  | 634  | 680  | 725  | 770  | 815  | 861  | 906  |
| 468              | 502                                                                                            | 548  | 593  | 639  | 685  | 730  | 776  | 822  | 867  | 913  |
| 469              | 506                                                                                            | 552  | 598  | 644  | 690  | 736  | 782  | 828  | 874  | 920  |
| 470              | 510                                                                                            | 556  | 603  | 649  | 695  | 742  | 788  | 834  | 881  | 927  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 471              | 514                                                                                            | 560  | 607  | 654  | 701  | 747  | 794  | 841  | 887  | 934  |
| 472              | 518                                                                                            | 565  | 612  | 659  | 706  | 753  | 800  | 847  | 894  | 941  |
| 473              | 521                                                                                            | 569  | 616  | 664  | 711  | 758  | 806  | 853  | 901  | 948  |
| 474              | 525                                                                                            | 573  | 621  | 669  | 716  | 764  | 812  | 860  | 907  | 955  |
| 475              | 529                                                                                            | 577  | 625  | 673  | 722  | 770  | 818  | 866  | 914  | 962  |
| 476              | 533                                                                                            | 581  | 630  | 678  | 727  | 775  | 824  | 872  | 921  | 969  |
| 477              | 537                                                                                            | 586  | 634  | 683  | 732  | 781  | 830  | 878  | 927  | 976  |
| 478              | 541                                                                                            | 590  | 639  | 688  | 737  | 786  | 836  | 885  | 934  | 983  |
| 479              | 545                                                                                            | 594  | 644  | 693  | 743  | 792  | 842  | 891  | 941  | 990  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 480              | 548                                                                                            | 598  | 648  | 698  | 748  | 798  | 847  | 897  | 947  | 997  |
| 481              | 552                                                                                            | 602  | 653  | 703  | 753  | 803  | 853  | 904  | 954  | 1004 |
| 482              | 556                                                                                            | 607  | 657  | 708  | 758  | 809  | 859  | 910  | 960  | 1011 |
| 483              | 560                                                                                            | 611  | 662  | 713  | 764  | 814  | 865  | 916  | 967  | 1018 |
| 484              | 564                                                                                            | 615  | 666  | 718  | 769  | 820  | 871  | 923  | 974  | 1025 |
| 485              | 568                                                                                            | 619  | 671  | 722  | 774  | 826  | 877  | 929  | 980  | 1032 |
| 486              | 571                                                                                            | 623  | 675  | 727  | 779  | 831  | 883  | 935  | 987  | 1039 |
| 487              | 575                                                                                            | 628  | 680  | 732  | 785  | 837  | 889  | 941  | 994  | 1046 |
| 488              | 579                                                                                            | 632  | 684  | 737  | 790  | 842  | 895  | 948  | 1000 | 1053 |
| 489              | 583                                                                                            | 636  | 689  | 742  | 795  | 848  | 901  | 954  | 1007 | 1060 |
| 490              | 587                                                                                            | 640  | 694  | 747  | 800  | 854  | 907  | 960  | 1014 | 1067 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 491              | 591                                                                                            | 644  | 698  | 752  | 806  | 859  | 913  | 967  | 1020 | 1074 |
| 492              | 595                                                                                            | 649  | 703  | 757  | 811  | 865  | 919  | 973  | 1027 | 1081 |
| 493              | 598                                                                                            | 653  | 707  | 762  | 816  | 870  | 925  | 979  | 1034 | 1088 |
| 494              | 602                                                                                            | 657  | 712  | 767  | 821  | 876  | 931  | 986  | 1040 | 1095 |
| 495              | 606                                                                                            | 661  | 716  | 771  | 827  | 882  | 937  | 992  | 1047 | 1102 |
| 496              | 610                                                                                            | 665  | 721  | 776  | 832  | 887  | 943  | 998  | 1054 | 1109 |
| 497              | 614                                                                                            | 670  | 725  | 781  | 837  | 893  | 949  | 1004 | 1060 | 1116 |
| 498              | 618                                                                                            | 674  | 730  | 786  | 842  | 898  | 955  | 1011 | 1067 | 1123 |
| 499              | 622                                                                                            | 678  | 735  | 791  | 848  | 904  | 961  | 1017 | 1074 | 1130 |
| 500              | 625                                                                                            | 682  | 739  | 796  | 853  | 910  | 966  | 1023 | 1080 | 1137 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE             | 3 FT                                                                                           |                 |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|-----------------|------|------|------|------|------|------|------|------|
| OPENING          | 0.55                                                                                           | 0.60            | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 4 FT |
| ELEV<br>(ft MSL) |                                                                                                | DISCHARGE (cfs) |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |                 |      |      |      |      |      |      |      |      |
| 501              | 629                                                                                            | 686             | 744  | 801  | 858  | 915  | 972  | 1030 | 1087 | 1144 |
| 502              | 633                                                                                            | 691             | 748  | 806  | 863  | 921  | 978  | 1036 | 1093 | 1151 |
| 503              | 637                                                                                            | 695             | 753  | 811  | 869  | 926  | 984  | 1042 | 1100 | 1158 |
| 504              | 641                                                                                            | 699             | 757  | 816  | 874  | 932  | 990  | 1049 | 1107 | 1165 |
| 505              | 645                                                                                            | 703             | 762  | 820  | 879  | 938  | 996  | 1055 | 1113 | 1172 |
| 506              | 648                                                                                            | 707             | 766  | 825  | 884  | 943  | 1002 | 1061 | 1120 | 1179 |
| 507              | 652                                                                                            | 712             | 771  | 830  | 890  | 949  | 1008 | 1067 | 1127 | 1186 |
| 508              | 656                                                                                            | 716             | 775  | 835  | 895  | 954  | 1014 | 1074 | 1133 | 1193 |
| 509              | 659                                                                                            | 719             | 779  | 839  | 899  | 959  | 1019 | 1079 | 1138 | 1198 |
| 510              | 662                                                                                            | 722             | 782  | 843  | 903  | 963  | 1023 | 1083 | 1143 | 1204 |
| 511              | 665                                                                                            | 725             | 786  | 846  | 907  | 967  | 1028 | 1088 | 1149 | 1209 |
| 512              | 668                                                                                            | 729             | 789  | 850  | 911  | 971  | 1032 | 1093 | 1154 | 1214 |
| 513              | 671                                                                                            | 732             | 793  | 854  | 915  | 976  | 1037 | 1098 | 1159 | 1220 |
| 514              | 674                                                                                            | 735             | 796  | 858  | 919  | 980  | 1041 | 1103 | 1164 | 1225 |
| 515              | 677                                                                                            | 738             | 800  | 861  | 923  | 984  | 1046 | 1107 | 1169 | 1230 |
| 516              | 680                                                                                            | 741             | 803  | 865  | 927  | 989  | 1050 | 1112 | 1174 | 1236 |
| 517              | 683                                                                                            | 745             | 807  | 869  | 931  | 993  | 1055 | 1117 | 1179 | 1241 |
| 518              | 686                                                                                            | 748             | 810  | 872  | 935  | 997  | 1059 | 1122 | 1184 | 1246 |
| 519              | 688                                                                                            | 751             | 814  | 876  | 939  | 1001 | 1064 | 1127 | 1189 | 1252 |
| 520              | 691                                                                                            | 754             | 817  | 880  | 943  | 1006 | 1069 | 1131 | 1194 | 1257 |
| 521              | 694                                                                                            | 757             | 821  | 884  | 947  | 1010 | 1073 | 1136 | 1199 | 1262 |
| 522              | 697                                                                                            | 761             | 824  | 887  | 951  | 1014 | 1078 | 1141 | 1204 | 1268 |
| 523              | 700                                                                                            | 764             | 828  | 891  | 955  | 1018 | 1082 | 1146 | 1209 | 1273 |
| 524              | 703                                                                                            | 767             | 831  | 895  | 959  | 1023 | 1087 | 1151 | 1215 | 1278 |
| 525              | 706                                                                                            | 770             | 834  | 899  | 963  | 1027 | 1091 | 1155 | 1220 | 1284 |
| 526              | 709                                                                                            | 773             | 838  | 902  | 967  | 1031 | 1096 | 1160 | 1225 | 1289 |
| 527              | 712                                                                                            | 777             | 841  | 906  | 971  | 1036 | 1100 | 1165 | 1230 | 1294 |
| 528              | 715                                                                                            | 780             | 845  | 910  | 975  | 1040 | 1105 | 1170 | 1235 | 1300 |
| 529              | 718                                                                                            | 783             | 848  | 914  | 979  | 1044 | 1109 | 1175 | 1240 | 1305 |
| 530              | 721                                                                                            | 786             | 852  | 917  | 983  | 1048 | 1114 | 1179 | 1245 | 1310 |
| 531              | 724                                                                                            | 789             | 855  | 921  | 987  | 1053 | 1118 | 1184 | 1250 | 1316 |
| 532              | 727                                                                                            | 793             | 859  | 925  | 991  | 1057 | 1123 | 1189 | 1255 | 1321 |
| 533              | 730                                                                                            | 796             | 862  | 929  | 995  | 1061 | 1128 | 1194 | 1260 | 1327 |
| 534              | 733                                                                                            | 799             | 866  | 932  | 999  | 1065 | 1132 | 1199 | 1265 | 1332 |
| 535              | 735                                                                                            | 802             | 869  | 936  | 1003 | 1070 | 1137 | 1203 | 1270 | 1337 |
| 536              | 738                                                                                            | 806             | 873  | 940  | 1007 | 1074 | 1141 | 1208 | 1275 | 1343 |
| 537              | 741                                                                                            | 809             | 876  | 944  | 1011 | 1078 | 1146 | 1213 | 1280 | 1348 |
| 538              | 744                                                                                            | 812             | 880  | 947  | 1015 | 1083 | 1150 | 1218 | 1286 | 1353 |
| 539              | 747                                                                                            | 815             | 883  | 951  | 1019 | 1087 | 1155 | 1223 | 1291 | 1359 |
| 540              | 750                                                                                            | 818             | 887  | 955  | 1023 | 1091 | 1159 | 1227 | 1296 | 1364 |
| 541              | 753                                                                                            | 822             | 890  | 958  | 1027 | 1095 | 1164 | 1232 | 1301 | 1369 |
| 542              | 756                                                                                            | 825             | 893  | 962  | 1031 | 1100 | 1168 | 1237 | 1306 | 1375 |
| 543              | 759                                                                                            | 828             | 897  | 966  | 1035 | 1104 | 1173 | 1242 | 1311 | 1380 |
| 544              | 762                                                                                            | 831             | 900  | 970  | 1039 | 1108 | 1177 | 1247 | 1316 | 1385 |
| 545              | 765                                                                                            | 834             | 904  | 973  | 1043 | 1112 | 1182 | 1252 | 1321 | 1391 |
| 546              | 768                                                                                            | 838             | 907  | 977  | 1047 | 1117 | 1187 | 1256 | 1326 | 1396 |
| 547              | 771                                                                                            | 841             | 911  | 981  | 1051 | 1121 | 1191 | 1261 | 1331 | 1401 |
| 548              | 774                                                                                            | 844             | 914  | 985  | 1055 | 1125 | 1196 | 1266 | 1336 | 1407 |
| 549              | 777                                                                                            | 847             | 918  | 988  | 1059 | 1130 | 1200 | 1271 | 1341 | 1412 |
| 550              | 780                                                                                            | 850             | 921  | 992  | 1063 | 1134 | 1205 | 1276 | 1346 | 1417 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 3 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 4 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 551              | 782                                                                                            | 854  | 925  | 996  | 1067 | 1138 | 1209 | 1280 | 1351 | 1423 |
| 552              | 785                                                                                            | 857  | 928  | 1000 | 1071 | 1142 | 1214 | 1285 | 1357 | 1428 |
| 553              | 788                                                                                            | 860  | 932  | 1003 | 1075 | 1147 | 1218 | 1290 | 1362 | 1433 |
| 554              | 791                                                                                            | 863  | 935  | 1007 | 1079 | 1151 | 1223 | 1295 | 1367 | 1439 |
| 555              | 794                                                                                            | 866  | 939  | 1011 | 1083 | 1155 | 1227 | 1300 | 1372 | 1444 |
| 556              | 797                                                                                            | 870  | 942  | 1015 | 1087 | 1159 | 1232 | 1304 | 1377 | 1449 |
| 557              | 800                                                                                            | 873  | 946  | 1018 | 1091 | 1164 | 1236 | 1309 | 1382 | 1455 |
| 558              | 803                                                                                            | 876  | 949  | 1022 | 1095 | 1168 | 1241 | 1314 | 1387 | 1460 |
| 559              | 805                                                                                            | 878  | 952  | 1025 | 1098 | 1171 | 1244 | 1318 | 1391 | 1464 |
| 560              | 808                                                                                            | 881  | 954  | 1028 | 1101 | 1175 | 1248 | 1321 | 1395 | 1468 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 561              | 810                                                                                            | 883  | 957  | 1031 | 1104 | 1178 | 1251 | 1325 | 1399 | 1472 |
| 562              | 812                                                                                            | 886  | 960  | 1033 | 1107 | 1181 | 1255 | 1329 | 1403 | 1476 |
| 563              | 814                                                                                            | 888  | 962  | 1036 | 1110 | 1184 | 1258 | 1332 | 1406 | 1480 |
| 564              | 817                                                                                            | 891  | 965  | 1039 | 1113 | 1188 | 1262 | 1336 | 1410 | 1485 |
| 565              | 819                                                                                            | 893  | 968  | 1042 | 1116 | 1191 | 1265 | 1340 | 1414 | 1489 |
| 566              | 821                                                                                            | 896  | 970  | 1045 | 1120 | 1194 | 1269 | 1343 | 1418 | 1493 |
| 567              | 823                                                                                            | 898  | 973  | 1048 | 1123 | 1197 | 1272 | 1347 | 1422 | 1497 |
| 568              | 826                                                                                            | 901  | 976  | 1051 | 1126 | 1201 | 1276 | 1351 | 1426 | 1501 |
| 569              | 828                                                                                            | 903  | 978  | 1054 | 1129 | 1204 | 1279 | 1355 | 1430 | 1505 |
| 570              | 830                                                                                            | 905  | 981  | 1056 | 1132 | 1207 | 1283 | 1358 | 1434 | 1509 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 571              | 832                                                                                            | 908  | 984  | 1059 | 1135 | 1211 | 1286 | 1362 | 1438 | 1513 |
| 572              | 835                                                                                            | 910  | 986  | 1062 | 1138 | 1214 | 1290 | 1366 | 1441 | 1517 |
| 573              | 837                                                                                            | 913  | 989  | 1065 | 1141 | 1217 | 1293 | 1369 | 1445 | 1521 |
| 574              | 839                                                                                            | 915  | 992  | 1068 | 1144 | 1220 | 1297 | 1373 | 1449 | 1525 |
| 575              | 841                                                                                            | 918  | 994  | 1071 | 1147 | 1224 | 1300 | 1377 | 1453 | 1530 |
| 576              | 844                                                                                            | 920  | 997  | 1074 | 1150 | 1227 | 1304 | 1380 | 1457 | 1534 |
| 577              | 846                                                                                            | 923  | 1000 | 1076 | 1153 | 1230 | 1307 | 1384 | 1461 | 1538 |
| 578              | 848                                                                                            | 925  | 1002 | 1079 | 1156 | 1233 | 1311 | 1388 | 1465 | 1542 |
| 579              | 850                                                                                            | 928  | 1005 | 1082 | 1159 | 1237 | 1314 | 1391 | 1469 | 1546 |
| 580              | 853                                                                                            | 930  | 1008 | 1085 | 1163 | 1240 | 1318 | 1395 | 1473 | 1550 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 4 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 405              | 0                                                                                              | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 406              | 2                                                                                              | 4    | 6    | 9    | 11   | 13   | 15   | 17   | 19   | 21   |
| 407              | 4                                                                                              | 9    | 13   | 17   | 21   | 26   | 30   | 34   | 38   | 43   |
| 408              | 6                                                                                              | 13   | 19   | 26   | 32   | 38   | 45   | 51   | 57   | 64   |
| 409              | 9                                                                                              | 17   | 26   | 34   | 43   | 51   | 60   | 68   | 77   | 85   |
| 410              | 11                                                                                             | 21   | 32   | 43   | 53   | 64   | 74   | 85   | 96   | 106  |
| 411              | 13                                                                                             | 26   | 38   | 51   | 64   | 77   | 89   | 102  | 115  | 128  |
| 412              | 15                                                                                             | 30   | 45   | 60   | 74   | 89   | 104  | 119  | 134  | 149  |
| 413              | 17                                                                                             | 34   | 51   | 68   | 85   | 102  | 119  | 136  | 153  | 170  |
| 414              | 19                                                                                             | 38   | 56   | 75   | 94   | 113  | 132  | 150  | 169  | 188  |
| 415              | 20                                                                                             | 40   | 60   | 79   | 99   | 119  | 139  | 159  | 179  | 198  |
| 416              | 21                                                                                             | 42   | 63   | 83   | 104  | 125  | 146  | 167  | 188  | 209  |
| 417              | 22                                                                                             | 44   | 66   | 88   | 109  | 131  | 153  | 175  | 197  | 219  |
| 418              | 23                                                                                             | 46   | 69   | 92   | 115  | 138  | 161  | 183  | 206  | 229  |
| 419              | 24                                                                                             | 48   | 72   | 96   | 120  | 144  | 167  | 191  | 215  | 239  |
| 420              | 25                                                                                             | 50   | 75   | 99   | 124  | 149  | 174  | 199  | 224  | 248  |
| 421              | 26                                                                                             | 52   | 77   | 103  | 129  | 155  | 180  | 206  | 232  | 258  |
| 422              | 27                                                                                             | 53   | 80   | 107  | 133  | 160  | 187  | 213  | 240  | 267  |
| 423              | 28                                                                                             | 55   | 83   | 110  | 138  | 165  | 193  | 221  | 248  | 276  |
| 424              | 28                                                                                             | 57   | 85   | 114  | 142  | 171  | 199  | 228  | 256  | 285  |
| 425              | 29                                                                                             | 59   | 88   | 118  | 147  | 176  | 206  | 235  | 265  | 294  |
| 426              | 30                                                                                             | 61   | 91   | 121  | 152  | 182  | 212  | 243  | 273  | 303  |
| 427              | 31                                                                                             | 62   | 94   | 125  | 156  | 187  | 219  | 250  | 281  | 312  |
| 428              | 32                                                                                             | 64   | 96   | 129  | 161  | 193  | 225  | 257  | 289  | 321  |
| 429              | 33                                                                                             | 66   | 99   | 132  | 165  | 198  | 231  | 264  | 298  | 331  |
| 430              | 34                                                                                             | 68   | 102  | 136  | 170  | 204  | 238  | 272  | 306  | 340  |
| 431              | 35                                                                                             | 70   | 105  | 140  | 174  | 209  | 244  | 279  | 314  | 349  |
| 432              | 36                                                                                             | 72   | 107  | 143  | 179  | 215  | 251  | 286  | 322  | 358  |
| 433              | 37                                                                                             | 73   | 110  | 147  | 184  | 220  | 257  | 294  | 330  | 367  |
| 434              | 38                                                                                             | 75   | 113  | 150  | 188  | 225  | 263  | 300  | 338  | 375  |
| 435              | 38                                                                                             | 76   | 114  | 153  | 191  | 229  | 267  | 305  | 343  | 382  |
| 436              | 39                                                                                             | 78   | 116  | 155  | 194  | 233  | 271  | 310  | 349  | 388  |
| 437              | 39                                                                                             | 79   | 118  | 158  | 197  | 236  | 276  | 315  | 355  | 394  |
| 438              | 40                                                                                             | 80   | 120  | 160  | 200  | 240  | 280  | 320  | 360  | 400  |
| 439              | 41                                                                                             | 81   | 122  | 163  | 203  | 244  | 284  | 325  | 366  | 406  |
| 440              | 41                                                                                             | 83   | 124  | 165  | 206  | 248  | 289  | 330  | 371  | 413  |
| 441              | 42                                                                                             | 84   | 126  | 168  | 209  | 251  | 293  | 335  | 377  | 419  |
| 442              | 42                                                                                             | 85   | 127  | 170  | 212  | 255  | 297  | 340  | 382  | 425  |
| 443              | 43                                                                                             | 86   | 129  | 172  | 216  | 259  | 302  | 345  | 388  | 431  |
| 444              | 44                                                                                             | 87   | 131  | 175  | 219  | 262  | 306  | 350  | 394  | 437  |
| 445              | 44                                                                                             | 89   | 133  | 177  | 222  | 266  | 310  | 355  | 399  | 444  |
| 446              | 45                                                                                             | 90   | 135  | 180  | 225  | 270  | 315  | 360  | 405  | 450  |
| 447              | 46                                                                                             | 91   | 137  | 182  | 228  | 274  | 319  | 365  | 410  | 456  |
| 448              | 46                                                                                             | 92   | 139  | 185  | 231  | 277  | 324  | 370  | 416  | 462  |
| 449              | 47                                                                                             | 94   | 141  | 187  | 234  | 281  | 328  | 375  | 422  | 468  |
| 450              | 47                                                                                             | 95   | 142  | 190  | 237  | 285  | 332  | 380  | 427  | 475  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 4 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 451              | 48                                                                                             | 96   | 144  | 192  | 240  | 288  | 337  | 385  | 433  | 481  |
| 452              | 49                                                                                             | 97   | 146  | 195  | 243  | 292  | 341  | 390  | 438  | 487  |
| 453              | 49                                                                                             | 99   | 148  | 197  | 247  | 296  | 345  | 395  | 444  | 493  |
| 454              | 50                                                                                             | 100  | 150  | 200  | 250  | 300  | 350  | 399  | 449  | 499  |
| 455              | 51                                                                                             | 101  | 152  | 202  | 253  | 303  | 354  | 404  | 455  | 506  |
| 456              | 51                                                                                             | 102  | 154  | 205  | 256  | 307  | 358  | 409  | 461  | 512  |
| 457              | 52                                                                                             | 104  | 155  | 207  | 259  | 311  | 363  | 414  | 466  | 518  |
| 458              | 52                                                                                             | 105  | 157  | 210  | 262  | 314  | 367  | 419  | 472  | 524  |
| 459              | 53                                                                                             | 106  | 159  | 212  | 265  | 318  | 371  | 424  | 477  | 530  |
| 460              | 53                                                                                             | 107  | 160  | 214  | 267  | 321  | 374  | 427  | 481  | 534  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 461              | 54                                                                                             | 108  | 162  | 215  | 269  | 323  | 377  | 431  | 485  | 539  |
| 462              | 54                                                                                             | 109  | 163  | 217  | 271  | 326  | 380  | 434  | 489  | 543  |
| 463              | 55                                                                                             | 109  | 164  | 219  | 274  | 328  | 383  | 438  | 493  | 547  |
| 464              | 55                                                                                             | 110  | 166  | 221  | 276  | 331  | 386  | 441  | 497  | 552  |
| 465              | 56                                                                                             | 111  | 167  | 222  | 278  | 334  | 389  | 445  | 500  | 556  |
| 466              | 56                                                                                             | 112  | 168  | 224  | 280  | 336  | 392  | 448  | 504  | 560  |
| 467              | 56                                                                                             | 113  | 169  | 226  | 282  | 339  | 395  | 452  | 508  | 565  |
| 468              | 57                                                                                             | 114  | 171  | 228  | 285  | 342  | 398  | 455  | 512  | 569  |
| 469              | 57                                                                                             | 115  | 172  | 229  | 287  | 344  | 402  | 459  | 516  | 574  |
| 470              | 58                                                                                             | 116  | 173  | 231  | 289  | 347  | 405  | 462  | 520  | 578  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 471              | 58                                                                                             | 116  | 175  | 233  | 291  | 349  | 408  | 466  | 524  | 582  |
| 472              | 59                                                                                             | 117  | 176  | 235  | 293  | 352  | 411  | 469  | 528  | 587  |
| 473              | 59                                                                                             | 118  | 177  | 236  | 296  | 355  | 414  | 473  | 532  | 591  |
| 474              | 60                                                                                             | 119  | 179  | 238  | 298  | 357  | 417  | 476  | 536  | 596  |
| 475              | 60                                                                                             | 120  | 180  | 240  | 300  | 360  | 420  | 480  | 540  | 600  |
| 476              | 60                                                                                             | 121  | 181  | 242  | 302  | 363  | 423  | 483  | 544  | 604  |
| 477              | 61                                                                                             | 122  | 183  | 243  | 304  | 365  | 426  | 487  | 548  | 609  |
| 478              | 61                                                                                             | 123  | 184  | 245  | 307  | 368  | 429  | 490  | 552  | 613  |
| 479              | 62                                                                                             | 123  | 185  | 247  | 309  | 370  | 432  | 494  | 556  | 617  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 480              | 62                                                                                             | 124  | 187  | 249  | 311  | 373  | 435  | 497  | 560  | 622  |
| 481              | 63                                                                                             | 125  | 188  | 250  | 313  | 376  | 438  | 501  | 564  | 626  |
| 482              | 63                                                                                             | 126  | 189  | 252  | 315  | 378  | 441  | 504  | 567  | 631  |
| 483              | 63                                                                                             | 127  | 190  | 254  | 317  | 381  | 444  | 508  | 571  | 635  |
| 484              | 64                                                                                             | 128  | 192  | 256  | 320  | 384  | 448  | 511  | 575  | 639  |
| 485              | 64                                                                                             | 129  | 193  | 257  | 322  | 386  | 451  | 515  | 579  | 644  |
| 486              | 65                                                                                             | 130  | 194  | 259  | 324  | 389  | 454  | 518  | 583  | 648  |
| 487              | 65                                                                                             | 130  | 196  | 261  | 326  | 391  | 457  | 522  | 587  | 652  |
| 488              | 66                                                                                             | 131  | 197  | 263  | 328  | 394  | 460  | 525  | 591  | 657  |
| 489              | 66                                                                                             | 132  | 198  | 264  | 331  | 397  | 463  | 529  | 595  | 661  |
| 490              | 67                                                                                             | 133  | 200  | 266  | 333  | 399  | 466  | 532  | 599  | 666  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 491              | 67                                                                                             | 134  | 201  | 268  | 335  | 402  | 469  | 536  | 603  | 670  |
| 492              | 67                                                                                             | 135  | 202  | 270  | 337  | 405  | 472  | 539  | 607  | 674  |
| 493              | 68                                                                                             | 136  | 204  | 271  | 339  | 407  | 475  | 543  | 611  | 679  |
| 494              | 68                                                                                             | 137  | 205  | 273  | 342  | 410  | 478  | 546  | 615  | 683  |
| 495              | 69                                                                                             | 137  | 206  | 275  | 344  | 412  | 481  | 550  | 619  | 687  |
| 496              | 69                                                                                             | 138  | 208  | 277  | 346  | 415  | 484  | 553  | 623  | 692  |
| 497              | 70                                                                                             | 139  | 209  | 279  | 348  | 418  | 487  | 557  | 627  | 696  |
| 498              | 70                                                                                             | 140  | 210  | 280  | 350  | 420  | 490  | 561  | 631  | 701  |
| 499              | 71                                                                                             | 141  | 212  | 282  | 353  | 423  | 494  | 564  | 635  | 705  |
| 500              | 71                                                                                             | 142  | 213  | 284  | 355  | 426  | 497  | 568  | 638  | 709  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 4 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 501              | 71                                                                                             | 143  | 214  | 286  | 357  | 428  | 500  | 571  | 642  | 714  |
| 502              | 72                                                                                             | 144  | 215  | 287  | 359  | 431  | 503  | 575  | 646  | 718  |
| 503              | 72                                                                                             | 145  | 217  | 289  | 361  | 434  | 506  | 578  | 650  | 723  |
| 504              | 73                                                                                             | 145  | 218  | 291  | 363  | 436  | 509  | 582  | 654  | 727  |
| 505              | 73                                                                                             | 146  | 219  | 293  | 366  | 439  | 512  | 585  | 658  | 731  |
| 506              | 74                                                                                             | 147  | 221  | 294  | 368  | 441  | 515  | 589  | 662  | 736  |
| 507              | 74                                                                                             | 148  | 222  | 296  | 370  | 444  | 518  | 592  | 666  | 740  |
| 508              | 74                                                                                             | 149  | 223  | 298  | 372  | 447  | 521  | 596  | 670  | 744  |
| 509              | 75                                                                                             | 150  | 225  | 299  | 374  | 449  | 524  | 599  | 674  | 749  |
| 510              | 75                                                                                             | 150  | 226  | 301  | 376  | 451  | 526  | 601  | 677  | 752  |
| 511              | 76                                                                                             | 151  | 227  | 302  | 378  | 453  | 529  | 604  | 680  | 755  |
| 512              | 76                                                                                             | 152  | 228  | 303  | 379  | 455  | 531  | 607  | 683  | 759  |
| 513              | 76                                                                                             | 152  | 229  | 305  | 381  | 457  | 533  | 610  | 686  | 762  |
| 514              | 77                                                                                             | 153  | 230  | 306  | 383  | 459  | 536  | 612  | 689  | 765  |
| 515              | 77                                                                                             | 154  | 231  | 307  | 384  | 461  | 538  | 615  | 692  | 769  |
| 516              | 77                                                                                             | 154  | 232  | 309  | 386  | 463  | 540  | 618  | 695  | 772  |
| 517              | 78                                                                                             | 155  | 233  | 310  | 388  | 465  | 543  | 620  | 698  | 775  |
| 518              | 78                                                                                             | 156  | 234  | 311  | 389  | 467  | 545  | 623  | 701  | 779  |
| 519              | 78                                                                                             | 156  | 235  | 313  | 391  | 469  | 547  | 626  | 704  | 782  |
| 520              | 79                                                                                             | 157  | 236  | 314  | 393  | 471  | 550  | 628  | 707  | 785  |
| 521              | 79                                                                                             | 158  | 237  | 316  | 394  | 473  | 552  | 631  | 710  | 789  |
| 522              | 79                                                                                             | 158  | 238  | 317  | 396  | 475  | 555  | 634  | 713  | 792  |
| 523              | 80                                                                                             | 159  | 239  | 318  | 398  | 477  | 557  | 636  | 716  | 796  |
| 524              | 80                                                                                             | 160  | 240  | 320  | 399  | 479  | 559  | 639  | 719  | 799  |
| 525              | 80                                                                                             | 160  | 241  | 321  | 401  | 481  | 562  | 642  | 722  | 802  |
| 526              | 81                                                                                             | 161  | 242  | 322  | 403  | 483  | 564  | 645  | 725  | 806  |
| 527              | 81                                                                                             | 162  | 243  | 324  | 404  | 485  | 566  | 647  | 728  | 809  |
| 528              | 81                                                                                             | 162  | 244  | 325  | 406  | 487  | 569  | 650  | 731  | 812  |
| 529              | 82                                                                                             | 163  | 245  | 326  | 408  | 489  | 571  | 653  | 734  | 816  |
| 530              | 82                                                                                             | 164  | 246  | 328  | 410  | 491  | 573  | 655  | 737  | 819  |
| 531              | 82                                                                                             | 164  | 247  | 329  | 411  | 493  | 576  | 658  | 740  | 822  |
| 532              | 83                                                                                             | 165  | 248  | 330  | 413  | 495  | 578  | 661  | 743  | 826  |
| 533              | 83                                                                                             | 166  | 249  | 332  | 415  | 497  | 580  | 663  | 746  | 829  |
| 534              | 83                                                                                             | 167  | 250  | 333  | 416  | 500  | 583  | 666  | 749  | 833  |
| 535              | 84                                                                                             | 167  | 251  | 334  | 418  | 502  | 585  | 669  | 752  | 836  |
| 536              | 84                                                                                             | 168  | 252  | 336  | 420  | 504  | 587  | 671  | 755  | 839  |
| 537              | 84                                                                                             | 169  | 253  | 337  | 421  | 506  | 590  | 674  | 758  | 843  |
| 538              | 85                                                                                             | 169  | 254  | 338  | 423  | 508  | 592  | 677  | 761  | 846  |
| 539              | 85                                                                                             | 170  | 255  | 340  | 425  | 510  | 595  | 679  | 764  | 849  |
| 540              | 85                                                                                             | 171  | 256  | 341  | 426  | 512  | 597  | 682  | 767  | 853  |
| 541              | 86                                                                                             | 171  | 257  | 342  | 428  | 514  | 599  | 685  | 770  | 856  |
| 542              | 86                                                                                             | 172  | 258  | 344  | 430  | 516  | 602  | 688  | 773  | 859  |
| 543              | 86                                                                                             | 173  | 259  | 345  | 431  | 518  | 604  | 690  | 776  | 863  |
| 544              | 87                                                                                             | 173  | 260  | 346  | 433  | 520  | 606  | 693  | 779  | 866  |
| 545              | 87                                                                                             | 174  | 261  | 348  | 435  | 522  | 609  | 696  | 783  | 869  |
| 546              | 87                                                                                             | 175  | 262  | 349  | 436  | 524  | 611  | 698  | 786  | 873  |
| 547              | 88                                                                                             | 175  | 263  | 350  | 438  | 526  | 613  | 701  | 789  | 876  |
| 548              | 88                                                                                             | 176  | 264  | 352  | 440  | 528  | 616  | 704  | 792  | 880  |
| 549              | 88                                                                                             | 177  | 265  | 353  | 441  | 530  | 618  | 706  | 795  | 883  |
| 550              | 89                                                                                             | 177  | 266  | 355  | 443  | 532  | 620  | 709  | 798  | 886  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 4 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 551              | 89                                                                                             | 178  | 267  | 356  | 445  | 534  | 623  | 712  | 801  | 890  |
| 552              | 89                                                                                             | 179  | 268  | 357  | 446  | 536  | 625  | 714  | 804  | 893  |
| 553              | 90                                                                                             | 179  | 269  | 359  | 448  | 538  | 627  | 717  | 807  | 896  |
| 554              | 90                                                                                             | 180  | 270  | 360  | 450  | 540  | 630  | 720  | 810  | 900  |
| 555              | 90                                                                                             | 181  | 271  | 361  | 452  | 542  | 632  | 722  | 813  | 903  |
| 556              | 91                                                                                             | 181  | 272  | 363  | 453  | 544  | 634  | 725  | 816  | 906  |
| 557              | 91                                                                                             | 182  | 273  | 364  | 455  | 546  | 637  | 728  | 819  | 910  |
| 558              | 91                                                                                             | 183  | 274  | 365  | 457  | 548  | 639  | 731  | 822  | 913  |
| 559              | 92                                                                                             | 183  | 275  | 366  | 458  | 549  | 641  | 733  | 824  | 916  |
| 560              | 92                                                                                             | 183  | 275  | 367  | 458  | 550  | 641  | 733  | 825  | 916  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 561              | 92                                                                                             | 183  | 275  | 367  | 458  | 550  | 642  | 734  | 825  | 917  |
| 562              | 92                                                                                             | 184  | 275  | 367  | 459  | 551  | 642  | 734  | 826  | 918  |
| 563              | 92                                                                                             | 184  | 275  | 367  | 459  | 551  | 643  | 735  | 826  | 918  |
| 564              | 92                                                                                             | 184  | 276  | 368  | 459  | 551  | 643  | 735  | 827  | 919  |
| 565              | 92                                                                                             | 184  | 276  | 368  | 460  | 552  | 644  | 736  | 828  | 919  |
| 566              | 92                                                                                             | 184  | 276  | 368  | 460  | 552  | 644  | 736  | 828  | 920  |
| 567              | 92                                                                                             | 184  | 276  | 368  | 460  | 552  | 645  | 737  | 829  | 921  |
| 568              | 92                                                                                             | 184  | 276  | 369  | 461  | 553  | 645  | 737  | 829  | 921  |
| 569              | 92                                                                                             | 184  | 277  | 369  | 461  | 553  | 645  | 738  | 830  | 922  |
| 570              | 92                                                                                             | 185  | 277  | 369  | 461  | 554  | 646  | 738  | 830  | 923  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 571              | 92                                                                                             | 185  | 277  | 369  | 462  | 554  | 646  | 739  | 831  | 923  |
| 572              | 92                                                                                             | 185  | 277  | 370  | 462  | 554  | 647  | 739  | 832  | 924  |
| 573              | 92                                                                                             | 185  | 277  | 370  | 462  | 555  | 647  | 740  | 832  | 925  |
| 574              | 93                                                                                             | 185  | 278  | 370  | 463  | 555  | 648  | 740  | 833  | 925  |
| 575              | 93                                                                                             | 185  | 278  | 370  | 463  | 555  | 648  | 741  | 833  | 926  |
| 576              | 93                                                                                             | 185  | 278  | 371  | 463  | 556  | 649  | 741  | 834  | 926  |
| 577              | 93                                                                                             | 185  | 278  | 371  | 464  | 556  | 649  | 742  | 834  | 927  |
| 578              | 93                                                                                             | 186  | 278  | 371  | 464  | 557  | 649  | 742  | 835  | 928  |
| 579              | 93                                                                                             | 186  | 279  | 371  | 464  | 557  | 650  | 743  | 836  | 928  |
| 580              | 93                                                                                             | 186  | 279  | 372  | 465  | 557  | 650  | 743  | 836  | 929  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 4 FT                                                                                           |      |      |      |      |      |      |      |      | 5 FT |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 |      |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 405              | 0                                                                                              | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 406              | 23                                                                                             | 26   | 28   | 30   | 32   | 34   | 36   | 38   | 40   | 43   |
| 407              | 47                                                                                             | 51   | 55   | 60   | 64   | 68   | 72   | 77   | 81   | 85   |
| 408              | 70                                                                                             | 77   | 83   | 89   | 96   | 102  | 108  | 115  | 121  | 128  |
| 409              | 94                                                                                             | 102  | 111  | 119  | 128  | 136  | 145  | 153  | 162  | 170  |
| 410              | 117                                                                                            | 128  | 138  | 149  | 159  | 170  | 181  | 191  | 202  | 213  |
| 411              | 140                                                                                            | 153  | 166  | 179  | 191  | 204  | 217  | 230  | 242  | 255  |
| 412              | 164                                                                                            | 179  | 194  | 208  | 223  | 238  | 253  | 268  | 283  | 298  |
| 413              | 187                                                                                            | 204  | 221  | 238  | 255  | 272  | 289  | 306  | 323  | 340  |
| 414              | 207                                                                                            | 226  | 245  | 263  | 282  | 301  | 320  | 339  | 357  | 376  |
| 415              | 218                                                                                            | 238  | 258  | 278  | 298  | 317  | 337  | 357  | 377  | 397  |
| 416              | 230                                                                                            | 250  | 271  | 292  | 313  | 334  | 355  | 376  | 397  | 417  |
| 417              | 241                                                                                            | 263  | 285  | 307  | 328  | 350  | 372  | 394  | 416  | 438  |
| 418              | 252                                                                                            | 275  | 298  | 321  | 344  | 367  | 390  | 413  | 436  | 459  |
| 419              | 263                                                                                            | 287  | 311  | 335  | 359  | 383  | 407  | 431  | 455  | 478  |
| 420              | 273                                                                                            | 298  | 323  | 348  | 373  | 397  | 422  | 447  | 472  | 497  |
| 421              | 283                                                                                            | 309  | 335  | 361  | 386  | 412  | 438  | 464  | 489  | 515  |
| 422              | 293                                                                                            | 320  | 347  | 373  | 400  | 427  | 453  | 480  | 507  | 533  |
| 423              | 303                                                                                            | 331  | 359  | 386  | 414  | 441  | 469  | 496  | 524  | 552  |
| 424              | 313                                                                                            | 342  | 370  | 399  | 427  | 456  | 484  | 513  | 541  | 570  |
| 425              | 323                                                                                            | 353  | 382  | 412  | 441  | 470  | 500  | 529  | 559  | 588  |
| 426              | 333                                                                                            | 364  | 394  | 424  | 455  | 485  | 515  | 546  | 576  | 606  |
| 427              | 344                                                                                            | 375  | 406  | 437  | 468  | 500  | 531  | 562  | 593  | 625  |
| 428              | 354                                                                                            | 386  | 418  | 450  | 482  | 514  | 546  | 579  | 611  | 643  |
| 429              | 364                                                                                            | 397  | 430  | 463  | 496  | 529  | 562  | 595  | 628  | 661  |
| 430              | 374                                                                                            | 408  | 442  | 476  | 510  | 544  | 578  | 611  | 645  | 679  |
| 431              | 384                                                                                            | 419  | 453  | 488  | 523  | 558  | 593  | 628  | 663  | 698  |
| 432              | 394                                                                                            | 430  | 465  | 501  | 537  | 573  | 609  | 644  | 680  | 716  |
| 433              | 404                                                                                            | 441  | 477  | 514  | 551  | 587  | 624  | 661  | 698  | 734  |
| 434              | 413                                                                                            | 450  | 488  | 526  | 563  | 601  | 638  | 676  | 713  | 751  |
| 435              | 420                                                                                            | 458  | 496  | 534  | 572  | 610  | 649  | 687  | 725  | 763  |
| 436              | 427                                                                                            | 465  | 504  | 543  | 582  | 620  | 659  | 698  | 737  | 776  |
| 437              | 433                                                                                            | 473  | 512  | 552  | 591  | 630  | 670  | 709  | 749  | 788  |
| 438              | 440                                                                                            | 480  | 520  | 560  | 600  | 640  | 680  | 720  | 760  | 800  |
| 439              | 447                                                                                            | 488  | 528  | 569  | 610  | 650  | 691  | 731  | 772  | 813  |
| 440              | 454                                                                                            | 495  | 536  | 578  | 619  | 660  | 701  | 743  | 784  | 825  |
| 441              | 461                                                                                            | 503  | 544  | 586  | 628  | 670  | 712  | 754  | 796  | 838  |
| 442              | 467                                                                                            | 510  | 552  | 595  | 637  | 680  | 722  | 765  | 807  | 850  |
| 443              | 474                                                                                            | 517  | 561  | 604  | 647  | 690  | 733  | 776  | 819  | 862  |
| 444              | 481                                                                                            | 525  | 569  | 612  | 656  | 700  | 744  | 787  | 831  | 875  |
| 445              | 488                                                                                            | 532  | 577  | 621  | 665  | 710  | 754  | 798  | 843  | 887  |
| 446              | 495                                                                                            | 540  | 585  | 630  | 675  | 720  | 765  | 810  | 855  | 900  |
| 447              | 502                                                                                            | 547  | 593  | 638  | 684  | 730  | 775  | 821  | 866  | 912  |
| 448              | 508                                                                                            | 555  | 601  | 647  | 693  | 739  | 786  | 832  | 878  | 924  |
| 449              | 515                                                                                            | 562  | 609  | 656  | 703  | 749  | 796  | 843  | 890  | 937  |
| 450              | 522                                                                                            | 569  | 617  | 664  | 712  | 759  | 807  | 854  | 902  | 949  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 4 FT                                                                                           |                 |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|-----------------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60            | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 5 FT |
| ELEV<br>(ft MSL) |                                                                                                | DISCHARGE (cfs) |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |                 |      |      |      |      |      |      |      |      |
| 451              | 529                                                                                            | 577             | 625  | 673  | 721  | 769  | 817  | 865  | 913  | 962  |
| 452              | 536                                                                                            | 584             | 633  | 682  | 730  | 779  | 828  | 877  | 925  | 974  |
| 453              | 542                                                                                            | 592             | 641  | 690  | 740  | 789  | 838  | 888  | 937  | 986  |
| 454              | 549                                                                                            | 599             | 649  | 699  | 749  | 799  | 849  | 899  | 949  | 999  |
| 455              | 556                                                                                            | 607             | 657  | 708  | 758  | 809  | 859  | 910  | 961  | 1011 |
| 456              | 563                                                                                            | 614             | 665  | 716  | 768  | 819  | 870  | 921  | 972  | 1024 |
| 457              | 570                                                                                            | 622             | 673  | 725  | 777  | 829  | 881  | 932  | 984  | 1036 |
| 458              | 577                                                                                            | 629             | 681  | 734  | 786  | 839  | 891  | 943  | 996  | 1048 |
| 459              | 583                                                                                            | 636             | 689  | 742  | 795  | 848  | 901  | 954  | 1007 | 1060 |
| 460              | 588                                                                                            | 641             | 694  | 748  | 801  | 855  | 908  | 962  | 1015 | 1068 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 461              | 592                                                                                            | 646             | 700  | 754  | 808  | 862  | 916  | 969  | 1023 | 1077 |
| 462              | 597                                                                                            | 652             | 706  | 760  | 814  | 869  | 923  | 977  | 1032 | 1086 |
| 463              | 602                                                                                            | 657             | 712  | 766  | 821  | 876  | 930  | 985  | 1040 | 1095 |
| 464              | 607                                                                                            | 662             | 717  | 772  | 828  | 883  | 938  | 993  | 1048 | 1103 |
| 465              | 612                                                                                            | 667             | 723  | 779  | 834  | 890  | 945  | 1001 | 1057 | 1112 |
| 466              | 617                                                                                            | 673             | 729  | 785  | 841  | 897  | 953  | 1009 | 1065 | 1121 |
| 467              | 621                                                                                            | 678             | 734  | 791  | 847  | 904  | 960  | 1017 | 1073 | 1130 |
| 468              | 626                                                                                            | 683             | 740  | 797  | 854  | 911  | 968  | 1025 | 1082 | 1138 |
| 469              | 631                                                                                            | 688             | 746  | 803  | 860  | 918  | 975  | 1033 | 1090 | 1147 |
| 470              | 636                                                                                            | 694             | 751  | 809  | 867  | 925  | 983  | 1040 | 1098 | 1156 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 471              | 641                                                                                            | 699             | 757  | 815  | 874  | 932  | 990  | 1048 | 1107 | 1165 |
| 472              | 645                                                                                            | 704             | 763  | 821  | 880  | 939  | 997  | 1056 | 1115 | 1174 |
| 473              | 650                                                                                            | 709             | 768  | 828  | 887  | 946  | 1005 | 1064 | 1123 | 1182 |
| 474              | 655                                                                                            | 715             | 774  | 834  | 893  | 953  | 1012 | 1072 | 1131 | 1191 |
| 475              | 660                                                                                            | 720             | 780  | 840  | 900  | 960  | 1020 | 1080 | 1140 | 1200 |
| 476              | 665                                                                                            | 725             | 786  | 846  | 906  | 967  | 1027 | 1088 | 1148 | 1209 |
| 477              | 670                                                                                            | 730             | 791  | 852  | 913  | 974  | 1035 | 1096 | 1156 | 1217 |
| 478              | 674                                                                                            | 736             | 797  | 858  | 920  | 981  | 1042 | 1103 | 1165 | 1226 |
| 479              | 679                                                                                            | 741             | 803  | 864  | 926  | 988  | 1050 | 1111 | 1173 | 1235 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 480              | 684                                                                                            | 746             | 808  | 871  | 933  | 995  | 1057 | 1119 | 1181 | 1244 |
| 481              | 689                                                                                            | 751             | 814  | 877  | 939  | 1002 | 1064 | 1127 | 1190 | 1252 |
| 482              | 694                                                                                            | 757             | 820  | 883  | 946  | 1009 | 1072 | 1135 | 1198 | 1261 |
| 483              | 698                                                                                            | 762             | 825  | 889  | 952  | 1016 | 1079 | 1143 | 1206 | 1270 |
| 484              | 703                                                                                            | 767             | 831  | 895  | 959  | 1023 | 1087 | 1151 | 1215 | 1279 |
| 485              | 708                                                                                            | 772             | 837  | 901  | 966  | 1030 | 1094 | 1159 | 1223 | 1287 |
| 486              | 713                                                                                            | 778             | 842  | 907  | 972  | 1037 | 1102 | 1167 | 1231 | 1296 |
| 487              | 718                                                                                            | 783             | 848  | 913  | 979  | 1044 | 1109 | 1174 | 1240 | 1305 |
| 488              | 723                                                                                            | 788             | 854  | 920  | 985  | 1051 | 1117 | 1182 | 1248 | 1314 |
| 489              | 727                                                                                            | 793             | 860  | 926  | 992  | 1058 | 1124 | 1190 | 1256 | 1322 |
| 490              | 732                                                                                            | 799             | 865  | 932  | 998  | 1065 | 1132 | 1198 | 1265 | 1331 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 491              | 737                                                                                            | 804             | 871  | 938  | 1005 | 1072 | 1139 | 1206 | 1273 | 1340 |
| 492              | 742                                                                                            | 809             | 877  | 944  | 1012 | 1079 | 1146 | 1214 | 1281 | 1349 |
| 493              | 747                                                                                            | 814             | 882  | 950  | 1018 | 1086 | 1154 | 1222 | 1290 | 1357 |
| 494              | 751                                                                                            | 820             | 888  | 956  | 1025 | 1093 | 1161 | 1230 | 1298 | 1366 |
| 495              | 756                                                                                            | 825             | 894  | 962  | 1031 | 1100 | 1169 | 1237 | 1306 | 1375 |
| 496              | 761                                                                                            | 830             | 899  | 969  | 1038 | 1107 | 1176 | 1245 | 1315 | 1384 |
| 497              | 766                                                                                            | 836             | 905  | 975  | 1044 | 1114 | 1184 | 1253 | 1323 | 1393 |
| 498              | 771                                                                                            | 841             | 911  | 981  | 1051 | 1121 | 1191 | 1261 | 1331 | 1401 |
| 499              | 776                                                                                            | 846             | 917  | 987  | 1058 | 1128 | 1199 | 1269 | 1340 | 1410 |
| 500              | 780                                                                                            | 851             | 922  | 993  | 1064 | 1135 | 1206 | 1277 | 1348 | 1419 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 4 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 5 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 501              | 785                                                                                            | 857  | 928  | 999  | 1071 | 1142 | 1213 | 1285 | 1356 | 1428 |
| 502              | 790                                                                                            | 862  | 934  | 1005 | 1077 | 1149 | 1221 | 1293 | 1364 | 1436 |
| 503              | 795                                                                                            | 867  | 939  | 1012 | 1084 | 1156 | 1228 | 1301 | 1373 | 1445 |
| 504              | 800                                                                                            | 872  | 945  | 1018 | 1090 | 1163 | 1236 | 1308 | 1381 | 1454 |
| 505              | 804                                                                                            | 878  | 951  | 1024 | 1097 | 1170 | 1243 | 1316 | 1389 | 1463 |
| 506              | 809                                                                                            | 883  | 956  | 1030 | 1104 | 1177 | 1251 | 1324 | 1398 | 1471 |
| 507              | 814                                                                                            | 888  | 962  | 1036 | 1110 | 1184 | 1258 | 1332 | 1406 | 1480 |
| 508              | 819                                                                                            | 893  | 968  | 1042 | 1117 | 1191 | 1266 | 1340 | 1414 | 1489 |
| 509              | 823                                                                                            | 898  | 973  | 1048 | 1123 | 1198 | 1272 | 1347 | 1422 | 1497 |
| 510              | 827                                                                                            | 902  | 977  | 1053 | 1128 | 1203 | 1278 | 1353 | 1429 | 1504 |
| 511              | 831                                                                                            | 906  | 982  | 1057 | 1133 | 1208 | 1284 | 1359 | 1435 | 1510 |
| 512              | 834                                                                                            | 910  | 986  | 1062 | 1138 | 1214 | 1290 | 1365 | 1441 | 1517 |
| 513              | 838                                                                                            | 914  | 991  | 1067 | 1143 | 1219 | 1295 | 1372 | 1448 | 1524 |
| 514              | 842                                                                                            | 918  | 995  | 1071 | 1148 | 1224 | 1301 | 1378 | 1454 | 1531 |
| 515              | 846                                                                                            | 922  | 999  | 1076 | 1153 | 1230 | 1307 | 1384 | 1460 | 1537 |
| 516              | 849                                                                                            | 926  | 1004 | 1081 | 1158 | 1235 | 1312 | 1390 | 1467 | 1544 |
| 517              | 853                                                                                            | 930  | 1008 | 1086 | 1163 | 1241 | 1318 | 1396 | 1473 | 1551 |
| 518              | 857                                                                                            | 934  | 1012 | 1090 | 1168 | 1246 | 1324 | 1402 | 1480 | 1557 |
| 519              | 860                                                                                            | 939  | 1017 | 1095 | 1173 | 1251 | 1330 | 1408 | 1486 | 1564 |
| 520              | 864                                                                                            | 943  | 1021 | 1100 | 1178 | 1257 | 1335 | 1414 | 1492 | 1571 |
| 521              | 868                                                                                            | 947  | 1025 | 1104 | 1183 | 1262 | 1341 | 1420 | 1499 | 1578 |
| 522              | 871                                                                                            | 951  | 1030 | 1109 | 1188 | 1268 | 1347 | 1426 | 1505 | 1584 |
| 523              | 875                                                                                            | 955  | 1034 | 1114 | 1193 | 1273 | 1352 | 1432 | 1512 | 1591 |
| 524              | 879                                                                                            | 959  | 1039 | 1118 | 1198 | 1278 | 1358 | 1438 | 1518 | 1598 |
| 525              | 882                                                                                            | 963  | 1043 | 1123 | 1203 | 1284 | 1364 | 1444 | 1524 | 1605 |
| 526              | 886                                                                                            | 967  | 1047 | 1128 | 1208 | 1289 | 1370 | 1450 | 1531 | 1611 |
| 527              | 890                                                                                            | 971  | 1052 | 1133 | 1213 | 1294 | 1375 | 1456 | 1537 | 1618 |
| 528              | 894                                                                                            | 975  | 1056 | 1137 | 1219 | 1300 | 1381 | 1462 | 1543 | 1625 |
| 529              | 897                                                                                            | 979  | 1060 | 1142 | 1224 | 1305 | 1387 | 1468 | 1550 | 1631 |
| 530              | 901                                                                                            | 983  | 1065 | 1147 | 1229 | 1311 | 1392 | 1474 | 1556 | 1638 |
| 531              | 905                                                                                            | 987  | 1069 | 1151 | 1234 | 1316 | 1398 | 1480 | 1563 | 1645 |
| 532              | 908                                                                                            | 991  | 1074 | 1156 | 1239 | 1321 | 1404 | 1486 | 1569 | 1652 |
| 533              | 912                                                                                            | 995  | 1078 | 1161 | 1244 | 1327 | 1410 | 1492 | 1575 | 1658 |
| 534              | 916                                                                                            | 999  | 1082 | 1166 | 1249 | 1332 | 1415 | 1499 | 1582 | 1665 |
| 535              | 919                                                                                            | 1003 | 1087 | 1170 | 1254 | 1337 | 1421 | 1505 | 1588 | 1672 |
| 536              | 923                                                                                            | 1007 | 1091 | 1175 | 1259 | 1343 | 1427 | 1511 | 1595 | 1678 |
| 537              | 927                                                                                            | 1011 | 1095 | 1180 | 1264 | 1348 | 1432 | 1517 | 1601 | 1685 |
| 538              | 931                                                                                            | 1015 | 1100 | 1184 | 1269 | 1354 | 1438 | 1523 | 1607 | 1692 |
| 539              | 934                                                                                            | 1019 | 1104 | 1189 | 1274 | 1359 | 1444 | 1529 | 1614 | 1699 |
| 540              | 938                                                                                            | 1023 | 1108 | 1194 | 1279 | 1364 | 1450 | 1535 | 1620 | 1705 |
| 541              | 942                                                                                            | 1027 | 1113 | 1198 | 1284 | 1370 | 1455 | 1541 | 1626 | 1712 |
| 542              | 945                                                                                            | 1031 | 1117 | 1203 | 1289 | 1375 | 1461 | 1547 | 1633 | 1719 |
| 543              | 949                                                                                            | 1035 | 1122 | 1208 | 1294 | 1380 | 1467 | 1553 | 1639 | 1725 |
| 544              | 953                                                                                            | 1039 | 1126 | 1213 | 1299 | 1386 | 1472 | 1559 | 1646 | 1732 |
| 545              | 956                                                                                            | 1043 | 1130 | 1217 | 1304 | 1391 | 1478 | 1565 | 1652 | 1739 |
| 546              | 960                                                                                            | 1047 | 1135 | 1222 | 1309 | 1397 | 1484 | 1571 | 1658 | 1746 |
| 547              | 964                                                                                            | 1051 | 1139 | 1227 | 1314 | 1402 | 1490 | 1577 | 1665 | 1752 |
| 548              | 968                                                                                            | 1055 | 1143 | 1231 | 1319 | 1407 | 1495 | 1583 | 1671 | 1759 |
| 549              | 971                                                                                            | 1059 | 1148 | 1236 | 1324 | 1413 | 1501 | 1589 | 1678 | 1766 |
| 550              | 975                                                                                            | 1064 | 1152 | 1241 | 1329 | 1418 | 1507 | 1595 | 1684 | 1773 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 4 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 5 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 551              | 979                                                                                            | 1068 | 1157 | 1245 | 1334 | 1423 | 1512 | 1601 | 1690 | 1779 |
| 552              | 982                                                                                            | 1072 | 1161 | 1250 | 1339 | 1429 | 1518 | 1607 | 1697 | 1786 |
| 553              | 986                                                                                            | 1076 | 1165 | 1255 | 1345 | 1434 | 1524 | 1613 | 1703 | 1793 |
| 554              | 990                                                                                            | 1080 | 1170 | 1260 | 1350 | 1440 | 1530 | 1619 | 1709 | 1799 |
| 555              | 993                                                                                            | 1084 | 1174 | 1264 | 1355 | 1445 | 1535 | 1626 | 1716 | 1806 |
| 556              | 997                                                                                            | 1088 | 1178 | 1269 | 1360 | 1450 | 1541 | 1632 | 1722 | 1813 |
| 557              | 1001                                                                                           | 1092 | 1183 | 1274 | 1365 | 1456 | 1547 | 1638 | 1729 | 1820 |
| 558              | 1004                                                                                           | 1096 | 1187 | 1278 | 1370 | 1461 | 1552 | 1644 | 1735 | 1826 |
| 559              | 1007                                                                                           | 1099 | 1190 | 1282 | 1374 | 1465 | 1557 | 1648 | 1740 | 1831 |
| 560              | 1008                                                                                           | 1100 | 1191 | 1283 | 1374 | 1466 | 1558 | 1649 | 1741 | 1833 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 561              | 1009                                                                                           | 1100 | 1192 | 1284 | 1375 | 1467 | 1559 | 1651 | 1742 | 1834 |
| 562              | 1009                                                                                           | 1101 | 1193 | 1285 | 1376 | 1468 | 1560 | 1652 | 1743 | 1835 |
| 563              | 1010                                                                                           | 1102 | 1194 | 1286 | 1377 | 1469 | 1561 | 1653 | 1745 | 1836 |
| 564              | 1011                                                                                           | 1103 | 1195 | 1286 | 1378 | 1470 | 1562 | 1654 | 1746 | 1838 |
| 565              | 1011                                                                                           | 1103 | 1195 | 1287 | 1379 | 1471 | 1563 | 1655 | 1747 | 1839 |
| 566              | 1012                                                                                           | 1104 | 1196 | 1288 | 1380 | 1472 | 1564 | 1656 | 1748 | 1840 |
| 567              | 1013                                                                                           | 1105 | 1197 | 1289 | 1381 | 1473 | 1565 | 1657 | 1749 | 1842 |
| 568              | 1014                                                                                           | 1106 | 1198 | 1290 | 1382 | 1474 | 1566 | 1659 | 1751 | 1843 |
| 569              | 1014                                                                                           | 1106 | 1199 | 1291 | 1383 | 1475 | 1567 | 1660 | 1752 | 1844 |
| 570              | 1015                                                                                           | 1107 | 1199 | 1292 | 1384 | 1476 | 1569 | 1661 | 1753 | 1845 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 571              | 1016                                                                                           | 1108 | 1200 | 1293 | 1385 | 1477 | 1570 | 1662 | 1754 | 1847 |
| 572              | 1016                                                                                           | 1109 | 1201 | 1294 | 1386 | 1478 | 1571 | 1663 | 1755 | 1848 |
| 573              | 1017                                                                                           | 1109 | 1202 | 1294 | 1387 | 1479 | 1572 | 1664 | 1757 | 1849 |
| 574              | 1018                                                                                           | 1110 | 1203 | 1295 | 1388 | 1480 | 1573 | 1665 | 1758 | 1850 |
| 575              | 1018                                                                                           | 1111 | 1204 | 1296 | 1389 | 1481 | 1574 | 1666 | 1759 | 1852 |
| 576              | 1019                                                                                           | 1112 | 1204 | 1297 | 1390 | 1482 | 1575 | 1668 | 1760 | 1853 |
| 577              | 1020                                                                                           | 1113 | 1205 | 1298 | 1391 | 1483 | 1576 | 1669 | 1761 | 1854 |
| 578              | 1021                                                                                           | 1113 | 1206 | 1299 | 1392 | 1484 | 1577 | 1670 | 1763 | 1855 |
| 579              | 1021                                                                                           | 1114 | 1207 | 1300 | 1393 | 1485 | 1578 | 1671 | 1764 | 1857 |
| 580              | 1022                                                                                           | 1115 | 1208 | 1301 | 1394 | 1486 | 1579 | 1672 | 1765 | 1858 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 5 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 405              | 0                                                                                              | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 406              | 2                                                                                              | 5    | 7    | 9    | 12   | 14   | 16   | 19   | 21   | 23   |
| 407              | 5                                                                                              | 9    | 14   | 19   | 23   | 28   | 33   | 37   | 42   | 47   |
| 408              | 7                                                                                              | 14   | 21   | 28   | 35   | 42   | 49   | 56   | 63   | 70   |
| 409              | 9                                                                                              | 19   | 28   | 37   | 47   | 56   | 65   | 75   | 84   | 93   |
| 410              | 12                                                                                             | 23   | 35   | 47   | 58   | 70   | 82   | 93   | 105  | 116  |
| 411              | 14                                                                                             | 28   | 42   | 56   | 70   | 84   | 98   | 112  | 126  | 140  |
| 412              | 16                                                                                             | 33   | 49   | 65   | 82   | 98   | 114  | 130  | 147  | 163  |
| 413              | 19                                                                                             | 37   | 56   | 75   | 93   | 112  | 130  | 149  | 168  | 186  |
| 414              | 21                                                                                             | 42   | 63   | 84   | 105  | 126  | 147  | 168  | 189  | 210  |
| 415              | 23                                                                                             | 45   | 68   | 91   | 114  | 136  | 159  | 182  | 204  | 227  |
| 416              | 24                                                                                             | 48   | 72   | 96   | 120  | 144  | 168  | 192  | 216  | 240  |
| 417              | 25                                                                                             | 51   | 76   | 102  | 127  | 152  | 178  | 203  | 229  | 254  |
| 418              | 27                                                                                             | 53   | 80   | 107  | 134  | 160  | 187  | 214  | 241  | 267  |
| 419              | 28                                                                                             | 56   | 84   | 112  | 140  | 168  | 197  | 225  | 253  | 281  |
| 420              | 29                                                                                             | 59   | 88   | 117  | 147  | 176  | 205  | 234  | 264  | 293  |
| 421              | 30                                                                                             | 61   | 91   | 122  | 152  | 183  | 213  | 243  | 274  | 304  |
| 422              | 32                                                                                             | 63   | 95   | 126  | 158  | 189  | 221  | 252  | 284  | 315  |
| 423              | 33                                                                                             | 65   | 98   | 131  | 163  | 196  | 229  | 261  | 294  | 326  |
| 424              | 34                                                                                             | 68   | 101  | 135  | 169  | 203  | 236  | 270  | 304  | 338  |
| 425              | 35                                                                                             | 70   | 105  | 139  | 174  | 209  | 244  | 279  | 314  | 349  |
| 426              | 36                                                                                             | 72   | 108  | 144  | 180  | 216  | 252  | 288  | 324  | 360  |
| 427              | 37                                                                                             | 74   | 111  | 148  | 186  | 223  | 260  | 297  | 334  | 371  |
| 428              | 38                                                                                             | 76   | 115  | 153  | 191  | 229  | 267  | 306  | 344  | 382  |
| 429              | 39                                                                                             | 79   | 118  | 157  | 197  | 236  | 275  | 315  | 354  | 393  |
| 430              | 40                                                                                             | 81   | 121  | 162  | 202  | 243  | 283  | 324  | 364  | 404  |
| 431              | 42                                                                                             | 83   | 125  | 166  | 208  | 249  | 291  | 332  | 374  | 416  |
| 432              | 43                                                                                             | 85   | 128  | 171  | 213  | 256  | 299  | 341  | 384  | 427  |
| 433              | 44                                                                                             | 88   | 131  | 175  | 219  | 263  | 306  | 350  | 394  | 438  |
| 434              | 45                                                                                             | 90   | 135  | 180  | 224  | 269  | 314  | 359  | 404  | 449  |
| 435              | 46                                                                                             | 92   | 137  | 183  | 229  | 275  | 321  | 367  | 412  | 458  |
| 436              | 47                                                                                             | 93   | 140  | 186  | 233  | 279  | 326  | 373  | 419  | 466  |
| 437              | 47                                                                                             | 95   | 142  | 189  | 237  | 284  | 331  | 379  | 426  | 473  |
| 438              | 48                                                                                             | 96   | 144  | 192  | 240  | 288  | 337  | 385  | 433  | 481  |
| 439              | 49                                                                                             | 98   | 147  | 195  | 244  | 293  | 342  | 391  | 440  | 488  |
| 440              | 50                                                                                             | 99   | 149  | 198  | 248  | 298  | 347  | 397  | 446  | 496  |
| 441              | 50                                                                                             | 101  | 151  | 201  | 252  | 302  | 352  | 403  | 453  | 503  |
| 442              | 51                                                                                             | 102  | 153  | 204  | 255  | 307  | 358  | 409  | 460  | 511  |
| 443              | 52                                                                                             | 104  | 156  | 207  | 259  | 311  | 363  | 415  | 467  | 518  |
| 444              | 53                                                                                             | 105  | 158  | 210  | 263  | 316  | 368  | 421  | 473  | 526  |
| 445              | 53                                                                                             | 107  | 160  | 213  | 267  | 320  | 373  | 427  | 480  | 533  |
| 446              | 54                                                                                             | 108  | 162  | 216  | 270  | 325  | 379  | 433  | 487  | 541  |
| 447              | 55                                                                                             | 110  | 165  | 219  | 274  | 329  | 384  | 439  | 494  | 549  |
| 448              | 56                                                                                             | 111  | 167  | 222  | 278  | 334  | 389  | 445  | 500  | 556  |
| 449              | 56                                                                                             | 113  | 169  | 225  | 282  | 338  | 394  | 451  | 507  | 564  |
| 450              | 57                                                                                             | 114  | 171  | 228  | 286  | 343  | 400  | 457  | 514  | 571  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 5 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 451              | 58                                                                                             | 116  | 174  | 231  | 289  | 347  | 405  | 463  | 521  | 579  |
| 452              | 59                                                                                             | 117  | 176  | 234  | 293  | 352  | 410  | 469  | 527  | 586  |
| 453              | 59                                                                                             | 119  | 178  | 237  | 297  | 356  | 416  | 475  | 534  | 594  |
| 454              | 60                                                                                             | 120  | 180  | 240  | 301  | 361  | 421  | 481  | 541  | 601  |
| 455              | 61                                                                                             | 122  | 183  | 243  | 304  | 365  | 426  | 487  | 548  | 609  |
| 456              | 62                                                                                             | 123  | 185  | 246  | 308  | 370  | 431  | 493  | 555  | 616  |
| 457              | 62                                                                                             | 125  | 187  | 249  | 312  | 374  | 437  | 499  | 561  | 624  |
| 458              | 63                                                                                             | 126  | 189  | 252  | 316  | 379  | 442  | 505  | 568  | 631  |
| 459              | 64                                                                                             | 128  | 192  | 255  | 319  | 383  | 447  | 511  | 575  | 639  |
| 460              | 65                                                                                             | 129  | 194  | 258  | 323  | 387  | 452  | 516  | 581  | 645  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 461              | 65                                                                                             | 130  | 195  | 260  | 325  | 390  | 455  | 520  | 585  | 650  |
| 462              | 66                                                                                             | 131  | 197  | 262  | 328  | 393  | 459  | 525  | 590  | 656  |
| 463              | 66                                                                                             | 132  | 198  | 264  | 331  | 397  | 463  | 529  | 595  | 661  |
| 464              | 67                                                                                             | 133  | 200  | 267  | 333  | 400  | 467  | 533  | 600  | 666  |
| 465              | 67                                                                                             | 134  | 202  | 269  | 336  | 403  | 470  | 537  | 605  | 672  |
| 466              | 68                                                                                             | 135  | 203  | 271  | 339  | 406  | 474  | 542  | 609  | 677  |
| 467              | 68                                                                                             | 136  | 205  | 273  | 341  | 409  | 478  | 546  | 614  | 682  |
| 468              | 69                                                                                             | 138  | 206  | 275  | 344  | 413  | 481  | 550  | 619  | 688  |
| 469              | 69                                                                                             | 139  | 208  | 277  | 347  | 416  | 485  | 555  | 624  | 693  |
| 470              | 70                                                                                             | 140  | 210  | 279  | 349  | 419  | 489  | 559  | 629  | 698  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 471              | 70                                                                                             | 141  | 211  | 282  | 352  | 422  | 493  | 563  | 633  | 704  |
| 472              | 71                                                                                             | 142  | 213  | 284  | 355  | 425  | 496  | 567  | 638  | 709  |
| 473              | 71                                                                                             | 143  | 214  | 286  | 357  | 429  | 500  | 572  | 643  | 714  |
| 474              | 72                                                                                             | 144  | 216  | 288  | 360  | 432  | 504  | 576  | 648  | 720  |
| 475              | 73                                                                                             | 145  | 218  | 290  | 363  | 435  | 508  | 580  | 653  | 725  |
| 476              | 73                                                                                             | 146  | 219  | 292  | 365  | 438  | 511  | 584  | 657  | 730  |
| 477              | 74                                                                                             | 147  | 221  | 294  | 368  | 441  | 515  | 589  | 662  | 736  |
| 478              | 74                                                                                             | 148  | 222  | 296  | 371  | 445  | 519  | 593  | 667  | 741  |
| 479              | 75                                                                                             | 149  | 224  | 299  | 373  | 448  | 523  | 597  | 672  | 746  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 480              | 75                                                                                             | 150  | 226  | 301  | 376  | 451  | 526  | 601  | 677  | 752  |
| 481              | 76                                                                                             | 151  | 227  | 303  | 379  | 454  | 530  | 606  | 681  | 757  |
| 482              | 76                                                                                             | 152  | 229  | 305  | 381  | 457  | 534  | 610  | 686  | 762  |
| 483              | 77                                                                                             | 154  | 230  | 307  | 384  | 461  | 537  | 614  | 691  | 768  |
| 484              | 77                                                                                             | 155  | 232  | 309  | 387  | 464  | 541  | 618  | 696  | 773  |
| 485              | 78                                                                                             | 156  | 234  | 311  | 389  | 467  | 545  | 623  | 701  | 778  |
| 486              | 78                                                                                             | 157  | 235  | 313  | 392  | 470  | 549  | 627  | 705  | 784  |
| 487              | 79                                                                                             | 158  | 237  | 316  | 395  | 473  | 552  | 631  | 710  | 789  |
| 488              | 79                                                                                             | 159  | 238  | 318  | 397  | 477  | 556  | 636  | 715  | 794  |
| 489              | 80                                                                                             | 160  | 240  | 320  | 400  | 480  | 560  | 640  | 720  | 800  |
| 490              | 81                                                                                             | 161  | 242  | 322  | 403  | 483  | 564  | 644  | 725  | 805  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 491              | 81                                                                                             | 162  | 243  | 324  | 405  | 486  | 567  | 648  | 729  | 810  |
| 492              | 82                                                                                             | 163  | 245  | 326  | 408  | 489  | 571  | 653  | 734  | 816  |
| 493              | 82                                                                                             | 164  | 246  | 328  | 411  | 493  | 575  | 657  | 739  | 821  |
| 494              | 83                                                                                             | 165  | 248  | 331  | 413  | 496  | 578  | 661  | 744  | 826  |
| 495              | 83                                                                                             | 166  | 250  | 333  | 416  | 499  | 582  | 665  | 749  | 832  |
| 496              | 84                                                                                             | 167  | 251  | 335  | 419  | 502  | 586  | 670  | 753  | 837  |
| 497              | 84                                                                                             | 168  | 253  | 337  | 421  | 505  | 590  | 674  | 758  | 842  |
| 498              | 85                                                                                             | 170  | 254  | 339  | 424  | 509  | 593  | 678  | 763  | 848  |
| 499              | 85                                                                                             | 171  | 256  | 341  | 427  | 512  | 597  | 682  | 768  | 853  |
| 500              | 86                                                                                             | 172  | 258  | 343  | 429  | 515  | 601  | 687  | 773  | 858  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 5 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 501              | 86                                                                                             | 173  | 259  | 345  | 432  | 518  | 605  | 691  | 777  | 864  |
| 502              | 87                                                                                             | 174  | 261  | 348  | 435  | 521  | 608  | 695  | 782  | 869  |
| 503              | 87                                                                                             | 175  | 262  | 350  | 437  | 525  | 612  | 699  | 787  | 874  |
| 504              | 88                                                                                             | 176  | 264  | 352  | 440  | 528  | 616  | 704  | 792  | 880  |
| 505              | 89                                                                                             | 177  | 266  | 354  | 443  | 531  | 620  | 708  | 797  | 885  |
| 506              | 89                                                                                             | 178  | 267  | 356  | 445  | 534  | 623  | 712  | 801  | 890  |
| 507              | 90                                                                                             | 179  | 269  | 358  | 448  | 537  | 627  | 717  | 806  | 896  |
| 508              | 90                                                                                             | 180  | 270  | 360  | 451  | 541  | 631  | 721  | 811  | 901  |
| 509              | 91                                                                                             | 181  | 272  | 363  | 453  | 544  | 634  | 725  | 816  | 906  |
| 510              | 91                                                                                             | 182  | 273  | 364  | 456  | 547  | 638  | 729  | 820  | 911  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 511              | 92                                                                                             | 183  | 275  | 366  | 458  | 549  | 641  | 732  | 824  | 915  |
| 512              | 92                                                                                             | 184  | 276  | 368  | 460  | 552  | 643  | 735  | 827  | 919  |
| 513              | 92                                                                                             | 185  | 277  | 369  | 462  | 554  | 646  | 739  | 831  | 923  |
| 514              | 93                                                                                             | 185  | 278  | 371  | 464  | 556  | 649  | 742  | 835  | 927  |
| 515              | 93                                                                                             | 186  | 279  | 373  | 466  | 559  | 652  | 745  | 838  | 931  |
| 516              | 94                                                                                             | 187  | 281  | 374  | 468  | 561  | 655  | 748  | 842  | 936  |
| 517              | 94                                                                                             | 188  | 282  | 376  | 470  | 564  | 658  | 752  | 846  | 940  |
| 518              | 94                                                                                             | 189  | 283  | 377  | 472  | 566  | 661  | 755  | 849  | 944  |
| 519              | 95                                                                                             | 190  | 284  | 379  | 474  | 569  | 663  | 758  | 853  | 948  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 520              | 95                                                                                             | 190  | 286  | 381  | 476  | 571  | 666  | 761  | 857  | 952  |
| 521              | 96                                                                                             | 191  | 287  | 382  | 478  | 574  | 669  | 765  | 860  | 956  |
| 522              | 96                                                                                             | 192  | 288  | 384  | 480  | 576  | 672  | 768  | 864  | 960  |
| 523              | 96                                                                                             | 193  | 289  | 386  | 482  | 578  | 675  | 771  | 868  | 964  |
| 524              | 97                                                                                             | 194  | 290  | 387  | 484  | 581  | 678  | 775  | 871  | 968  |
| 525              | 97                                                                                             | 194  | 292  | 389  | 486  | 583  | 681  | 778  | 875  | 972  |
| 526              | 98                                                                                             | 195  | 293  | 391  | 488  | 586  | 683  | 781  | 879  | 976  |
| 527              | 98                                                                                             | 196  | 294  | 392  | 490  | 588  | 686  | 784  | 882  | 980  |
| 528              | 98                                                                                             | 197  | 295  | 394  | 492  | 591  | 689  | 788  | 886  | 984  |
| 529              | 99                                                                                             | 198  | 297  | 395  | 494  | 593  | 692  | 791  | 890  | 989  |
| 530              | 99                                                                                             | 199  | 298  | 397  | 496  | 596  | 695  | 794  | 893  | 993  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 531              | 100                                                                                            | 199  | 299  | 399  | 498  | 598  | 698  | 797  | 897  | 997  |
| 532              | 100                                                                                            | 200  | 300  | 400  | 500  | 600  | 701  | 801  | 901  | 1001 |
| 533              | 100                                                                                            | 201  | 301  | 402  | 502  | 603  | 703  | 804  | 904  | 1005 |
| 534              | 101                                                                                            | 202  | 303  | 404  | 504  | 605  | 706  | 807  | 908  | 1009 |
| 535              | 101                                                                                            | 203  | 304  | 405  | 507  | 608  | 709  | 810  | 912  | 1013 |
| 536              | 102                                                                                            | 203  | 305  | 407  | 509  | 610  | 712  | 814  | 915  | 1017 |
| 537              | 102                                                                                            | 204  | 306  | 408  | 511  | 613  | 715  | 817  | 919  | 1021 |
| 538              | 103                                                                                            | 205  | 308  | 410  | 513  | 615  | 718  | 820  | 923  | 1025 |
| 539              | 103                                                                                            | 206  | 309  | 412  | 515  | 618  | 721  | 823  | 926  | 1029 |
| 540              | 103                                                                                            | 207  | 310  | 413  | 517  | 620  | 723  | 827  | 930  | 1033 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 541              | 104                                                                                            | 208  | 311  | 415  | 519  | 623  | 726  | 830  | 934  | 1038 |
| 542              | 104                                                                                            | 208  | 312  | 417  | 521  | 625  | 729  | 833  | 937  | 1042 |
| 543              | 105                                                                                            | 209  | 314  | 418  | 523  | 627  | 732  | 837  | 941  | 1046 |
| 544              | 105                                                                                            | 210  | 315  | 420  | 525  | 630  | 735  | 840  | 945  | 1050 |
| 545              | 105                                                                                            | 211  | 316  | 422  | 527  | 632  | 738  | 843  | 948  | 1054 |
| 546              | 106                                                                                            | 212  | 317  | 423  | 529  | 635  | 741  | 846  | 952  | 1058 |
| 547              | 106                                                                                            | 212  | 319  | 425  | 531  | 637  | 743  | 850  | 956  | 1062 |
| 548              | 107                                                                                            | 213  | 320  | 426  | 533  | 640  | 746  | 853  | 959  | 1066 |
| 549              | 107                                                                                            | 214  | 321  | 428  | 535  | 642  | 749  | 856  | 963  | 1070 |
| 550              | 107                                                                                            | 215  | 322  | 430  | 537  | 645  | 752  | 859  | 967  | 1074 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 5 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 551              | 108                                                                                            | 216  | 323  | 431  | 539  | 647  | 755  | 863  | 970  | 1078 |
| 552              | 108                                                                                            | 216  | 325  | 433  | 541  | 649  | 758  | 866  | 974  | 1082 |
| 553              | 109                                                                                            | 217  | 326  | 435  | 543  | 652  | 761  | 869  | 978  | 1086 |
| 554              | 109                                                                                            | 218  | 327  | 436  | 545  | 654  | 763  | 872  | 982  | 1091 |
| 555              | 109                                                                                            | 219  | 328  | 438  | 547  | 657  | 766  | 876  | 985  | 1095 |
| 556              | 110                                                                                            | 220  | 330  | 439  | 549  | 659  | 769  | 879  | 989  | 1099 |
| 557              | 110                                                                                            | 221  | 331  | 441  | 551  | 662  | 772  | 882  | 993  | 1103 |
| 558              | 111                                                                                            | 221  | 332  | 443  | 553  | 664  | 775  | 886  | 996  | 1107 |
| 559              | 111                                                                                            | 222  | 333  | 444  | 555  | 667  | 778  | 889  | 1000 | 1111 |
| 560              | 111                                                                                            | 223  | 334  | 446  | 557  | 669  | 780  | 892  | 1003 | 1115 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 561              | 112                                                                                            | 224  | 336  | 447  | 559  | 671  | 783  | 895  | 1007 | 1118 |
| 562              | 112                                                                                            | 224  | 337  | 449  | 561  | 673  | 785  | 898  | 1010 | 1122 |
| 563              | 113                                                                                            | 225  | 338  | 450  | 563  | 675  | 788  | 901  | 1013 | 1126 |
| 564              | 113                                                                                            | 226  | 339  | 452  | 565  | 678  | 791  | 903  | 1016 | 1129 |
| 565              | 113                                                                                            | 227  | 340  | 453  | 566  | 680  | 793  | 906  | 1020 | 1133 |
| 566              | 114                                                                                            | 227  | 341  | 455  | 568  | 682  | 796  | 909  | 1023 | 1137 |
| 567              | 114                                                                                            | 228  | 342  | 456  | 570  | 684  | 798  | 912  | 1026 | 1140 |
| 568              | 114                                                                                            | 229  | 343  | 458  | 572  | 686  | 801  | 915  | 1030 | 1144 |
| 569              | 115                                                                                            | 230  | 344  | 459  | 574  | 689  | 803  | 918  | 1033 | 1148 |
| 570              | 115                                                                                            | 230  | 345  | 460  | 576  | 691  | 806  | 921  | 1036 | 1151 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 571              | 115                                                                                            | 231  | 346  | 462  | 577  | 693  | 808  | 924  | 1039 | 1155 |
| 572              | 116                                                                                            | 232  | 348  | 463  | 579  | 695  | 811  | 927  | 1043 | 1158 |
| 573              | 116                                                                                            | 232  | 349  | 465  | 581  | 697  | 813  | 930  | 1046 | 1162 |
| 574              | 117                                                                                            | 233  | 350  | 466  | 583  | 699  | 816  | 933  | 1049 | 1166 |
| 575              | 117                                                                                            | 234  | 351  | 468  | 585  | 702  | 819  | 935  | 1052 | 1169 |
| 576              | 117                                                                                            | 235  | 352  | 469  | 586  | 704  | 821  | 938  | 1056 | 1173 |
| 577              | 118                                                                                            | 235  | 353  | 471  | 588  | 706  | 824  | 941  | 1059 | 1177 |
| 578              | 118                                                                                            | 236  | 354  | 472  | 590  | 708  | 826  | 944  | 1062 | 1180 |
| 579              | 118                                                                                            | 237  | 355  | 474  | 592  | 710  | 829  | 947  | 1065 | 1184 |
| 580              | 119                                                                                            | 238  | 356  | 475  | 594  | 713  | 831  | 950  | 1069 | 1188 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 5 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 6 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 405              | 0                                                                                              | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 406              | 26                                                                                             | 28   | 30   | 33   | 35   | 37   | 40   | 42   | 44   | 47   |
| 407              | 51                                                                                             | 56   | 61   | 65   | 70   | 75   | 79   | 84   | 89   | 93   |
| 408              | 77                                                                                             | 84   | 91   | 98   | 105  | 112  | 119  | 126  | 133  | 140  |
| 409              | 103                                                                                            | 112  | 121  | 130  | 140  | 149  | 158  | 168  | 177  | 186  |
| 410              | 128                                                                                            | 140  | 151  | 163  | 175  | 186  | 198  | 210  | 221  | 233  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 411              | 154                                                                                            | 168  | 182  | 196  | 210  | 224  | 238  | 252  | 266  | 280  |
| 412              | 179                                                                                            | 196  | 212  | 228  | 245  | 261  | 277  | 294  | 310  | 326  |
| 413              | 205                                                                                            | 224  | 242  | 261  | 280  | 298  | 317  | 335  | 354  | 373  |
| 414              | 231                                                                                            | 252  | 273  | 294  | 315  | 335  | 356  | 377  | 398  | 419  |
| 415              | 250                                                                                            | 272  | 295  | 318  | 341  | 363  | 386  | 409  | 431  | 454  |
| 416              | 265                                                                                            | 289  | 313  | 337  | 361  | 385  | 409  | 433  | 457  | 481  |
| 417              | 279                                                                                            | 305  | 330  | 355  | 381  | 406  | 432  | 457  | 482  | 508  |
| 418              | 294                                                                                            | 321  | 348  | 374  | 401  | 428  | 455  | 481  | 508  | 535  |
| 419              | 309                                                                                            | 337  | 365  | 393  | 421  | 449  | 477  | 505  | 533  | 562  |
| 420              | 322                                                                                            | 352  | 381  | 410  | 440  | 469  | 498  | 528  | 557  | 586  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 421              | 335                                                                                            | 365  | 395  | 426  | 456  | 487  | 517  | 548  | 578  | 608  |
| 422              | 347                                                                                            | 378  | 410  | 441  | 473  | 505  | 536  | 568  | 599  | 631  |
| 423              | 359                                                                                            | 392  | 424  | 457  | 490  | 522  | 555  | 588  | 620  | 653  |
| 424              | 371                                                                                            | 405  | 439  | 473  | 506  | 540  | 574  | 608  | 641  | 675  |
| 425              | 384                                                                                            | 418  | 453  | 488  | 523  | 558  | 593  | 628  | 663  | 697  |
| 426              | 396                                                                                            | 432  | 468  | 504  | 540  | 576  | 612  | 648  | 684  | 720  |
| 427              | 408                                                                                            | 445  | 482  | 519  | 557  | 594  | 631  | 668  | 705  | 742  |
| 428              | 420                                                                                            | 459  | 497  | 535  | 573  | 611  | 650  | 688  | 726  | 764  |
| 429              | 433                                                                                            | 472  | 511  | 551  | 590  | 629  | 669  | 708  | 747  | 787  |
| 430              | 445                                                                                            | 485  | 526  | 566  | 607  | 647  | 687  | 728  | 768  | 809  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 431              | 457                                                                                            | 499  | 540  | 582  | 623  | 665  | 706  | 748  | 790  | 831  |
| 432              | 469                                                                                            | 512  | 555  | 597  | 640  | 683  | 725  | 768  | 811  | 853  |
| 433              | 482                                                                                            | 525  | 569  | 613  | 657  | 700  | 744  | 788  | 832  | 876  |
| 434              | 494                                                                                            | 539  | 584  | 629  | 673  | 718  | 763  | 808  | 853  | 898  |
| 435              | 504                                                                                            | 550  | 596  | 642  | 687  | 733  | 779  | 825  | 871  | 917  |
| 436              | 512                                                                                            | 559  | 606  | 652  | 699  | 745  | 792  | 838  | 885  | 932  |
| 437              | 521                                                                                            | 568  | 615  | 663  | 710  | 757  | 805  | 852  | 899  | 947  |
| 438              | 529                                                                                            | 577  | 625  | 673  | 721  | 769  | 817  | 865  | 914  | 962  |
| 439              | 537                                                                                            | 586  | 635  | 684  | 733  | 781  | 830  | 879  | 928  | 977  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 440              | 545                                                                                            | 595  | 645  | 694  | 744  | 793  | 843  | 893  | 942  | 992  |
| 441              | 554                                                                                            | 604  | 654  | 705  | 755  | 805  | 856  | 906  | 956  | 1007 |
| 442              | 562                                                                                            | 613  | 664  | 715  | 766  | 817  | 869  | 920  | 971  | 1022 |
| 443              | 570                                                                                            | 622  | 674  | 726  | 778  | 829  | 881  | 933  | 985  | 1037 |
| 444              | 579                                                                                            | 631  | 684  | 736  | 789  | 842  | 894  | 947  | 999  | 1052 |
| 445              | 587                                                                                            | 640  | 693  | 747  | 800  | 854  | 907  | 960  | 1014 | 1067 |
| 446              | 595                                                                                            | 649  | 703  | 757  | 811  | 866  | 920  | 974  | 1028 | 1082 |
| 447              | 603                                                                                            | 658  | 713  | 768  | 823  | 878  | 932  | 987  | 1042 | 1097 |
| 448              | 612                                                                                            | 667  | 723  | 778  | 834  | 890  | 945  | 1001 | 1056 | 1112 |
| 449              | 620                                                                                            | 676  | 733  | 789  | 845  | 902  | 958  | 1014 | 1071 | 1127 |
| 450              | 628                                                                                            | 685  | 742  | 799  | 857  | 914  | 971  | 1028 | 1085 | 1142 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 5 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 6 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 451              | 636                                                                                            | 694  | 752  | 810  | 868  | 926  | 984  | 1041 | 1099 | 1157 |
| 452              | 645                                                                                            | 703  | 762  | 821  | 879  | 938  | 996  | 1055 | 1114 | 1172 |
| 453              | 653                                                                                            | 712  | 772  | 831  | 890  | 950  | 1009 | 1069 | 1128 | 1187 |
| 454              | 661                                                                                            | 721  | 781  | 842  | 902  | 962  | 1022 | 1082 | 1142 | 1202 |
| 455              | 670                                                                                            | 730  | 791  | 852  | 913  | 974  | 1035 | 1096 | 1156 | 1217 |
| 456              | 678                                                                                            | 739  | 801  | 863  | 924  | 986  | 1048 | 1109 | 1171 | 1232 |
| 457              | 686                                                                                            | 748  | 811  | 873  | 936  | 998  | 1060 | 1123 | 1185 | 1247 |
| 458              | 694                                                                                            | 757  | 821  | 884  | 947  | 1010 | 1073 | 1136 | 1199 | 1262 |
| 459              | 703                                                                                            | 766  | 830  | 894  | 958  | 1022 | 1086 | 1150 | 1214 | 1277 |
| 460              | 710                                                                                            | 774  | 839  | 903  | 968  | 1032 | 1097 | 1161 | 1226 | 1290 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 461              | 716                                                                                            | 781  | 846  | 911  | 976  | 1041 | 1106 | 1171 | 1236 | 1301 |
| 462              | 721                                                                                            | 787  | 853  | 918  | 984  | 1049 | 1115 | 1180 | 1246 | 1312 |
| 463              | 727                                                                                            | 793  | 860  | 926  | 992  | 1058 | 1124 | 1190 | 1256 | 1322 |
| 464              | 733                                                                                            | 800  | 866  | 933  | 1000 | 1066 | 1133 | 1200 | 1266 | 1333 |
| 465              | 739                                                                                            | 806  | 873  | 941  | 1008 | 1075 | 1142 | 1209 | 1276 | 1344 |
| 466              | 745                                                                                            | 813  | 880  | 948  | 1016 | 1083 | 1151 | 1219 | 1287 | 1354 |
| 467              | 751                                                                                            | 819  | 887  | 955  | 1024 | 1092 | 1160 | 1228 | 1297 | 1365 |
| 468              | 757                                                                                            | 825  | 894  | 963  | 1032 | 1100 | 1169 | 1238 | 1307 | 1376 |
| 469              | 762                                                                                            | 832  | 901  | 970  | 1040 | 1109 | 1178 | 1248 | 1317 | 1386 |
| 470              | 768                                                                                            | 838  | 908  | 978  | 1048 | 1118 | 1187 | 1257 | 1327 | 1397 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 471              | 774                                                                                            | 845  | 915  | 985  | 1056 | 1126 | 1196 | 1267 | 1337 | 1408 |
| 472              | 780                                                                                            | 851  | 922  | 993  | 1064 | 1135 | 1206 | 1276 | 1347 | 1418 |
| 473              | 786                                                                                            | 857  | 929  | 1000 | 1072 | 1143 | 1215 | 1286 | 1357 | 1429 |
| 474              | 792                                                                                            | 864  | 936  | 1008 | 1080 | 1152 | 1224 | 1296 | 1368 | 1440 |
| 475              | 798                                                                                            | 870  | 943  | 1015 | 1088 | 1160 | 1233 | 1305 | 1378 | 1450 |
| 476              | 803                                                                                            | 877  | 950  | 1023 | 1096 | 1169 | 1242 | 1315 | 1388 | 1461 |
| 477              | 809                                                                                            | 883  | 957  | 1030 | 1104 | 1177 | 1251 | 1324 | 1398 | 1472 |
| 478              | 815                                                                                            | 889  | 963  | 1038 | 1112 | 1186 | 1260 | 1334 | 1408 | 1482 |
| 479              | 821                                                                                            | 896  | 970  | 1045 | 1120 | 1194 | 1269 | 1344 | 1418 | 1493 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 480              | 827                                                                                            | 902  | 977  | 1052 | 1128 | 1203 | 1278 | 1353 | 1428 | 1504 |
| 481              | 833                                                                                            | 909  | 984  | 1060 | 1136 | 1211 | 1287 | 1363 | 1438 | 1514 |
| 482              | 839                                                                                            | 915  | 991  | 1067 | 1144 | 1220 | 1296 | 1372 | 1449 | 1525 |
| 483              | 845                                                                                            | 921  | 998  | 1075 | 1152 | 1228 | 1305 | 1382 | 1459 | 1536 |
| 484              | 850                                                                                            | 928  | 1005 | 1082 | 1160 | 1237 | 1314 | 1392 | 1469 | 1546 |
| 485              | 856                                                                                            | 934  | 1012 | 1090 | 1168 | 1245 | 1323 | 1401 | 1479 | 1557 |
| 486              | 862                                                                                            | 940  | 1019 | 1097 | 1176 | 1254 | 1332 | 1411 | 1489 | 1567 |
| 487              | 868                                                                                            | 947  | 1026 | 1105 | 1184 | 1263 | 1341 | 1420 | 1499 | 1578 |
| 488              | 874                                                                                            | 953  | 1033 | 1112 | 1192 | 1271 | 1350 | 1430 | 1509 | 1589 |
| 489              | 880                                                                                            | 960  | 1040 | 1120 | 1200 | 1280 | 1360 | 1440 | 1519 | 1599 |
| 490              | 886                                                                                            | 966  | 1047 | 1127 | 1208 | 1288 | 1369 | 1449 | 1530 | 1610 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 491              | 891                                                                                            | 972  | 1054 | 1135 | 1216 | 1297 | 1378 | 1459 | 1540 | 1621 |
| 492              | 897                                                                                            | 979  | 1060 | 1142 | 1224 | 1305 | 1387 | 1468 | 1550 | 1631 |
| 493              | 903                                                                                            | 985  | 1067 | 1149 | 1232 | 1314 | 1396 | 1478 | 1560 | 1642 |
| 494              | 909                                                                                            | 992  | 1074 | 1157 | 1240 | 1322 | 1405 | 1487 | 1570 | 1653 |
| 495              | 915                                                                                            | 998  | 1081 | 1164 | 1248 | 1331 | 1414 | 1497 | 1580 | 1663 |
| 496              | 921                                                                                            | 1004 | 1088 | 1172 | 1256 | 1339 | 1423 | 1507 | 1590 | 1674 |
| 497              | 927                                                                                            | 1011 | 1095 | 1179 | 1264 | 1348 | 1432 | 1516 | 1601 | 1685 |
| 498              | 932                                                                                            | 1017 | 1102 | 1187 | 1272 | 1356 | 1441 | 1526 | 1611 | 1695 |
| 499              | 938                                                                                            | 1024 | 1109 | 1194 | 1280 | 1365 | 1450 | 1535 | 1621 | 1706 |
| 500              | 944                                                                                            | 1030 | 1116 | 1202 | 1288 | 1373 | 1459 | 1545 | 1631 | 1717 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 5 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 6 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 501              | 950                                                                                            | 1036 | 1123 | 1209 | 1296 | 1382 | 1468 | 1555 | 1641 | 1727 |
| 502              | 956                                                                                            | 1043 | 1130 | 1217 | 1304 | 1390 | 1477 | 1564 | 1651 | 1738 |
| 503              | 962                                                                                            | 1049 | 1137 | 1224 | 1312 | 1399 | 1486 | 1574 | 1661 | 1749 |
| 504              | 968                                                                                            | 1056 | 1144 | 1232 | 1320 | 1407 | 1495 | 1583 | 1671 | 1759 |
| 505              | 974                                                                                            | 1062 | 1151 | 1239 | 1328 | 1416 | 1505 | 1593 | 1682 | 1770 |
| 506              | 979                                                                                            | 1068 | 1157 | 1246 | 1336 | 1425 | 1514 | 1603 | 1692 | 1781 |
| 507              | 985                                                                                            | 1075 | 1164 | 1254 | 1344 | 1433 | 1523 | 1612 | 1702 | 1791 |
| 508              | 991                                                                                            | 1081 | 1171 | 1261 | 1352 | 1442 | 1532 | 1622 | 1712 | 1802 |
| 509              | 997                                                                                            | 1088 | 1178 | 1269 | 1360 | 1450 | 1541 | 1631 | 1722 | 1813 |
| 510              | 1002                                                                                           | 1093 | 1184 | 1275 | 1367 | 1458 | 1549 | 1640 | 1731 | 1822 |
| 511              | 1007                                                                                           | 1098 | 1190 | 1281 | 1373 | 1464 | 1556 | 1647 | 1739 | 1830 |
| 512              | 1011                                                                                           | 1103 | 1195 | 1287 | 1379 | 1471 | 1563 | 1655 | 1746 | 1838 |
| 513              | 1016                                                                                           | 1108 | 1200 | 1293 | 1385 | 1477 | 1570 | 1662 | 1754 | 1847 |
| 514              | 1020                                                                                           | 1113 | 1206 | 1298 | 1391 | 1484 | 1577 | 1669 | 1762 | 1855 |
| 515              | 1025                                                                                           | 1118 | 1211 | 1304 | 1397 | 1490 | 1583 | 1677 | 1770 | 1863 |
| 516              | 1029                                                                                           | 1123 | 1216 | 1310 | 1403 | 1497 | 1590 | 1684 | 1777 | 1871 |
| 517              | 1034                                                                                           | 1128 | 1221 | 1315 | 1409 | 1503 | 1597 | 1691 | 1785 | 1879 |
| 518              | 1038                                                                                           | 1132 | 1227 | 1321 | 1416 | 1510 | 1604 | 1699 | 1793 | 1887 |
| 519              | 1043                                                                                           | 1137 | 1232 | 1327 | 1422 | 1516 | 1611 | 1706 | 1801 | 1896 |
| 520              | 1047                                                                                           | 1142 | 1237 | 1333 | 1428 | 1523 | 1618 | 1713 | 1808 | 1904 |
| 521              | 1052                                                                                           | 1147 | 1243 | 1338 | 1434 | 1529 | 1625 | 1721 | 1816 | 1912 |
| 522              | 1056                                                                                           | 1152 | 1248 | 1344 | 1440 | 1536 | 1632 | 1728 | 1824 | 1920 |
| 523              | 1060                                                                                           | 1157 | 1253 | 1350 | 1446 | 1543 | 1639 | 1735 | 1832 | 1928 |
| 524              | 1065                                                                                           | 1162 | 1259 | 1355 | 1452 | 1549 | 1646 | 1743 | 1840 | 1936 |
| 525              | 1069                                                                                           | 1167 | 1264 | 1361 | 1458 | 1556 | 1653 | 1750 | 1847 | 1944 |
| 526              | 1074                                                                                           | 1172 | 1269 | 1367 | 1464 | 1562 | 1660 | 1757 | 1855 | 1953 |
| 527              | 1078                                                                                           | 1176 | 1275 | 1373 | 1471 | 1569 | 1667 | 1765 | 1863 | 1961 |
| 528              | 1083                                                                                           | 1181 | 1280 | 1378 | 1477 | 1575 | 1674 | 1772 | 1871 | 1969 |
| 529              | 1087                                                                                           | 1186 | 1285 | 1384 | 1483 | 1582 | 1681 | 1779 | 1878 | 1977 |
| 530              | 1092                                                                                           | 1191 | 1290 | 1390 | 1489 | 1588 | 1687 | 1787 | 1886 | 1985 |
| 531              | 1096                                                                                           | 1196 | 1296 | 1395 | 1495 | 1595 | 1694 | 1794 | 1894 | 1993 |
| 532              | 1101                                                                                           | 1201 | 1301 | 1401 | 1501 | 1601 | 1701 | 1801 | 1902 | 2002 |
| 533              | 1105                                                                                           | 1206 | 1306 | 1407 | 1507 | 1608 | 1708 | 1809 | 1909 | 2010 |
| 534              | 1110                                                                                           | 1211 | 1312 | 1413 | 1513 | 1614 | 1715 | 1816 | 1917 | 2018 |
| 535              | 1114                                                                                           | 1216 | 1317 | 1418 | 1520 | 1621 | 1722 | 1823 | 1925 | 2026 |
| 536              | 1119                                                                                           | 1221 | 1322 | 1424 | 1526 | 1627 | 1729 | 1831 | 1933 | 2034 |
| 537              | 1123                                                                                           | 1225 | 1328 | 1430 | 1532 | 1634 | 1736 | 1838 | 1940 | 2042 |
| 538              | 1128                                                                                           | 1230 | 1333 | 1435 | 1538 | 1640 | 1743 | 1846 | 1948 | 2051 |
| 539              | 1132                                                                                           | 1235 | 1338 | 1441 | 1544 | 1647 | 1750 | 1853 | 1956 | 2059 |
| 540              | 1137                                                                                           | 1240 | 1343 | 1447 | 1550 | 1654 | 1757 | 1860 | 1964 | 2067 |
| 541              | 1141                                                                                           | 1245 | 1349 | 1453 | 1556 | 1660 | 1764 | 1868 | 1971 | 2075 |
| 542              | 1146                                                                                           | 1250 | 1354 | 1458 | 1562 | 1667 | 1771 | 1875 | 1979 | 2083 |
| 543              | 1150                                                                                           | 1255 | 1359 | 1464 | 1569 | 1673 | 1778 | 1882 | 1987 | 2091 |
| 544              | 1155                                                                                           | 1260 | 1365 | 1470 | 1575 | 1680 | 1785 | 1890 | 1995 | 2100 |
| 545              | 1159                                                                                           | 1265 | 1370 | 1475 | 1581 | 1686 | 1792 | 1897 | 2002 | 2108 |
| 546              | 1164                                                                                           | 1270 | 1375 | 1481 | 1587 | 1693 | 1798 | 1904 | 2010 | 2116 |
| 547              | 1168                                                                                           | 1274 | 1381 | 1487 | 1593 | 1699 | 1805 | 1912 | 2018 | 2124 |
| 548              | 1173                                                                                           | 1279 | 1386 | 1493 | 1599 | 1706 | 1812 | 1919 | 2026 | 2132 |
| 549              | 1177                                                                                           | 1284 | 1391 | 1498 | 1605 | 1712 | 1819 | 1926 | 2033 | 2140 |
| 550              | 1182                                                                                           | 1289 | 1397 | 1504 | 1611 | 1719 | 1826 | 1934 | 2041 | 2148 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 5 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 6 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 551              | 1186                                                                                           | 1294 | 1402 | 1510 | 1617 | 1725 | 1833 | 1941 | 2049 | 2157 |
| 552              | 1191                                                                                           | 1299 | 1407 | 1515 | 1624 | 1732 | 1840 | 1948 | 2057 | 2165 |
| 553              | 1195                                                                                           | 1304 | 1412 | 1521 | 1630 | 1738 | 1847 | 1956 | 2064 | 2173 |
| 554              | 1200                                                                                           | 1309 | 1418 | 1527 | 1636 | 1745 | 1854 | 1963 | 2072 | 2181 |
| 555              | 1204                                                                                           | 1314 | 1423 | 1532 | 1642 | 1751 | 1861 | 1970 | 2080 | 2189 |
| 556              | 1209                                                                                           | 1318 | 1428 | 1538 | 1648 | 1758 | 1868 | 1978 | 2088 | 2197 |
| 557              | 1213                                                                                           | 1323 | 1434 | 1544 | 1654 | 1764 | 1875 | 1985 | 2095 | 2206 |
| 558              | 1218                                                                                           | 1328 | 1439 | 1550 | 1660 | 1771 | 1882 | 1992 | 2103 | 2214 |
| 559              | 1222                                                                                           | 1333 | 1444 | 1555 | 1666 | 1778 | 1889 | 2000 | 2111 | 2222 |
| 560              | 1226                                                                                           | 1338 | 1449 | 1561 | 1672 | 1784 | 1895 | 2007 | 2118 | 2230 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 561              | 1230                                                                                           | 1342 | 1454 | 1566 | 1678 | 1790 | 1901 | 2013 | 2125 | 2237 |
| 562              | 1234                                                                                           | 1347 | 1459 | 1571 | 1683 | 1795 | 1908 | 2020 | 2132 | 2244 |
| 563              | 1238                                                                                           | 1351 | 1463 | 1576 | 1689 | 1801 | 1914 | 2026 | 2139 | 2251 |
| 564              | 1242                                                                                           | 1355 | 1468 | 1581 | 1694 | 1807 | 1920 | 2033 | 2146 | 2259 |
| 565              | 1246                                                                                           | 1360 | 1473 | 1586 | 1699 | 1813 | 1926 | 2039 | 2153 | 2266 |
| 566              | 1250                                                                                           | 1364 | 1478 | 1591 | 1705 | 1819 | 1932 | 2046 | 2160 | 2273 |
| 567              | 1254                                                                                           | 1368 | 1482 | 1596 | 1710 | 1824 | 1938 | 2052 | 2166 | 2281 |
| 568              | 1258                                                                                           | 1373 | 1487 | 1601 | 1716 | 1830 | 1945 | 2059 | 2173 | 2288 |
| 569              | 1262                                                                                           | 1377 | 1492 | 1607 | 1721 | 1836 | 1951 | 2066 | 2180 | 2295 |
| 570              | 1266                                                                                           | 1381 | 1497 | 1612 | 1727 | 1842 | 1957 | 2072 | 2187 | 2302 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 571              | 1270                                                                                           | 1386 | 1501 | 1617 | 1732 | 1848 | 1963 | 2079 | 2194 | 2310 |
| 572              | 1274                                                                                           | 1390 | 1506 | 1622 | 1738 | 1853 | 1969 | 2085 | 2201 | 2317 |
| 573              | 1278                                                                                           | 1394 | 1511 | 1627 | 1743 | 1859 | 1976 | 2092 | 2208 | 2324 |
| 574              | 1282                                                                                           | 1399 | 1515 | 1632 | 1749 | 1865 | 1982 | 2098 | 2215 | 2331 |
| 575              | 1286                                                                                           | 1403 | 1520 | 1637 | 1754 | 1871 | 1988 | 2105 | 2222 | 2339 |
| 576              | 1290                                                                                           | 1408 | 1525 | 1642 | 1759 | 1877 | 1994 | 2111 | 2229 | 2346 |
| 577              | 1294                                                                                           | 1412 | 1530 | 1647 | 1765 | 1883 | 2000 | 2118 | 2236 | 2353 |
| 578              | 1298                                                                                           | 1416 | 1534 | 1652 | 1770 | 1888 | 2006 | 2124 | 2242 | 2360 |
| 579              | 1302                                                                                           | 1421 | 1539 | 1657 | 1776 | 1894 | 2013 | 2131 | 2249 | 2368 |
| 580              | 1306                                                                                           | 1425 | 1544 | 1663 | 1781 | 1900 | 2019 | 2138 | 2256 | 2375 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 6 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 405              | 0                                                                                              | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 406              | 3                                                                                              | 5    | 8    | 10   | 13   | 16   | 18   | 21   | 23   | 26   |
| 407              | 5                                                                                              | 10   | 16   | 21   | 26   | 31   | 37   | 42   | 47   | 52   |
| 408              | 8                                                                                              | 16   | 23   | 31   | 39   | 47   | 55   | 63   | 70   | 78   |
| 409              | 10                                                                                             | 21   | 31   | 42   | 52   | 63   | 73   | 84   | 94   | 104  |
| 410              | 13                                                                                             | 26   | 39   | 52   | 65   | 78   | 91   | 104  | 117  | 131  |
| 411              | 16                                                                                             | 31   | 47   | 63   | 78   | 94   | 110  | 125  | 141  | 157  |
| 412              | 18                                                                                             | 37   | 55   | 73   | 91   | 110  | 128  | 146  | 164  | 183  |
| 413              | 21                                                                                             | 42   | 63   | 84   | 104  | 125  | 146  | 167  | 188  | 209  |
| 414              | 23                                                                                             | 47   | 70   | 94   | 117  | 141  | 164  | 188  | 211  | 235  |
| 415              | 26                                                                                             | 52   | 78   | 104  | 131  | 157  | 183  | 209  | 235  | 261  |
| 416              | 28                                                                                             | 56   | 84   | 112  | 140  | 168  | 196  | 224  | 252  | 280  |
| 417              | 29                                                                                             | 59   | 88   | 117  | 147  | 176  | 205  | 235  | 264  | 293  |
| 418              | 31                                                                                             | 61   | 92   | 123  | 154  | 184  | 215  | 246  | 276  | 307  |
| 419              | 32                                                                                             | 64   | 96   | 128  | 160  | 192  | 225  | 257  | 289  | 321  |
| 420              | 33                                                                                             | 67   | 100  | 134  | 167  | 201  | 234  | 268  | 301  | 335  |
| 421              | 35                                                                                             | 70   | 104  | 139  | 174  | 209  | 244  | 278  | 313  | 348  |
| 422              | 36                                                                                             | 72   | 108  | 144  | 181  | 217  | 253  | 289  | 325  | 361  |
| 423              | 37                                                                                             | 75   | 112  | 150  | 187  | 225  | 262  | 299  | 337  | 374  |
| 424              | 39                                                                                             | 77   | 116  | 155  | 194  | 232  | 271  | 310  | 349  | 387  |
| 425              | 40                                                                                             | 80   | 120  | 160  | 200  | 240  | 280  | 320  | 361  | 401  |
| 426              | 41                                                                                             | 83   | 124  | 165  | 207  | 248  | 290  | 331  | 372  | 414  |
| 427              | 43                                                                                             | 85   | 128  | 171  | 213  | 256  | 299  | 342  | 384  | 427  |
| 428              | 44                                                                                             | 88   | 132  | 176  | 220  | 264  | 308  | 352  | 396  | 440  |
| 429              | 45                                                                                             | 91   | 136  | 181  | 227  | 272  | 317  | 363  | 408  | 453  |
| 430              | 47                                                                                             | 93   | 140  | 187  | 233  | 280  | 326  | 373  | 420  | 466  |
| 431              | 48                                                                                             | 96   | 144  | 192  | 240  | 288  | 336  | 384  | 432  | 480  |
| 432              | 49                                                                                             | 99   | 148  | 197  | 246  | 296  | 345  | 394  | 443  | 493  |
| 433              | 51                                                                                             | 101  | 152  | 202  | 253  | 304  | 354  | 405  | 455  | 506  |
| 434              | 52                                                                                             | 104  | 156  | 208  | 260  | 311  | 363  | 415  | 467  | 519  |
| 435              | 53                                                                                             | 106  | 160  | 213  | 266  | 319  | 373  | 426  | 479  | 532  |
| 436              | 54                                                                                             | 109  | 163  | 217  | 271  | 326  | 380  | 434  | 489  | 543  |
| 437              | 55                                                                                             | 110  | 166  | 221  | 276  | 331  | 386  | 441  | 497  | 552  |
| 438              | 56                                                                                             | 112  | 168  | 224  | 280  | 336  | 392  | 449  | 505  | 561  |
| 439              | 57                                                                                             | 114  | 171  | 228  | 285  | 342  | 399  | 456  | 513  | 570  |
| 440              | 58                                                                                             | 116  | 174  | 231  | 289  | 347  | 405  | 463  | 521  | 579  |
| 441              | 59                                                                                             | 117  | 176  | 235  | 294  | 352  | 411  | 470  | 529  | 587  |
| 442              | 60                                                                                             | 119  | 179  | 239  | 298  | 358  | 417  | 477  | 537  | 596  |
| 443              | 61                                                                                             | 121  | 182  | 242  | 303  | 363  | 424  | 484  | 545  | 605  |
| 444              | 61                                                                                             | 123  | 184  | 246  | 307  | 369  | 430  | 491  | 553  | 614  |
| 445              | 62                                                                                             | 125  | 187  | 249  | 312  | 374  | 436  | 499  | 561  | 623  |
| 446              | 63                                                                                             | 126  | 190  | 253  | 316  | 379  | 442  | 506  | 569  | 632  |
| 447              | 64                                                                                             | 128  | 192  | 256  | 320  | 385  | 449  | 513  | 577  | 641  |
| 448              | 65                                                                                             | 130  | 195  | 260  | 325  | 390  | 455  | 520  | 585  | 650  |
| 449              | 66                                                                                             | 132  | 198  | 264  | 329  | 395  | 461  | 527  | 593  | 659  |
| 450              | 67                                                                                             | 134  | 200  | 267  | 334  | 401  | 467  | 534  | 601  | 668  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 6 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 451              | 68                                                                                             | 135  | 203  | 271  | 338  | 406  | 474  | 541  | 609  | 677  |
| 452              | 69                                                                                             | 137  | 206  | 274  | 343  | 411  | 480  | 548  | 617  | 686  |
| 453              | 69                                                                                             | 139  | 208  | 278  | 347  | 417  | 486  | 556  | 625  | 694  |
| 454              | 70                                                                                             | 141  | 211  | 281  | 352  | 422  | 492  | 563  | 633  | 703  |
| 455              | 71                                                                                             | 142  | 214  | 285  | 356  | 427  | 499  | 570  | 641  | 712  |
| 456              | 72                                                                                             | 144  | 216  | 289  | 361  | 433  | 505  | 577  | 649  | 721  |
| 457              | 73                                                                                             | 146  | 219  | 292  | 365  | 438  | 511  | 584  | 657  | 730  |
| 458              | 74                                                                                             | 148  | 222  | 296  | 370  | 443  | 517  | 591  | 665  | 739  |
| 459              | 75                                                                                             | 150  | 224  | 299  | 374  | 449  | 524  | 598  | 673  | 748  |
| 460              | 76                                                                                             | 151  | 227  | 303  | 378  | 454  | 530  | 606  | 681  | 757  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 461              | 76                                                                                             | 153  | 229  | 306  | 382  | 459  | 535  | 611  | 688  | 764  |
| 462              | 77                                                                                             | 154  | 231  | 308  | 385  | 462  | 539  | 616  | 694  | 771  |
| 463              | 78                                                                                             | 155  | 233  | 311  | 388  | 466  | 544  | 622  | 699  | 777  |
| 464              | 78                                                                                             | 157  | 235  | 313  | 392  | 470  | 548  | 627  | 705  | 783  |
| 465              | 79                                                                                             | 158  | 237  | 316  | 395  | 474  | 553  | 632  | 711  | 790  |
| 466              | 80                                                                                             | 159  | 239  | 318  | 398  | 478  | 557  | 637  | 716  | 796  |
| 467              | 80                                                                                             | 160  | 241  | 321  | 401  | 481  | 562  | 642  | 722  | 802  |
| 468              | 81                                                                                             | 162  | 243  | 323  | 404  | 485  | 566  | 647  | 728  | 808  |
| 469              | 81                                                                                             | 163  | 244  | 326  | 407  | 489  | 570  | 652  | 733  | 815  |
| 470              | 82                                                                                             | 164  | 246  | 328  | 411  | 493  | 575  | 657  | 739  | 821  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 471              | 83                                                                                             | 165  | 248  | 331  | 414  | 496  | 579  | 662  | 745  | 827  |
| 472              | 83                                                                                             | 167  | 250  | 333  | 417  | 500  | 584  | 667  | 750  | 834  |
| 473              | 84                                                                                             | 168  | 252  | 336  | 420  | 504  | 588  | 672  | 756  | 840  |
| 474              | 85                                                                                             | 169  | 254  | 339  | 423  | 508  | 592  | 677  | 762  | 846  |
| 475              | 85                                                                                             | 171  | 256  | 341  | 426  | 512  | 597  | 682  | 767  | 853  |
| 476              | 86                                                                                             | 172  | 258  | 344  | 429  | 515  | 601  | 687  | 773  | 859  |
| 477              | 87                                                                                             | 173  | 260  | 346  | 433  | 519  | 606  | 692  | 779  | 865  |
| 478              | 87                                                                                             | 174  | 261  | 349  | 436  | 523  | 610  | 697  | 784  | 872  |
| 479              | 88                                                                                             | 176  | 263  | 351  | 439  | 527  | 615  | 702  | 790  | 878  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 480              | 88                                                                                             | 177  | 265  | 354  | 442  | 531  | 619  | 707  | 796  | 884  |
| 481              | 89                                                                                             | 178  | 267  | 356  | 445  | 534  | 623  | 712  | 801  | 890  |
| 482              | 90                                                                                             | 179  | 269  | 359  | 448  | 538  | 628  | 717  | 807  | 897  |
| 483              | 90                                                                                             | 181  | 271  | 361  | 452  | 542  | 632  | 722  | 813  | 903  |
| 484              | 91                                                                                             | 182  | 273  | 364  | 455  | 546  | 637  | 728  | 818  | 909  |
| 485              | 92                                                                                             | 183  | 275  | 366  | 458  | 549  | 641  | 733  | 824  | 916  |
| 486              | 92                                                                                             | 184  | 277  | 369  | 461  | 553  | 645  | 738  | 830  | 922  |
| 487              | 93                                                                                             | 186  | 279  | 371  | 464  | 557  | 650  | 743  | 836  | 928  |
| 488              | 93                                                                                             | 187  | 280  | 374  | 467  | 561  | 654  | 748  | 841  | 935  |
| 489              | 94                                                                                             | 188  | 282  | 376  | 470  | 565  | 659  | 753  | 847  | 941  |
| 490              | 95                                                                                             | 189  | 284  | 379  | 474  | 568  | 663  | 758  | 853  | 947  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 491              | 95                                                                                             | 191  | 286  | 381  | 477  | 572  | 668  | 763  | 858  | 954  |
| 492              | 96                                                                                             | 192  | 288  | 384  | 480  | 576  | 672  | 768  | 864  | 960  |
| 493              | 97                                                                                             | 193  | 290  | 386  | 483  | 580  | 676  | 773  | 870  | 966  |
| 494              | 97                                                                                             | 195  | 292  | 389  | 486  | 584  | 681  | 778  | 875  | 973  |
| 495              | 98                                                                                             | 196  | 294  | 392  | 489  | 587  | 685  | 783  | 881  | 979  |
| 496              | 99                                                                                             | 197  | 296  | 394  | 493  | 591  | 690  | 788  | 887  | 985  |
| 497              | 99                                                                                             | 198  | 297  | 397  | 496  | 595  | 694  | 793  | 892  | 991  |
| 498              | 100                                                                                            | 200  | 299  | 399  | 499  | 599  | 698  | 798  | 898  | 998  |
| 499              | 100                                                                                            | 201  | 301  | 402  | 502  | 602  | 703  | 803  | 904  | 1004 |
| 500              | 101                                                                                            | 202  | 303  | 404  | 505  | 606  | 707  | 808  | 909  | 1010 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 6 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 501              | 102                                                                                            | 203  | 305  | 407  | 508  | 610  | 712  | 813  | 915  | 1017 |
| 502              | 102                                                                                            | 205  | 307  | 409  | 511  | 614  | 716  | 818  | 921  | 1023 |
| 503              | 103                                                                                            | 206  | 309  | 412  | 515  | 618  | 721  | 823  | 926  | 1029 |
| 504              | 104                                                                                            | 207  | 311  | 414  | 518  | 621  | 725  | 828  | 932  | 1036 |
| 505              | 104                                                                                            | 208  | 313  | 417  | 521  | 625  | 729  | 834  | 938  | 1042 |
| 506              | 105                                                                                            | 210  | 314  | 419  | 524  | 629  | 734  | 839  | 943  | 1048 |
| 507              | 105                                                                                            | 211  | 316  | 422  | 527  | 633  | 738  | 844  | 949  | 1055 |
| 508              | 106                                                                                            | 212  | 318  | 424  | 530  | 637  | 743  | 849  | 955  | 1061 |
| 509              | 107                                                                                            | 213  | 320  | 427  | 534  | 640  | 747  | 854  | 960  | 1067 |
| 510              | 107                                                                                            | 215  | 322  | 429  | 537  | 644  | 751  | 859  | 966  | 1073 |
| 511              | 108                                                                                            | 216  | 324  | 432  | 539  | 647  | 755  | 863  | 971  | 1079 |
| 512              | 108                                                                                            | 217  | 325  | 433  | 542  | 650  | 759  | 867  | 975  | 1084 |
| 513              | 109                                                                                            | 218  | 327  | 435  | 544  | 653  | 762  | 871  | 980  | 1089 |
| 514              | 109                                                                                            | 219  | 328  | 437  | 547  | 656  | 765  | 875  | 984  | 1093 |
| 515              | 110                                                                                            | 220  | 329  | 439  | 549  | 659  | 769  | 879  | 988  | 1098 |
| 516              | 110                                                                                            | 221  | 331  | 441  | 552  | 662  | 772  | 882  | 993  | 1103 |
| 517              | 111                                                                                            | 222  | 332  | 443  | 554  | 665  | 776  | 886  | 997  | 1108 |
| 518              | 111                                                                                            | 223  | 334  | 445  | 556  | 668  | 779  | 890  | 1001 | 1113 |
| 519              | 112                                                                                            | 224  | 335  | 447  | 559  | 671  | 782  | 894  | 1006 | 1118 |
| 520              | 112                                                                                            | 224  | 337  | 449  | 561  | 673  | 786  | 898  | 1010 | 1122 |
| 521              | 113                                                                                            | 225  | 338  | 451  | 564  | 676  | 789  | 902  | 1014 | 1127 |
| 522              | 113                                                                                            | 226  | 340  | 453  | 566  | 679  | 792  | 906  | 1019 | 1132 |
| 523              | 114                                                                                            | 227  | 341  | 455  | 568  | 682  | 796  | 909  | 1023 | 1137 |
| 524              | 114                                                                                            | 228  | 343  | 457  | 571  | 685  | 799  | 913  | 1028 | 1142 |
| 525              | 115                                                                                            | 229  | 344  | 459  | 573  | 688  | 803  | 917  | 1032 | 1147 |
| 526              | 115                                                                                            | 230  | 345  | 461  | 576  | 691  | 806  | 921  | 1036 | 1151 |
| 527              | 116                                                                                            | 231  | 347  | 462  | 578  | 694  | 809  | 925  | 1041 | 1156 |
| 528              | 116                                                                                            | 232  | 348  | 464  | 581  | 697  | 813  | 929  | 1045 | 1161 |
| 529              | 117                                                                                            | 233  | 350  | 466  | 583  | 700  | 816  | 933  | 1049 | 1166 |
| 530              | 117                                                                                            | 234  | 351  | 468  | 585  | 702  | 819  | 937  | 1054 | 1171 |
| 531              | 118                                                                                            | 235  | 353  | 470  | 588  | 705  | 823  | 940  | 1058 | 1175 |
| 532              | 118                                                                                            | 236  | 354  | 472  | 590  | 708  | 826  | 944  | 1062 | 1180 |
| 533              | 119                                                                                            | 237  | 356  | 474  | 593  | 711  | 830  | 948  | 1067 | 1185 |
| 534              | 119                                                                                            | 238  | 357  | 476  | 595  | 714  | 833  | 952  | 1071 | 1190 |
| 535              | 119                                                                                            | 239  | 358  | 478  | 597  | 717  | 836  | 956  | 1075 | 1195 |
| 536              | 120                                                                                            | 240  | 360  | 480  | 600  | 720  | 840  | 960  | 1080 | 1200 |
| 537              | 120                                                                                            | 241  | 361  | 482  | 602  | 723  | 843  | 964  | 1084 | 1204 |
| 538              | 121                                                                                            | 242  | 363  | 484  | 605  | 726  | 847  | 967  | 1088 | 1209 |
| 539              | 121                                                                                            | 243  | 364  | 486  | 607  | 728  | 850  | 971  | 1093 | 1214 |
| 540              | 122                                                                                            | 244  | 366  | 488  | 609  | 731  | 853  | 975  | 1097 | 1219 |
| 541              | 122                                                                                            | 245  | 367  | 490  | 612  | 734  | 857  | 979  | 1101 | 1224 |
| 542              | 123                                                                                            | 246  | 369  | 491  | 614  | 737  | 860  | 983  | 1106 | 1229 |
| 543              | 123                                                                                            | 247  | 370  | 493  | 617  | 740  | 863  | 987  | 1110 | 1233 |
| 544              | 124                                                                                            | 248  | 371  | 495  | 619  | 743  | 867  | 991  | 1114 | 1238 |
| 545              | 124                                                                                            | 249  | 373  | 497  | 622  | 746  | 870  | 994  | 1119 | 1243 |
| 546              | 125                                                                                            | 250  | 374  | 499  | 624  | 749  | 874  | 998  | 1123 | 1248 |
| 547              | 125                                                                                            | 251  | 376  | 501  | 626  | 752  | 877  | 1002 | 1128 | 1253 |
| 548              | 126                                                                                            | 252  | 377  | 503  | 629  | 755  | 880  | 1006 | 1132 | 1258 |
| 549              | 126                                                                                            | 252  | 379  | 505  | 631  | 757  | 884  | 1010 | 1136 | 1262 |
| 550              | 127                                                                                            | 253  | 380  | 507  | 634  | 760  | 887  | 1014 | 1141 | 1267 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 6 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 551              | 127                                                                                            | 254  | 382  | 509  | 636  | 763  | 890  | 1018 | 1145 | 1272 |
| 552              | 128                                                                                            | 255  | 383  | 511  | 638  | 766  | 894  | 1022 | 1149 | 1277 |
| 553              | 128                                                                                            | 256  | 385  | 513  | 641  | 769  | 897  | 1025 | 1154 | 1282 |
| 554              | 129                                                                                            | 257  | 386  | 515  | 643  | 772  | 901  | 1029 | 1158 | 1287 |
| 555              | 129                                                                                            | 258  | 387  | 517  | 646  | 775  | 904  | 1033 | 1162 | 1291 |
| 556              | 130                                                                                            | 259  | 389  | 518  | 648  | 778  | 907  | 1037 | 1167 | 1296 |
| 557              | 130                                                                                            | 260  | 390  | 520  | 651  | 781  | 911  | 1041 | 1171 | 1301 |
| 558              | 131                                                                                            | 261  | 392  | 522  | 653  | 784  | 914  | 1045 | 1175 | 1306 |
| 559              | 131                                                                                            | 262  | 393  | 524  | 655  | 786  | 918  | 1049 | 1180 | 1311 |
| 560              | 132                                                                                            | 263  | 395  | 526  | 658  | 789  | 921  | 1052 | 1184 | 1316 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 561              | 132                                                                                            | 264  | 396  | 528  | 660  | 792  | 924  | 1056 | 1188 | 1320 |
| 562              | 132                                                                                            | 265  | 397  | 530  | 662  | 795  | 927  | 1059 | 1192 | 1324 |
| 563              | 133                                                                                            | 266  | 399  | 531  | 664  | 797  | 930  | 1063 | 1196 | 1328 |
| 564              | 133                                                                                            | 267  | 400  | 533  | 666  | 800  | 933  | 1066 | 1199 | 1333 |
| 565              | 134                                                                                            | 267  | 401  | 535  | 668  | 802  | 936  | 1069 | 1203 | 1337 |
| 566              | 134                                                                                            | 268  | 402  | 536  | 671  | 805  | 939  | 1073 | 1207 | 1341 |
| 567              | 135                                                                                            | 269  | 404  | 538  | 673  | 807  | 942  | 1076 | 1211 | 1345 |
| 568              | 135                                                                                            | 270  | 405  | 540  | 675  | 810  | 945  | 1080 | 1215 | 1349 |
| 569              | 135                                                                                            | 271  | 406  | 541  | 677  | 812  | 948  | 1083 | 1218 | 1354 |
| 570              | 136                                                                                            | 272  | 407  | 543  | 679  | 815  | 951  | 1086 | 1222 | 1358 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 571              | 136                                                                                            | 272  | 409  | 545  | 681  | 817  | 953  | 1090 | 1226 | 1362 |
| 572              | 137                                                                                            | 273  | 410  | 547  | 683  | 820  | 956  | 1093 | 1230 | 1366 |
| 573              | 137                                                                                            | 274  | 411  | 548  | 685  | 822  | 959  | 1096 | 1233 | 1371 |
| 574              | 137                                                                                            | 275  | 412  | 550  | 687  | 825  | 962  | 1100 | 1237 | 1375 |
| 575              | 138                                                                                            | 276  | 414  | 552  | 689  | 827  | 965  | 1103 | 1241 | 1379 |
| 576              | 138                                                                                            | 277  | 415  | 553  | 692  | 830  | 968  | 1107 | 1245 | 1383 |
| 577              | 139                                                                                            | 277  | 416  | 555  | 694  | 832  | 971  | 1110 | 1249 | 1387 |
| 578              | 139                                                                                            | 278  | 417  | 557  | 696  | 835  | 974  | 1113 | 1252 | 1392 |
| 579              | 140                                                                                            | 279  | 419  | 558  | 698  | 837  | 977  | 1117 | 1256 | 1396 |
| 580              | 140                                                                                            | 280  | 420  | 560  | 700  | 840  | 980  | 1120 | 1260 | 1400 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 6 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 7 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 405              | 0                                                                                              | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 406              | 29                                                                                             | 31   | 34   | 37   | 39   | 42   | 44   | 47   | 50   | 52   |
| 407              | 57                                                                                             | 63   | 68   | 73   | 78   | 84   | 89   | 94   | 99   | 104  |
| 408              | 86                                                                                             | 94   | 102  | 110  | 117  | 125  | 133  | 141  | 149  | 157  |
| 409              | 115                                                                                            | 125  | 136  | 146  | 157  | 167  | 178  | 188  | 198  | 209  |
| 410              | 144                                                                                            | 157  | 170  | 183  | 196  | 209  | 222  | 235  | 248  | 261  |
| 411              | 172                                                                                            | 188  | 204  | 219  | 235  | 251  | 266  | 282  | 298  | 313  |
| 412              | 201                                                                                            | 219  | 238  | 256  | 274  | 292  | 311  | 329  | 347  | 365  |
| 413              | 230                                                                                            | 251  | 272  | 292  | 313  | 334  | 355  | 376  | 397  | 418  |
| 414              | 258                                                                                            | 282  | 305  | 329  | 352  | 376  | 399  | 423  | 446  | 470  |
| 415              | 287                                                                                            | 313  | 339  | 365  | 392  | 418  | 444  | 470  | 496  | 522  |
| 416              | 308                                                                                            | 336  | 364  | 392  | 420  | 448  | 476  | 503  | 531  | 559  |
| 417              | 323                                                                                            | 352  | 381  | 411  | 440  | 469  | 499  | 528  | 557  | 587  |
| 418              | 338                                                                                            | 369  | 399  | 430  | 461  | 491  | 522  | 553  | 584  | 614  |
| 419              | 353                                                                                            | 385  | 417  | 449  | 481  | 513  | 545  | 577  | 610  | 642  |
| 420              | 368                                                                                            | 401  | 435  | 468  | 502  | 535  | 569  | 602  | 636  | 669  |
| 421              | 383                                                                                            | 417  | 452  | 487  | 522  | 557  | 591  | 626  | 661  | 696  |
| 422              | 397                                                                                            | 433  | 469  | 505  | 542  | 578  | 614  | 650  | 686  | 722  |
| 423              | 412                                                                                            | 449  | 487  | 524  | 561  | 599  | 636  | 674  | 711  | 748  |
| 424              | 426                                                                                            | 465  | 504  | 542  | 581  | 620  | 659  | 697  | 736  | 775  |
| 425              | 441                                                                                            | 481  | 521  | 561  | 601  | 641  | 681  | 721  | 761  | 801  |
| 426              | 455                                                                                            | 496  | 538  | 579  | 621  | 662  | 703  | 745  | 786  | 827  |
| 427              | 470                                                                                            | 512  | 555  | 598  | 640  | 683  | 726  | 768  | 811  | 854  |
| 428              | 484                                                                                            | 528  | 572  | 616  | 660  | 704  | 748  | 792  | 836  | 880  |
| 429              | 499                                                                                            | 544  | 589  | 635  | 680  | 725  | 770  | 816  | 861  | 906  |
| 430              | 513                                                                                            | 560  | 606  | 653  | 700  | 746  | 793  | 840  | 886  | 933  |
| 431              | 528                                                                                            | 575  | 623  | 671  | 719  | 767  | 815  | 863  | 911  | 959  |
| 432              | 542                                                                                            | 591  | 641  | 690  | 739  | 788  | 838  | 887  | 936  | 985  |
| 433              | 556                                                                                            | 607  | 658  | 708  | 759  | 809  | 860  | 911  | 961  | 1012 |
| 434              | 571                                                                                            | 623  | 675  | 727  | 779  | 831  | 882  | 934  | 986  | 1038 |
| 435              | 585                                                                                            | 639  | 692  | 745  | 798  | 852  | 905  | 958  | 1011 | 1064 |
| 436              | 597                                                                                            | 651  | 706  | 760  | 814  | 869  | 923  | 977  | 1031 | 1086 |
| 437              | 607                                                                                            | 662  | 717  | 772  | 828  | 883  | 938  | 993  | 1048 | 1104 |
| 438              | 617                                                                                            | 673  | 729  | 785  | 841  | 897  | 953  | 1009 | 1065 | 1121 |
| 439              | 627                                                                                            | 684  | 740  | 797  | 854  | 911  | 968  | 1025 | 1082 | 1139 |
| 440              | 636                                                                                            | 694  | 752  | 810  | 868  | 926  | 984  | 1041 | 1099 | 1157 |
| 441              | 646                                                                                            | 705  | 764  | 822  | 881  | 940  | 999  | 1057 | 1116 | 1175 |
| 442              | 656                                                                                            | 716  | 775  | 835  | 895  | 954  | 1014 | 1073 | 1133 | 1193 |
| 443              | 666                                                                                            | 726  | 787  | 847  | 908  | 968  | 1029 | 1090 | 1150 | 1211 |
| 444              | 676                                                                                            | 737  | 798  | 860  | 921  | 983  | 1044 | 1106 | 1167 | 1228 |
| 445              | 685                                                                                            | 748  | 810  | 872  | 935  | 997  | 1059 | 1122 | 1184 | 1246 |
| 446              | 695                                                                                            | 758  | 822  | 885  | 948  | 1011 | 1074 | 1138 | 1201 | 1264 |
| 447              | 705                                                                                            | 769  | 833  | 897  | 961  | 1026 | 1090 | 1154 | 1218 | 1282 |
| 448              | 715                                                                                            | 780  | 845  | 910  | 975  | 1040 | 1105 | 1170 | 1235 | 1300 |
| 449              | 725                                                                                            | 791  | 856  | 922  | 988  | 1054 | 1120 | 1186 | 1252 | 1318 |
| 450              | 735                                                                                            | 801  | 868  | 935  | 1002 | 1068 | 1135 | 1202 | 1269 | 1335 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 6 FT                                                                                           |                 |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|-----------------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60            | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 7 FT |
| ELEV<br>(ft MSL) |                                                                                                | DISCHARGE (cfs) |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |                 |      |      |      |      |      |      |      |      |
| 451              | 744                                                                                            | 812             | 880  | 947  | 1015 | 1083 | 1150 | 1218 | 1286 | 1353 |
| 452              | 754                                                                                            | 823             | 891  | 960  | 1028 | 1097 | 1165 | 1234 | 1303 | 1371 |
| 453              | 764                                                                                            | 833             | 903  | 972  | 1042 | 1111 | 1181 | 1250 | 1320 | 1389 |
| 454              | 774                                                                                            | 844             | 914  | 985  | 1055 | 1125 | 1196 | 1266 | 1336 | 1407 |
| 455              | 784                                                                                            | 855             | 926  | 997  | 1068 | 1140 | 1211 | 1282 | 1353 | 1425 |
| 456              | 793                                                                                            | 866             | 938  | 1010 | 1082 | 1154 | 1226 | 1298 | 1370 | 1443 |
| 457              | 803                                                                                            | 876             | 949  | 1022 | 1095 | 1168 | 1241 | 1314 | 1387 | 1460 |
| 458              | 813                                                                                            | 887             | 961  | 1035 | 1109 | 1183 | 1256 | 1330 | 1404 | 1478 |
| 459              | 823                                                                                            | 898             | 972  | 1047 | 1122 | 1197 | 1272 | 1346 | 1421 | 1496 |
| 460              | 833                                                                                            | 908             | 984  | 1060 | 1135 | 1211 | 1287 | 1362 | 1438 | 1514 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 461              | 841                                                                                            | 917             | 994  | 1070 | 1146 | 1223 | 1299 | 1376 | 1452 | 1529 |
| 462              | 848                                                                                            | 925             | 1002 | 1079 | 1156 | 1233 | 1310 | 1387 | 1464 | 1541 |
| 463              | 855                                                                                            | 932             | 1010 | 1088 | 1165 | 1243 | 1321 | 1398 | 1476 | 1554 |
| 464              | 862                                                                                            | 940             | 1018 | 1097 | 1175 | 1253 | 1331 | 1410 | 1488 | 1566 |
| 465              | 868                                                                                            | 947             | 1026 | 1105 | 1184 | 1263 | 1342 | 1421 | 1500 | 1579 |
| 466              | 875                                                                                            | 955             | 1035 | 1114 | 1194 | 1273 | 1353 | 1433 | 1512 | 1592 |
| 467              | 882                                                                                            | 963             | 1043 | 1123 | 1203 | 1283 | 1364 | 1444 | 1524 | 1604 |
| 468              | 889                                                                                            | 970             | 1051 | 1132 | 1213 | 1294 | 1374 | 1455 | 1536 | 1617 |
| 469              | 896                                                                                            | 978             | 1059 | 1141 | 1222 | 1304 | 1385 | 1467 | 1548 | 1630 |
| 470              | 903                                                                                            | 985             | 1067 | 1150 | 1232 | 1314 | 1396 | 1478 | 1560 | 1642 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 471              | 910                                                                                            | 993             | 1076 | 1158 | 1241 | 1324 | 1407 | 1489 | 1572 | 1655 |
| 472              | 917                                                                                            | 1000            | 1084 | 1167 | 1251 | 1334 | 1417 | 1501 | 1584 | 1667 |
| 473              | 924                                                                                            | 1008            | 1092 | 1176 | 1260 | 1344 | 1428 | 1512 | 1596 | 1680 |
| 474              | 931                                                                                            | 1016            | 1100 | 1185 | 1269 | 1354 | 1439 | 1523 | 1608 | 1693 |
| 475              | 938                                                                                            | 1023            | 1108 | 1194 | 1279 | 1364 | 1449 | 1535 | 1620 | 1705 |
| 476              | 945                                                                                            | 1031            | 1117 | 1203 | 1288 | 1374 | 1460 | 1546 | 1632 | 1718 |
| 477              | 952                                                                                            | 1038            | 1125 | 1211 | 1298 | 1384 | 1471 | 1557 | 1644 | 1730 |
| 478              | 959                                                                                            | 1046            | 1133 | 1220 | 1307 | 1394 | 1482 | 1569 | 1656 | 1743 |
| 479              | 966                                                                                            | 1053            | 1141 | 1229 | 1317 | 1405 | 1492 | 1580 | 1668 | 1756 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 480              | 973                                                                                            | 1061            | 1149 | 1238 | 1326 | 1415 | 1503 | 1592 | 1680 | 1768 |
| 481              | 980                                                                                            | 1069            | 1158 | 1247 | 1336 | 1425 | 1514 | 1603 | 1692 | 1781 |
| 482              | 986                                                                                            | 1076            | 1166 | 1256 | 1345 | 1435 | 1525 | 1614 | 1704 | 1794 |
| 483              | 993                                                                                            | 1084            | 1174 | 1264 | 1355 | 1445 | 1535 | 1626 | 1716 | 1806 |
| 484              | 1000                                                                                           | 1091            | 1182 | 1273 | 1364 | 1455 | 1546 | 1637 | 1728 | 1819 |
| 485              | 1007                                                                                           | 1099            | 1190 | 1282 | 1374 | 1465 | 1557 | 1648 | 1740 | 1831 |
| 486              | 1014                                                                                           | 1106            | 1199 | 1291 | 1383 | 1475 | 1567 | 1660 | 1752 | 1844 |
| 487              | 1021                                                                                           | 1114            | 1207 | 1300 | 1393 | 1485 | 1578 | 1671 | 1764 | 1857 |
| 488              | 1028                                                                                           | 1122            | 1215 | 1309 | 1402 | 1495 | 1589 | 1682 | 1776 | 1869 |
| 489              | 1035                                                                                           | 1129            | 1223 | 1317 | 1411 | 1506 | 1600 | 1694 | 1788 | 1882 |
| 490              | 1042                                                                                           | 1137            | 1231 | 1326 | 1421 | 1516 | 1610 | 1705 | 1800 | 1895 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 491              | 1049                                                                                           | 1144            | 1240 | 1335 | 1430 | 1526 | 1621 | 1716 | 1812 | 1907 |
| 492              | 1056                                                                                           | 1152            | 1248 | 1344 | 1440 | 1536 | 1632 | 1728 | 1824 | 1920 |
| 493              | 1063                                                                                           | 1159            | 1256 | 1353 | 1449 | 1546 | 1643 | 1739 | 1836 | 1932 |
| 494              | 1070                                                                                           | 1167            | 1264 | 1362 | 1459 | 1556 | 1653 | 1751 | 1848 | 1945 |
| 495              | 1077                                                                                           | 1175            | 1272 | 1370 | 1468 | 1566 | 1664 | 1762 | 1860 | 1958 |
| 496              | 1084                                                                                           | 1182            | 1281 | 1379 | 1478 | 1576 | 1675 | 1773 | 1872 | 1970 |
| 497              | 1091                                                                                           | 1190            | 1289 | 1388 | 1487 | 1586 | 1685 | 1785 | 1884 | 1983 |
| 498              | 1098                                                                                           | 1197            | 1297 | 1397 | 1497 | 1596 | 1696 | 1796 | 1896 | 1996 |
| 499              | 1104                                                                                           | 1205            | 1305 | 1406 | 1506 | 1607 | 1707 | 1807 | 1908 | 2008 |
| 500              | 1111                                                                                           | 1212            | 1313 | 1415 | 1516 | 1617 | 1718 | 1819 | 1920 | 2021 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 6 FT                                                                                           |                 |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|-----------------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60            | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 7 FT |
| ELEV<br>(ft MSL) |                                                                                                | DISCHARGE (cfs) |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |                 |      |      |      |      |      |      |      |      |
| 501              | 1118                                                                                           | 1220            | 1322 | 1423 | 1525 | 1627 | 1728 | 1830 | 1932 | 2033 |
| 502              | 1125                                                                                           | 1228            | 1330 | 1432 | 1534 | 1637 | 1739 | 1841 | 1944 | 2046 |
| 503              | 1132                                                                                           | 1235            | 1338 | 1441 | 1544 | 1647 | 1750 | 1853 | 1956 | 2059 |
| 504              | 1139                                                                                           | 1243            | 1346 | 1450 | 1553 | 1657 | 1761 | 1864 | 1968 | 2071 |
| 505              | 1146                                                                                           | 1250            | 1355 | 1459 | 1563 | 1667 | 1771 | 1875 | 1980 | 2084 |
| 506              | 1153                                                                                           | 1258            | 1363 | 1468 | 1572 | 1677 | 1782 | 1887 | 1992 | 2096 |
| 507              | 1160                                                                                           | 1265            | 1371 | 1476 | 1582 | 1687 | 1793 | 1898 | 2004 | 2109 |
| 508              | 1167                                                                                           | 1273            | 1379 | 1485 | 1591 | 1697 | 1803 | 1910 | 2016 | 2122 |
| 509              | 1174                                                                                           | 1281            | 1387 | 1494 | 1601 | 1707 | 1814 | 1921 | 2028 | 2134 |
| 510              | 1181                                                                                           | 1288            | 1396 | 1503 | 1610 | 1718 | 1825 | 1932 | 2040 | 2147 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 511              | 1187                                                                                           | 1295            | 1403 | 1510 | 1618 | 1726 | 1834 | 1942 | 2050 | 2158 |
| 512              | 1192                                                                                           | 1300            | 1409 | 1517 | 1626 | 1734 | 1842 | 1951 | 2059 | 2167 |
| 513              | 1197                                                                                           | 1306            | 1415 | 1524 | 1633 | 1742 | 1851 | 1959 | 2068 | 2177 |
| 514              | 1203                                                                                           | 1312            | 1421 | 1531 | 1640 | 1749 | 1859 | 1968 | 2077 | 2187 |
| 515              | 1208                                                                                           | 1318            | 1428 | 1538 | 1647 | 1757 | 1867 | 1977 | 2087 | 2196 |
| 516              | 1213                                                                                           | 1324            | 1434 | 1544 | 1655 | 1765 | 1875 | 1985 | 2096 | 2206 |
| 517              | 1219                                                                                           | 1329            | 1440 | 1551 | 1662 | 1773 | 1883 | 1994 | 2105 | 2216 |
| 518              | 1224                                                                                           | 1335            | 1447 | 1558 | 1669 | 1780 | 1892 | 2003 | 2114 | 2225 |
| 519              | 1229                                                                                           | 1341            | 1453 | 1565 | 1676 | 1788 | 1900 | 2012 | 2123 | 2235 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 520              | 1235                                                                                           | 1347            | 1459 | 1571 | 1684 | 1796 | 1908 | 2020 | 2132 | 2245 |
| 521              | 1240                                                                                           | 1353            | 1465 | 1578 | 1691 | 1804 | 1916 | 2029 | 2142 | 2254 |
| 522              | 1245                                                                                           | 1358            | 1472 | 1585 | 1698 | 1811 | 1924 | 2038 | 2151 | 2264 |
| 523              | 1251                                                                                           | 1364            | 1478 | 1592 | 1705 | 1819 | 1933 | 2046 | 2160 | 2274 |
| 524              | 1256                                                                                           | 1370            | 1484 | 1598 | 1713 | 1827 | 1941 | 2055 | 2169 | 2283 |
| 525              | 1261                                                                                           | 1376            | 1490 | 1605 | 1720 | 1834 | 1949 | 2064 | 2178 | 2293 |
| 526              | 1266                                                                                           | 1382            | 1497 | 1612 | 1727 | 1842 | 1957 | 2072 | 2188 | 2303 |
| 527              | 1272                                                                                           | 1387            | 1503 | 1619 | 1734 | 1850 | 1966 | 2081 | 2197 | 2312 |
| 528              | 1277                                                                                           | 1393            | 1509 | 1625 | 1742 | 1858 | 1974 | 2090 | 2206 | 2322 |
| 529              | 1282                                                                                           | 1399            | 1516 | 1632 | 1749 | 1865 | 1982 | 2099 | 2215 | 2332 |
| 530              | 1288                                                                                           | 1405            | 1522 | 1639 | 1756 | 1873 | 1990 | 2107 | 2224 | 2341 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 531              | 1293                                                                                           | 1411            | 1528 | 1646 | 1763 | 1881 | 1998 | 2116 | 2233 | 2351 |
| 532              | 1298                                                                                           | 1416            | 1534 | 1652 | 1770 | 1889 | 2007 | 2125 | 2243 | 2361 |
| 533              | 1304                                                                                           | 1422            | 1541 | 1659 | 1778 | 1896 | 2015 | 2133 | 2252 | 2370 |
| 534              | 1309                                                                                           | 1428            | 1547 | 1666 | 1785 | 1904 | 2023 | 2142 | 2261 | 2380 |
| 535              | 1314                                                                                           | 1434            | 1553 | 1673 | 1792 | 1912 | 2031 | 2151 | 2270 | 2390 |
| 536              | 1320                                                                                           | 1440            | 1560 | 1680 | 1799 | 1919 | 2039 | 2159 | 2279 | 2399 |
| 537              | 1325                                                                                           | 1445            | 1566 | 1686 | 1807 | 1927 | 2048 | 2168 | 2289 | 2409 |
| 538              | 1330                                                                                           | 1451            | 1572 | 1693 | 1814 | 1935 | 2056 | 2177 | 2298 | 2419 |
| 539              | 1336                                                                                           | 1457            | 1578 | 1700 | 1821 | 1943 | 2064 | 2185 | 2307 | 2428 |
| 540              | 1341                                                                                           | 1463            | 1585 | 1707 | 1828 | 1950 | 2072 | 2194 | 2316 | 2438 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 541              | 1346                                                                                           | 1469            | 1591 | 1713 | 1836 | 1958 | 2080 | 2203 | 2325 | 2448 |
| 542              | 1351                                                                                           | 1474            | 1597 | 1720 | 1843 | 1966 | 2089 | 2212 | 2334 | 2457 |
| 543              | 1357                                                                                           | 1480            | 1603 | 1727 | 1850 | 1974 | 2097 | 2220 | 2344 | 2467 |
| 544              | 1362                                                                                           | 1486            | 1610 | 1734 | 1857 | 1981 | 2105 | 2229 | 2353 | 2477 |
| 545              | 1367                                                                                           | 1492            | 1616 | 1740 | 1865 | 1989 | 2113 | 2238 | 2362 | 2486 |
| 546              | 1373                                                                                           | 1498            | 1622 | 1747 | 1872 | 1997 | 2122 | 2246 | 2371 | 2496 |
| 547              | 1378                                                                                           | 1503            | 1629 | 1754 | 1879 | 2004 | 2130 | 2255 | 2380 | 2506 |
| 548              | 1383                                                                                           | 1509            | 1635 | 1761 | 1886 | 2012 | 2138 | 2264 | 2389 | 2515 |
| 549              | 1389                                                                                           | 1515            | 1641 | 1767 | 1894 | 2020 | 2146 | 2272 | 2399 | 2525 |
| 550              | 1394                                                                                           | 1521            | 1647 | 1774 | 1901 | 2028 | 2154 | 2281 | 2408 | 2535 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 6 FT                                                                                           |      |      |      |      |      |      |      |      | 7 FT |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 |      |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 551              | 1399                                                                                           | 1527 | 1654 | 1781 | 1908 | 2035 | 2163 | 2290 | 2417 | 2544 |
| 552              | 1405                                                                                           | 1532 | 1660 | 1788 | 1915 | 2043 | 2171 | 2298 | 2426 | 2554 |
| 553              | 1410                                                                                           | 1538 | 1666 | 1794 | 1923 | 2051 | 2179 | 2307 | 2435 | 2564 |
| 554              | 1415                                                                                           | 1544 | 1673 | 1801 | 1930 | 2059 | 2187 | 2316 | 2445 | 2573 |
| 555              | 1421                                                                                           | 1550 | 1679 | 1808 | 1937 | 2066 | 2195 | 2325 | 2454 | 2583 |
| 556              | 1426                                                                                           | 1555 | 1685 | 1815 | 1944 | 2074 | 2204 | 2333 | 2463 | 2592 |
| 557              | 1431                                                                                           | 1561 | 1691 | 1822 | 1952 | 2082 | 2212 | 2342 | 2472 | 2602 |
| 558              | 1436                                                                                           | 1567 | 1698 | 1828 | 1959 | 2089 | 2220 | 2351 | 2481 | 2612 |
| 559              | 1442                                                                                           | 1573 | 1704 | 1835 | 1966 | 2097 | 2228 | 2359 | 2490 | 2621 |
| 560              | 1447                                                                                           | 1579 | 1710 | 1842 | 1973 | 2105 | 2236 | 2368 | 2500 | 2631 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 561              | 1452                                                                                           | 1584 | 1716 | 1848 | 1980 | 2112 | 2244 | 2376 | 2508 | 2640 |
| 562              | 1457                                                                                           | 1589 | 1722 | 1854 | 1986 | 2119 | 2251 | 2384 | 2516 | 2648 |
| 563              | 1461                                                                                           | 1594 | 1727 | 1860 | 1993 | 2126 | 2258 | 2391 | 2524 | 2657 |
| 564              | 1466                                                                                           | 1599 | 1732 | 1866 | 1999 | 2132 | 2266 | 2399 | 2532 | 2665 |
| 565              | 1471                                                                                           | 1604 | 1738 | 1872 | 2005 | 2139 | 2273 | 2406 | 2540 | 2674 |
| 566              | 1475                                                                                           | 1609 | 1743 | 1878 | 2012 | 2146 | 2280 | 2414 | 2548 | 2682 |
| 567              | 1480                                                                                           | 1614 | 1749 | 1883 | 2018 | 2152 | 2287 | 2422 | 2556 | 2691 |
| 568              | 1484                                                                                           | 1619 | 1754 | 1889 | 2024 | 2159 | 2294 | 2429 | 2564 | 2699 |
| 569              | 1489                                                                                           | 1624 | 1760 | 1895 | 2031 | 2166 | 2301 | 2437 | 2572 | 2707 |
| 570              | 1494                                                                                           | 1629 | 1765 | 1901 | 2037 | 2173 | 2308 | 2444 | 2580 | 2716 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 571              | 1498                                                                                           | 1635 | 1771 | 1907 | 2043 | 2179 | 2316 | 2452 | 2588 | 2724 |
| 572              | 1503                                                                                           | 1640 | 1776 | 1913 | 2049 | 2186 | 2323 | 2459 | 2596 | 2733 |
| 573              | 1508                                                                                           | 1645 | 1782 | 1919 | 2056 | 2193 | 2330 | 2467 | 2604 | 2741 |
| 574              | 1512                                                                                           | 1650 | 1787 | 1925 | 2062 | 2200 | 2337 | 2475 | 2612 | 2749 |
| 575              | 1517                                                                                           | 1655 | 1793 | 1931 | 2068 | 2206 | 2344 | 2482 | 2620 | 2758 |
| 576              | 1521                                                                                           | 1660 | 1798 | 1936 | 2075 | 2213 | 2351 | 2490 | 2628 | 2766 |
| 577              | 1526                                                                                           | 1665 | 1804 | 1942 | 2081 | 2220 | 2359 | 2497 | 2636 | 2775 |
| 578              | 1531                                                                                           | 1670 | 1809 | 1948 | 2087 | 2227 | 2366 | 2505 | 2644 | 2783 |
| 579              | 1535                                                                                           | 1675 | 1815 | 1954 | 2094 | 2233 | 2373 | 2512 | 2652 | 2792 |
| 580              | 1540                                                                                           | 1680 | 1820 | 1960 | 2100 | 2240 | 2380 | 2520 | 2660 | 2800 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 7 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 405              | 0                                                                                              | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 406              | 3                                                                                              | 5    | 8    | 11   | 14   | 16   | 19   | 22   | 25   | 27   |
| 407              | 5                                                                                              | 11   | 16   | 22   | 27   | 33   | 38   | 44   | 49   | 55   |
| 408              | 8                                                                                              | 16   | 25   | 33   | 41   | 49   | 57   | 65   | 74   | 82   |
| 409              | 11                                                                                             | 22   | 33   | 44   | 55   | 65   | 76   | 87   | 98   | 109  |
| 410              | 14                                                                                             | 27   | 41   | 55   | 68   | 82   | 95   | 109  | 123  | 136  |
| 411              | 16                                                                                             | 33   | 49   | 65   | 82   | 98   | 115  | 131  | 147  | 164  |
| 412              | 19                                                                                             | 38   | 57   | 76   | 95   | 115  | 134  | 153  | 172  | 191  |
| 413              | 22                                                                                             | 44   | 65   | 87   | 109  | 131  | 153  | 175  | 196  | 218  |
| 414              | 25                                                                                             | 49   | 74   | 98   | 123  | 147  | 172  | 196  | 221  | 245  |
| 415              | 27                                                                                             | 55   | 82   | 109  | 136  | 164  | 191  | 218  | 245  | 273  |
| 416              | 30                                                                                             | 60   | 90   | 120  | 150  | 180  | 210  | 240  | 270  | 300  |
| 417              | 32                                                                                             | 64   | 96   | 127  | 159  | 191  | 223  | 255  | 287  | 318  |
| 418              | 34                                                                                             | 67   | 101  | 135  | 168  | 202  | 236  | 269  | 303  | 337  |
| 419              | 36                                                                                             | 71   | 107  | 142  | 178  | 213  | 249  | 284  | 320  | 355  |
| 420              | 37                                                                                             | 75   | 112  | 149  | 187  | 224  | 261  | 299  | 336  | 373  |
| 421              | 39                                                                                             | 78   | 118  | 157  | 196  | 235  | 274  | 313  | 353  | 392  |
| 422              | 41                                                                                             | 82   | 122  | 163  | 204  | 245  | 285  | 326  | 367  | 408  |
| 423              | 42                                                                                             | 85   | 127  | 169  | 212  | 254  | 296  | 338  | 381  | 423  |
| 424              | 44                                                                                             | 88   | 132  | 175  | 219  | 263  | 307  | 351  | 395  | 438  |
| 425              | 45                                                                                             | 91   | 136  | 181  | 227  | 272  | 318  | 363  | 408  | 454  |
| 426              | 47                                                                                             | 94   | 141  | 188  | 234  | 281  | 328  | 375  | 422  | 469  |
| 427              | 48                                                                                             | 97   | 145  | 194  | 242  | 291  | 339  | 387  | 436  | 484  |
| 428              | 50                                                                                             | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  |
| 429              | 51                                                                                             | 103  | 154  | 206  | 257  | 309  | 360  | 412  | 463  | 515  |
| 430              | 53                                                                                             | 106  | 159  | 212  | 265  | 318  | 371  | 424  | 477  | 530  |
| 431              | 55                                                                                             | 109  | 164  | 218  | 273  | 327  | 382  | 436  | 491  | 545  |
| 432              | 56                                                                                             | 112  | 168  | 224  | 280  | 336  | 393  | 449  | 505  | 561  |
| 433              | 58                                                                                             | 115  | 173  | 230  | 288  | 346  | 403  | 461  | 518  | 576  |
| 434              | 59                                                                                             | 118  | 177  | 237  | 296  | 355  | 414  | 473  | 532  | 591  |
| 435              | 61                                                                                             | 121  | 182  | 243  | 303  | 364  | 425  | 485  | 546  | 607  |
| 436              | 62                                                                                             | 124  | 187  | 249  | 311  | 373  | 435  | 498  | 560  | 622  |
| 437              | 63                                                                                             | 127  | 190  | 253  | 317  | 380  | 443  | 507  | 570  | 633  |
| 438              | 64                                                                                             | 129  | 193  | 257  | 322  | 386  | 451  | 515  | 579  | 644  |
| 439              | 65                                                                                             | 131  | 196  | 262  | 327  | 392  | 458  | 523  | 589  | 654  |
| 440              | 66                                                                                             | 133  | 199  | 266  | 332  | 399  | 465  | 531  | 598  | 664  |
| 441              | 67                                                                                             | 135  | 202  | 270  | 337  | 405  | 472  | 540  | 607  | 675  |
| 442              | 69                                                                                             | 137  | 206  | 274  | 343  | 411  | 480  | 548  | 617  | 685  |
| 443              | 70                                                                                             | 139  | 209  | 278  | 348  | 417  | 487  | 556  | 626  | 695  |
| 444              | 71                                                                                             | 141  | 212  | 282  | 353  | 423  | 494  | 565  | 635  | 706  |
| 445              | 72                                                                                             | 143  | 215  | 286  | 358  | 430  | 501  | 573  | 645  | 716  |
| 446              | 73                                                                                             | 145  | 218  | 291  | 363  | 436  | 509  | 581  | 654  | 727  |
| 447              | 74                                                                                             | 147  | 221  | 295  | 368  | 442  | 516  | 590  | 663  | 737  |
| 448              | 75                                                                                             | 149  | 224  | 299  | 374  | 448  | 523  | 598  | 673  | 747  |
| 449              | 76                                                                                             | 152  | 227  | 303  | 379  | 455  | 530  | 606  | 682  | 758  |
| 450              | 77                                                                                             | 154  | 230  | 307  | 384  | 461  | 538  | 614  | 691  | 768  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 7 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 451              | 78                                                                                             | 156  | 233  | 311  | 389  | 467  | 545  | 623  | 700  | 778  |
| 452              | 79                                                                                             | 158  | 237  | 315  | 394  | 473  | 552  | 631  | 710  | 789  |
| 453              | 80                                                                                             | 160  | 240  | 320  | 400  | 479  | 559  | 639  | 719  | 799  |
| 454              | 81                                                                                             | 162  | 243  | 324  | 405  | 486  | 567  | 648  | 728  | 809  |
| 455              | 82                                                                                             | 164  | 246  | 328  | 410  | 492  | 574  | 656  | 738  | 820  |
| 456              | 83                                                                                             | 166  | 249  | 332  | 415  | 498  | 581  | 664  | 747  | 830  |
| 457              | 84                                                                                             | 168  | 252  | 336  | 420  | 504  | 588  | 672  | 756  | 840  |
| 458              | 85                                                                                             | 170  | 255  | 340  | 425  | 511  | 596  | 681  | 766  | 851  |
| 459              | 86                                                                                             | 172  | 258  | 344  | 431  | 517  | 603  | 689  | 775  | 861  |
| 460              | 87                                                                                             | 174  | 261  | 349  | 436  | 523  | 610  | 697  | 784  | 872  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 461              | 88                                                                                             | 176  | 265  | 353  | 441  | 529  | 617  | 706  | 794  | 882  |
| 462              | 89                                                                                             | 178  | 267  | 356  | 445  | 534  | 623  | 712  | 801  | 890  |
| 463              | 90                                                                                             | 179  | 269  | 359  | 449  | 538  | 628  | 718  | 807  | 897  |
| 464              | 90                                                                                             | 181  | 271  | 362  | 452  | 543  | 633  | 724  | 814  | 905  |
| 465              | 91                                                                                             | 182  | 274  | 365  | 456  | 547  | 638  | 729  | 821  | 912  |
| 466              | 92                                                                                             | 184  | 276  | 368  | 460  | 552  | 643  | 735  | 827  | 919  |
| 467              | 93                                                                                             | 185  | 278  | 371  | 463  | 556  | 649  | 741  | 834  | 927  |
| 468              | 93                                                                                             | 187  | 280  | 374  | 467  | 560  | 654  | 747  | 840  | 934  |
| 469              | 94                                                                                             | 188  | 282  | 376  | 471  | 565  | 659  | 753  | 847  | 941  |
| 470              | 95                                                                                             | 190  | 285  | 379  | 474  | 569  | 664  | 759  | 854  | 949  |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 471              | 96                                                                                             | 191  | 287  | 382  | 478  | 574  | 669  | 765  | 860  | 956  |
| 472              | 96                                                                                             | 193  | 289  | 385  | 482  | 578  | 674  | 771  | 867  | 963  |
| 473              | 97                                                                                             | 194  | 291  | 388  | 485  | 582  | 679  | 776  | 873  | 970  |
| 474              | 98                                                                                             | 196  | 293  | 391  | 489  | 587  | 684  | 782  | 880  | 978  |
| 475              | 99                                                                                             | 197  | 296  | 394  | 493  | 591  | 690  | 788  | 887  | 985  |
| 476              | 99                                                                                             | 198  | 298  | 397  | 496  | 595  | 695  | 794  | 893  | 992  |
| 477              | 100                                                                                            | 200  | 300  | 400  | 500  | 600  | 700  | 800  | 900  | 1000 |
| 478              | 101                                                                                            | 201  | 302  | 403  | 504  | 604  | 705  | 806  | 906  | 1007 |
| 479              | 101                                                                                            | 203  | 304  | 406  | 507  | 609  | 710  | 812  | 913  | 1014 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 480              | 102                                                                                            | 204  | 307  | 409  | 511  | 613  | 715  | 817  | 920  | 1022 |
| 481              | 103                                                                                            | 206  | 309  | 412  | 515  | 617  | 720  | 823  | 926  | 1029 |
| 482              | 104                                                                                            | 207  | 311  | 415  | 518  | 622  | 726  | 829  | 933  | 1036 |
| 483              | 104                                                                                            | 209  | 313  | 418  | 522  | 626  | 731  | 835  | 939  | 1044 |
| 484              | 105                                                                                            | 210  | 315  | 420  | 526  | 631  | 736  | 841  | 946  | 1051 |
| 485              | 106                                                                                            | 212  | 318  | 423  | 529  | 635  | 741  | 847  | 953  | 1058 |
| 486              | 107                                                                                            | 213  | 320  | 426  | 533  | 639  | 746  | 853  | 959  | 1066 |
| 487              | 107                                                                                            | 215  | 322  | 429  | 537  | 644  | 751  | 858  | 966  | 1073 |
| 488              | 108                                                                                            | 216  | 324  | 432  | 540  | 648  | 756  | 864  | 972  | 1080 |
| 489              | 109                                                                                            | 218  | 326  | 435  | 544  | 653  | 761  | 870  | 979  | 1088 |
| 490              | 110                                                                                            | 219  | 329  | 438  | 548  | 657  | 767  | 876  | 986  | 1095 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 491              | 110                                                                                            | 220  | 331  | 441  | 551  | 661  | 772  | 882  | 992  | 1102 |
| 492              | 111                                                                                            | 222  | 333  | 444  | 555  | 666  | 777  | 888  | 999  | 1110 |
| 493              | 112                                                                                            | 223  | 335  | 447  | 559  | 670  | 782  | 894  | 1005 | 1117 |
| 494              | 112                                                                                            | 225  | 337  | 450  | 562  | 675  | 787  | 900  | 1012 | 1124 |
| 495              | 113                                                                                            | 226  | 340  | 453  | 566  | 679  | 792  | 905  | 1019 | 1132 |
| 496              | 114                                                                                            | 228  | 342  | 456  | 570  | 683  | 797  | 911  | 1025 | 1139 |
| 497              | 115                                                                                            | 229  | 344  | 459  | 573  | 688  | 802  | 917  | 1032 | 1146 |
| 498              | 115                                                                                            | 231  | 346  | 461  | 577  | 692  | 808  | 923  | 1038 | 1154 |
| 499              | 116                                                                                            | 232  | 348  | 464  | 581  | 697  | 813  | 929  | 1045 | 1161 |
| 500              | 117                                                                                            | 234  | 351  | 467  | 584  | 701  | 818  | 935  | 1052 | 1168 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 7 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 501              | 118                                                                                            | 235  | 353  | 470  | 588  | 705  | 823  | 941  | 1058 | 1176 |
| 502              | 118                                                                                            | 237  | 355  | 473  | 592  | 710  | 828  | 946  | 1065 | 1183 |
| 503              | 119                                                                                            | 238  | 357  | 476  | 595  | 714  | 833  | 952  | 1071 | 1190 |
| 504              | 120                                                                                            | 240  | 359  | 479  | 599  | 719  | 838  | 958  | 1078 | 1198 |
| 505              | 121                                                                                            | 241  | 362  | 482  | 603  | 723  | 844  | 964  | 1085 | 1205 |
| 506              | 121                                                                                            | 242  | 364  | 485  | 606  | 727  | 849  | 970  | 1091 | 1212 |
| 507              | 122                                                                                            | 244  | 366  | 488  | 610  | 732  | 854  | 976  | 1098 | 1220 |
| 508              | 123                                                                                            | 245  | 368  | 491  | 614  | 736  | 859  | 982  | 1104 | 1227 |
| 509              | 123                                                                                            | 247  | 370  | 494  | 617  | 741  | 864  | 987  | 1111 | 1234 |
| 510              | 124                                                                                            | 248  | 373  | 497  | 621  | 745  | 869  | 993  | 1118 | 1242 |
| 511              | 125                                                                                            | 250  | 375  | 500  | 625  | 749  | 874  | 999  | 1124 | 1249 |
| 512              | 125                                                                                            | 251  | 376  | 502  | 627  | 753  | 878  | 1004 | 1129 | 1255 |
| 513              | 126                                                                                            | 252  | 378  | 504  | 630  | 756  | 882  | 1008 | 1135 | 1261 |
| 514              | 127                                                                                            | 253  | 380  | 506  | 633  | 760  | 886  | 1013 | 1140 | 1266 |
| 515              | 127                                                                                            | 254  | 382  | 509  | 636  | 763  | 890  | 1017 | 1145 | 1272 |
| 516              | 128                                                                                            | 255  | 383  | 511  | 639  | 766  | 894  | 1022 | 1150 | 1277 |
| 517              | 128                                                                                            | 257  | 385  | 513  | 642  | 770  | 898  | 1026 | 1155 | 1283 |
| 518              | 129                                                                                            | 258  | 387  | 515  | 644  | 773  | 902  | 1031 | 1160 | 1289 |
| 519              | 129                                                                                            | 259  | 388  | 518  | 647  | 777  | 906  | 1035 | 1165 | 1294 |
| 520              | 130                                                                                            | 260  | 390  | 520  | 650  | 780  | 910  | 1040 | 1170 | 1300 |
| 521              | 131                                                                                            | 261  | 392  | 522  | 653  | 783  | 914  | 1044 | 1175 | 1306 |
| 522              | 131                                                                                            | 262  | 393  | 524  | 656  | 787  | 918  | 1049 | 1180 | 1311 |
| 523              | 132                                                                                            | 263  | 395  | 527  | 658  | 790  | 922  | 1053 | 1185 | 1317 |
| 524              | 132                                                                                            | 264  | 397  | 529  | 661  | 793  | 926  | 1058 | 1190 | 1322 |
| 525              | 133                                                                                            | 266  | 398  | 531  | 664  | 797  | 930  | 1062 | 1195 | 1328 |
| 526              | 133                                                                                            | 267  | 400  | 533  | 667  | 800  | 934  | 1067 | 1200 | 1334 |
| 527              | 134                                                                                            | 268  | 402  | 536  | 670  | 804  | 938  | 1071 | 1205 | 1339 |
| 528              | 134                                                                                            | 269  | 403  | 538  | 672  | 807  | 941  | 1076 | 1210 | 1345 |
| 529              | 135                                                                                            | 270  | 405  | 540  | 675  | 810  | 945  | 1080 | 1215 | 1351 |
| 530              | 136                                                                                            | 271  | 407  | 542  | 678  | 814  | 949  | 1085 | 1221 | 1356 |
| 531              | 136                                                                                            | 272  | 409  | 545  | 681  | 817  | 953  | 1089 | 1226 | 1362 |
| 532              | 137                                                                                            | 273  | 410  | 547  | 684  | 820  | 957  | 1094 | 1231 | 1367 |
| 533              | 137                                                                                            | 275  | 412  | 549  | 687  | 824  | 961  | 1098 | 1236 | 1373 |
| 534              | 138                                                                                            | 276  | 414  | 551  | 689  | 827  | 965  | 1103 | 1241 | 1379 |
| 535              | 138                                                                                            | 277  | 415  | 554  | 692  | 831  | 969  | 1107 | 1246 | 1384 |
| 536              | 139                                                                                            | 278  | 417  | 556  | 695  | 834  | 973  | 1112 | 1251 | 1390 |
| 537              | 140                                                                                            | 279  | 419  | 558  | 698  | 837  | 977  | 1116 | 1256 | 1395 |
| 538              | 140                                                                                            | 280  | 420  | 560  | 701  | 841  | 981  | 1121 | 1261 | 1401 |
| 539              | 141                                                                                            | 281  | 422  | 563  | 703  | 844  | 985  | 1125 | 1266 | 1407 |
| 540              | 141                                                                                            | 282  | 424  | 565  | 706  | 847  | 989  | 1130 | 1271 | 1412 |
| 541              | 142                                                                                            | 284  | 425  | 567  | 709  | 851  | 993  | 1134 | 1276 | 1418 |
| 542              | 142                                                                                            | 285  | 427  | 569  | 712  | 854  | 997  | 1139 | 1281 | 1424 |
| 543              | 143                                                                                            | 286  | 429  | 572  | 715  | 858  | 1000 | 1143 | 1286 | 1429 |
| 544              | 143                                                                                            | 287  | 430  | 574  | 717  | 861  | 1004 | 1148 | 1291 | 1435 |
| 545              | 144                                                                                            | 288  | 432  | 576  | 720  | 864  | 1008 | 1152 | 1296 | 1440 |
| 546              | 145                                                                                            | 289  | 434  | 578  | 723  | 868  | 1012 | 1157 | 1301 | 1446 |
| 547              | 145                                                                                            | 290  | 436  | 581  | 726  | 871  | 1016 | 1161 | 1307 | 1452 |
| 548              | 146                                                                                            | 291  | 437  | 583  | 729  | 874  | 1020 | 1166 | 1312 | 1457 |
| 549              | 146                                                                                            | 293  | 439  | 585  | 731  | 878  | 1024 | 1170 | 1317 | 1463 |
| 550              | 147                                                                                            | 294  | 441  | 587  | 734  | 881  | 1028 | 1175 | 1322 | 1469 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 7 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 551              | 147                                                                                            | 295  | 442  | 590  | 737  | 885  | 1032 | 1179 | 1327 | 1474 |
| 552              | 148                                                                                            | 296  | 444  | 592  | 740  | 888  | 1036 | 1184 | 1332 | 1480 |
| 553              | 149                                                                                            | 297  | 446  | 594  | 743  | 891  | 1040 | 1188 | 1337 | 1485 |
| 554              | 149                                                                                            | 298  | 447  | 596  | 746  | 895  | 1044 | 1193 | 1342 | 1491 |
| 555              | 150                                                                                            | 299  | 449  | 599  | 748  | 898  | 1048 | 1197 | 1347 | 1497 |
| 556              | 150                                                                                            | 300  | 451  | 601  | 751  | 901  | 1052 | 1202 | 1352 | 1502 |
| 557              | 151                                                                                            | 302  | 452  | 603  | 754  | 905  | 1056 | 1206 | 1357 | 1508 |
| 558              | 151                                                                                            | 303  | 454  | 605  | 757  | 908  | 1059 | 1211 | 1362 | 1514 |
| 559              | 152                                                                                            | 304  | 456  | 608  | 760  | 911  | 1063 | 1215 | 1367 | 1519 |
| 560              | 152                                                                                            | 305  | 457  | 610  | 762  | 915  | 1067 | 1220 | 1372 | 1525 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 561              | 153                                                                                            | 306  | 459  | 612  | 765  | 918  | 1071 | 1224 | 1377 | 1530 |
| 562              | 154                                                                                            | 307  | 461  | 614  | 768  | 921  | 1075 | 1228 | 1382 | 1535 |
| 563              | 154                                                                                            | 308  | 462  | 616  | 770  | 924  | 1078 | 1232 | 1386 | 1540 |
| 564              | 155                                                                                            | 309  | 464  | 618  | 773  | 927  | 1082 | 1236 | 1391 | 1545 |
| 565              | 155                                                                                            | 310  | 465  | 620  | 775  | 930  | 1085 | 1240 | 1395 | 1550 |
| 566              | 156                                                                                            | 311  | 467  | 622  | 778  | 933  | 1089 | 1244 | 1400 | 1555 |
| 567              | 156                                                                                            | 312  | 468  | 624  | 780  | 936  | 1092 | 1248 | 1404 | 1560 |
| 568              | 157                                                                                            | 313  | 470  | 626  | 783  | 939  | 1096 | 1252 | 1409 | 1565 |
| 569              | 157                                                                                            | 314  | 471  | 628  | 785  | 942  | 1099 | 1256 | 1413 | 1570 |
| 570              | 158                                                                                            | 315  | 473  | 630  | 788  | 945  | 1103 | 1260 | 1418 | 1575 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 571              | 158                                                                                            | 316  | 474  | 632  | 790  | 948  | 1106 | 1264 | 1422 | 1580 |
| 572              | 159                                                                                            | 317  | 476  | 634  | 793  | 951  | 1110 | 1268 | 1427 | 1585 |
| 573              | 159                                                                                            | 318  | 477  | 636  | 795  | 954  | 1113 | 1272 | 1431 | 1590 |
| 574              | 160                                                                                            | 319  | 479  | 638  | 798  | 957  | 1117 | 1276 | 1436 | 1595 |
| 575              | 160                                                                                            | 320  | 480  | 640  | 800  | 960  | 1120 | 1280 | 1440 | 1600 |
| 576              | 161                                                                                            | 321  | 482  | 642  | 803  | 963  | 1124 | 1284 | 1445 | 1605 |
| 577              | 161                                                                                            | 322  | 483  | 644  | 805  | 966  | 1127 | 1288 | 1449 | 1610 |
| 578              | 162                                                                                            | 323  | 485  | 646  | 808  | 969  | 1131 | 1292 | 1454 | 1615 |
| 579              | 162                                                                                            | 324  | 486  | 648  | 810  | 972  | 1134 | 1296 | 1458 | 1620 |
| 580              | 163                                                                                            | 325  | 488  | 650  | 813  | 975  | 1138 | 1300 | 1463 | 1625 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 7 FT                                                                                           |      |      |      |      |      |      |      |      | 8 FT |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 |      |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 405              | 0                                                                                              | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 406              | 30                                                                                             | 33   | 35   | 38   | 41   | 44   | 46   | 49   | 52   | 55   |
| 407              | 60                                                                                             | 65   | 71   | 76   | 82   | 87   | 93   | 98   | 104  | 109  |
| 408              | 90                                                                                             | 98   | 106  | 115  | 123  | 131  | 139  | 147  | 155  | 164  |
| 409              | 120                                                                                            | 131  | 142  | 153  | 164  | 175  | 185  | 196  | 207  | 218  |
| 410              | 150                                                                                            | 164  | 177  | 191  | 205  | 218  | 232  | 245  | 259  | 273  |
| 411              | 180                                                                                            | 196  | 213  | 229  | 245  | 262  | 278  | 295  | 311  | 327  |
| 412              | 210                                                                                            | 229  | 248  | 267  | 286  | 305  | 325  | 344  | 363  | 382  |
| 413              | 240                                                                                            | 262  | 284  | 305  | 327  | 349  | 371  | 393  | 415  | 436  |
| 414              | 270                                                                                            | 295  | 319  | 344  | 368  | 393  | 417  | 442  | 466  | 491  |
| 415              | 300                                                                                            | 327  | 355  | 382  | 409  | 436  | 464  | 491  | 518  | 545  |
| 416              | 330                                                                                            | 360  | 390  | 420  | 450  | 480  | 510  | 540  | 570  | 600  |
| 417              | 350                                                                                            | 382  | 414  | 446  | 478  | 509  | 541  | 573  | 605  | 637  |
| 418              | 370                                                                                            | 404  | 438  | 471  | 505  | 539  | 572  | 606  | 640  | 673  |
| 419              | 391                                                                                            | 426  | 462  | 497  | 533  | 568  | 604  | 639  | 675  | 710  |
| 420              | 411                                                                                            | 448  | 486  | 523  | 560  | 598  | 635  | 672  | 710  | 747  |
| 421              | 431                                                                                            | 470  | 509  | 549  | 588  | 627  | 666  | 705  | 744  | 784  |
| 422              | 449                                                                                            | 489  | 530  | 571  | 612  | 652  | 693  | 734  | 775  | 815  |
| 423              | 465                                                                                            | 508  | 550  | 592  | 635  | 677  | 719  | 761  | 804  | 846  |
| 424              | 482                                                                                            | 526  | 570  | 614  | 658  | 701  | 745  | 789  | 833  | 877  |
| 425              | 499                                                                                            | 544  | 590  | 635  | 680  | 726  | 771  | 817  | 862  | 907  |
| 426              | 516                                                                                            | 563  | 610  | 657  | 703  | 750  | 797  | 844  | 891  | 938  |
| 427              | 533                                                                                            | 581  | 630  | 678  | 726  | 775  | 823  | 872  | 920  | 968  |
| 428              | 549                                                                                            | 599  | 649  | 699  | 749  | 799  | 849  | 899  | 949  | 999  |
| 429              | 566                                                                                            | 618  | 669  | 721  | 772  | 824  | 875  | 927  | 978  | 1030 |
| 430              | 583                                                                                            | 636  | 689  | 742  | 795  | 848  | 901  | 954  | 1007 | 1060 |
| 431              | 600                                                                                            | 655  | 709  | 764  | 818  | 873  | 927  | 982  | 1036 | 1091 |
| 432              | 617                                                                                            | 673  | 729  | 785  | 841  | 897  | 953  | 1009 | 1065 | 1121 |
| 433              | 634                                                                                            | 691  | 749  | 806  | 864  | 922  | 979  | 1037 | 1094 | 1152 |
| 434              | 650                                                                                            | 710  | 769  | 828  | 887  | 946  | 1005 | 1064 | 1124 | 1183 |
| 435              | 667                                                                                            | 728  | 789  | 849  | 910  | 971  | 1031 | 1092 | 1153 | 1213 |
| 436              | 684                                                                                            | 746  | 809  | 871  | 933  | 995  | 1057 | 1119 | 1182 | 1244 |
| 437              | 697                                                                                            | 760  | 823  | 887  | 950  | 1013 | 1077 | 1140 | 1203 | 1267 |
| 438              | 708                                                                                            | 772  | 837  | 901  | 965  | 1030 | 1094 | 1159 | 1223 | 1287 |
| 439              | 719                                                                                            | 785  | 850  | 916  | 981  | 1046 | 1112 | 1177 | 1243 | 1308 |
| 440              | 731                                                                                            | 797  | 864  | 930  | 997  | 1063 | 1129 | 1196 | 1262 | 1329 |
| 441              | 742                                                                                            | 810  | 877  | 945  | 1012 | 1080 | 1147 | 1215 | 1282 | 1349 |
| 442              | 754                                                                                            | 822  | 891  | 959  | 1028 | 1096 | 1165 | 1233 | 1302 | 1370 |
| 443              | 765                                                                                            | 835  | 904  | 974  | 1043 | 1113 | 1182 | 1252 | 1321 | 1391 |
| 444              | 776                                                                                            | 847  | 918  | 988  | 1059 | 1129 | 1200 | 1270 | 1341 | 1412 |
| 445              | 788                                                                                            | 859  | 931  | 1003 | 1074 | 1146 | 1217 | 1289 | 1361 | 1432 |
| 446              | 799                                                                                            | 872  | 944  | 1017 | 1090 | 1162 | 1235 | 1308 | 1380 | 1453 |
| 447              | 811                                                                                            | 884  | 958  | 1032 | 1105 | 1179 | 1253 | 1326 | 1400 | 1474 |
| 448              | 822                                                                                            | 897  | 971  | 1046 | 1121 | 1196 | 1270 | 1345 | 1420 | 1494 |
| 449              | 833                                                                                            | 909  | 985  | 1061 | 1136 | 1212 | 1288 | 1364 | 1439 | 1515 |
| 450              | 845                                                                                            | 922  | 998  | 1075 | 1152 | 1229 | 1306 | 1382 | 1459 | 1536 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE             | 7 FT                                                                                           |                 |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|-----------------|------|------|------|------|------|------|------|------|
| OPENING          | 0.55                                                                                           | 0.60            | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 8 FT |
| ELEV<br>(ft MSL) |                                                                                                | DISCHARGE (cfs) |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |                 |      |      |      |      |      |      |      |      |
| 451              | 856                                                                                            | 934             | 1012 | 1090 | 1167 | 1245 | 1323 | 1401 | 1479 | 1557 |
| 452              | 868                                                                                            | 946             | 1025 | 1104 | 1183 | 1262 | 1341 | 1420 | 1499 | 1577 |
| 453              | 879                                                                                            | 959             | 1039 | 1119 | 1199 | 1278 | 1358 | 1438 | 1518 | 1598 |
| 454              | 890                                                                                            | 971             | 1052 | 1133 | 1214 | 1295 | 1376 | 1457 | 1538 | 1619 |
| 455              | 902                                                                                            | 984             | 1066 | 1148 | 1230 | 1312 | 1394 | 1476 | 1558 | 1640 |
| 456              | 913                                                                                            | 996             | 1079 | 1162 | 1245 | 1328 | 1411 | 1494 | 1577 | 1660 |
| 457              | 925                                                                                            | 1009            | 1093 | 1177 | 1261 | 1345 | 1429 | 1513 | 1597 | 1681 |
| 458              | 936                                                                                            | 1021            | 1106 | 1191 | 1276 | 1361 | 1446 | 1532 | 1617 | 1702 |
| 459              | 947                                                                                            | 1033            | 1120 | 1206 | 1292 | 1378 | 1464 | 1550 | 1636 | 1722 |
| 460              | 959                                                                                            | 1046            | 1133 | 1220 | 1307 | 1395 | 1482 | 1569 | 1656 | 1743 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 461              | 970                                                                                            | 1058            | 1147 | 1235 | 1323 | 1411 | 1499 | 1587 | 1676 | 1764 |
| 462              | 979                                                                                            | 1068            | 1157 | 1246 | 1335 | 1424 | 1513 | 1602 | 1691 | 1780 |
| 463              | 987                                                                                            | 1077            | 1166 | 1256 | 1346 | 1436 | 1525 | 1615 | 1705 | 1794 |
| 464              | 995                                                                                            | 1085            | 1176 | 1266 | 1357 | 1447 | 1538 | 1628 | 1719 | 1809 |
| 465              | 1003                                                                                           | 1094            | 1185 | 1277 | 1368 | 1459 | 1550 | 1641 | 1733 | 1824 |
| 466              | 1011                                                                                           | 1103            | 1195 | 1287 | 1379 | 1471 | 1563 | 1655 | 1746 | 1838 |
| 467              | 1019                                                                                           | 1112            | 1204 | 1297 | 1390 | 1482 | 1575 | 1668 | 1760 | 1853 |
| 468              | 1027                                                                                           | 1121            | 1214 | 1307 | 1401 | 1494 | 1588 | 1681 | 1774 | 1868 |
| 469              | 1035                                                                                           | 1129            | 1224 | 1318 | 1412 | 1506 | 1600 | 1694 | 1788 | 1882 |
| 470              | 1043                                                                                           | 1138            | 1233 | 1328 | 1423 | 1518 | 1612 | 1707 | 1802 | 1897 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 471              | 1051                                                                                           | 1147            | 1243 | 1338 | 1434 | 1529 | 1625 | 1721 | 1816 | 1912 |
| 472              | 1059                                                                                           | 1156            | 1252 | 1348 | 1445 | 1541 | 1637 | 1734 | 1830 | 1926 |
| 473              | 1068                                                                                           | 1165            | 1262 | 1359 | 1456 | 1553 | 1650 | 1747 | 1844 | 1941 |
| 474              | 1076                                                                                           | 1173            | 1271 | 1369 | 1467 | 1565 | 1662 | 1760 | 1858 | 1956 |
| 475              | 1084                                                                                           | 1182            | 1281 | 1379 | 1478 | 1576 | 1675 | 1773 | 1872 | 1970 |
| 476              | 1092                                                                                           | 1191            | 1290 | 1389 | 1489 | 1588 | 1687 | 1786 | 1886 | 1985 |
| 477              | 1100                                                                                           | 1200            | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 |
| 478              | 1108                                                                                           | 1209            | 1309 | 1410 | 1511 | 1611 | 1712 | 1813 | 1914 | 2014 |
| 479              | 1116                                                                                           | 1217            | 1319 | 1420 | 1522 | 1623 | 1725 | 1826 | 1928 | 2029 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 480              | 1124                                                                                           | 1226            | 1328 | 1431 | 1533 | 1635 | 1737 | 1839 | 1941 | 2044 |
| 481              | 1132                                                                                           | 1235            | 1338 | 1441 | 1544 | 1647 | 1750 | 1852 | 1955 | 2058 |
| 482              | 1140                                                                                           | 1244            | 1347 | 1451 | 1555 | 1658 | 1762 | 1866 | 1969 | 2073 |
| 483              | 1148                                                                                           | 1253            | 1357 | 1461 | 1566 | 1670 | 1774 | 1879 | 1983 | 2088 |
| 484              | 1156                                                                                           | 1261            | 1366 | 1472 | 1577 | 1682 | 1787 | 1892 | 1997 | 2102 |
| 485              | 1164                                                                                           | 1270            | 1376 | 1482 | 1588 | 1694 | 1799 | 1905 | 2011 | 2117 |
| 486              | 1172                                                                                           | 1279            | 1386 | 1492 | 1599 | 1705 | 1812 | 1918 | 2025 | 2132 |
| 487              | 1180                                                                                           | 1288            | 1395 | 1502 | 1610 | 1717 | 1824 | 1932 | 2039 | 2146 |
| 488              | 1188                                                                                           | 1297            | 1405 | 1513 | 1621 | 1729 | 1837 | 1945 | 2053 | 2161 |
| 489              | 1197                                                                                           | 1305            | 1414 | 1523 | 1632 | 1740 | 1849 | 1958 | 2067 | 2176 |
| 490              | 1205                                                                                           | 1314            | 1424 | 1533 | 1643 | 1752 | 1862 | 1971 | 2081 | 2190 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 491              | 1213                                                                                           | 1323            | 1433 | 1543 | 1654 | 1764 | 1874 | 1984 | 2095 | 2205 |
| 492              | 1221                                                                                           | 1332            | 1443 | 1554 | 1665 | 1776 | 1887 | 1998 | 2109 | 2220 |
| 493              | 1229                                                                                           | 1341            | 1452 | 1564 | 1676 | 1787 | 1899 | 2011 | 2122 | 2234 |
| 494              | 1237                                                                                           | 1349            | 1462 | 1574 | 1687 | 1799 | 1912 | 2024 | 2136 | 2249 |
| 495              | 1245                                                                                           | 1358            | 1471 | 1584 | 1698 | 1811 | 1924 | 2037 | 2150 | 2264 |
| 496              | 1253                                                                                           | 1367            | 1481 | 1595 | 1709 | 1823 | 1936 | 2050 | 2164 | 2278 |
| 497              | 1261                                                                                           | 1376            | 1490 | 1605 | 1720 | 1834 | 1949 | 2064 | 2178 | 2293 |
| 498              | 1269                                                                                           | 1384            | 1500 | 1615 | 1731 | 1846 | 1961 | 2077 | 2192 | 2307 |
| 499              | 1277                                                                                           | 1393            | 1509 | 1626 | 1742 | 1858 | 1974 | 2090 | 2206 | 2322 |
| 500              | 1285                                                                                           | 1402            | 1519 | 1636 | 1753 | 1869 | 1986 | 2103 | 2220 | 2337 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 7 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 8 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 501              | 1293                                                                                           | 1411 | 1528 | 1646 | 1764 | 1881 | 1999 | 2116 | 2234 | 2351 |
| 502              | 1301                                                                                           | 1420 | 1538 | 1656 | 1775 | 1893 | 2011 | 2130 | 2248 | 2366 |
| 503              | 1309                                                                                           | 1428 | 1548 | 1667 | 1786 | 1905 | 2024 | 2143 | 2262 | 2381 |
| 504              | 1317                                                                                           | 1437 | 1557 | 1677 | 1797 | 1916 | 2036 | 2156 | 2276 | 2395 |
| 505              | 1326                                                                                           | 1446 | 1567 | 1687 | 1808 | 1928 | 2049 | 2169 | 2290 | 2410 |
| 506              | 1334                                                                                           | 1455 | 1576 | 1697 | 1819 | 1940 | 2061 | 2182 | 2304 | 2425 |
| 507              | 1342                                                                                           | 1464 | 1586 | 1708 | 1830 | 1952 | 2074 | 2195 | 2317 | 2439 |
| 508              | 1350                                                                                           | 1472 | 1595 | 1718 | 1841 | 1963 | 2086 | 2209 | 2331 | 2454 |
| 509              | 1358                                                                                           | 1481 | 1605 | 1728 | 1852 | 1975 | 2098 | 2222 | 2345 | 2469 |
| 510              | 1366                                                                                           | 1490 | 1614 | 1738 | 1863 | 1987 | 2111 | 2235 | 2359 | 2483 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 511              | 1374                                                                                           | 1499 | 1624 | 1749 | 1874 | 1998 | 2123 | 2248 | 2373 | 2498 |
| 512              | 1380                                                                                           | 1506 | 1631 | 1757 | 1882 | 2008 | 2133 | 2259 | 2384 | 2510 |
| 513              | 1387                                                                                           | 1513 | 1639 | 1765 | 1891 | 2017 | 2143 | 2269 | 2395 | 2521 |
| 514              | 1393                                                                                           | 1519 | 1646 | 1773 | 1899 | 2026 | 2153 | 2279 | 2406 | 2532 |
| 515              | 1399                                                                                           | 1526 | 1653 | 1781 | 1908 | 2035 | 2162 | 2289 | 2417 | 2544 |
| 516              | 1405                                                                                           | 1533 | 1661 | 1788 | 1916 | 2044 | 2172 | 2299 | 2427 | 2555 |
| 517              | 1411                                                                                           | 1540 | 1668 | 1796 | 1925 | 2053 | 2181 | 2310 | 2438 | 2566 |
| 518              | 1418                                                                                           | 1546 | 1675 | 1804 | 1933 | 2062 | 2191 | 2320 | 2449 | 2577 |
| 519              | 1424                                                                                           | 1553 | 1683 | 1812 | 1942 | 2071 | 2200 | 2330 | 2459 | 2589 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 520              | 1430                                                                                           | 1560 | 1690 | 1820 | 1950 | 2080 | 2210 | 2340 | 2470 | 2600 |
| 521              | 1436                                                                                           | 1567 | 1697 | 1828 | 1958 | 2089 | 2219 | 2350 | 2481 | 2611 |
| 522              | 1442                                                                                           | 1573 | 1705 | 1836 | 1967 | 2098 | 2229 | 2360 | 2491 | 2622 |
| 523              | 1448                                                                                           | 1580 | 1712 | 1844 | 1975 | 2107 | 2239 | 2370 | 2502 | 2634 |
| 524              | 1455                                                                                           | 1587 | 1719 | 1851 | 1984 | 2116 | 2248 | 2380 | 2513 | 2645 |
| 525              | 1461                                                                                           | 1594 | 1726 | 1859 | 1992 | 2125 | 2258 | 2391 | 2523 | 2656 |
| 526              | 1467                                                                                           | 1600 | 1734 | 1867 | 2001 | 2134 | 2267 | 2401 | 2534 | 2667 |
| 527              | 1473                                                                                           | 1607 | 1741 | 1875 | 2009 | 2143 | 2277 | 2411 | 2545 | 2679 |
| 528              | 1479                                                                                           | 1614 | 1748 | 1883 | 2017 | 2152 | 2286 | 2421 | 2555 | 2690 |
| 529              | 1486                                                                                           | 1621 | 1756 | 1891 | 2026 | 2161 | 2296 | 2431 | 2566 | 2701 |
| 530              | 1492                                                                                           | 1627 | 1763 | 1899 | 2034 | 2170 | 2305 | 2441 | 2577 | 2712 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 531              | 1498                                                                                           | 1634 | 1770 | 1906 | 2043 | 2179 | 2315 | 2451 | 2587 | 2724 |
| 532              | 1504                                                                                           | 1641 | 1778 | 1914 | 2051 | 2188 | 2325 | 2461 | 2598 | 2735 |
| 533              | 1510                                                                                           | 1648 | 1785 | 1922 | 2060 | 2197 | 2334 | 2471 | 2609 | 2746 |
| 534              | 1516                                                                                           | 1654 | 1792 | 1930 | 2068 | 2206 | 2344 | 2482 | 2619 | 2757 |
| 535              | 1523                                                                                           | 1661 | 1800 | 1938 | 2076 | 2215 | 2353 | 2492 | 2630 | 2769 |
| 536              | 1529                                                                                           | 1668 | 1807 | 1946 | 2085 | 2224 | 2363 | 2502 | 2641 | 2780 |
| 537              | 1535                                                                                           | 1675 | 1814 | 1954 | 2093 | 2233 | 2372 | 2512 | 2651 | 2791 |
| 538              | 1541                                                                                           | 1681 | 1821 | 1962 | 2102 | 2242 | 2382 | 2522 | 2662 | 2802 |
| 539              | 1547                                                                                           | 1688 | 1829 | 1969 | 2110 | 2251 | 2391 | 2532 | 2673 | 2813 |
| 540              | 1554                                                                                           | 1695 | 1836 | 1977 | 2119 | 2260 | 2401 | 2542 | 2683 | 2825 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 541              | 1560                                                                                           | 1702 | 1843 | 1985 | 2127 | 2269 | 2411 | 2552 | 2694 | 2836 |
| 542              | 1566                                                                                           | 1708 | 1851 | 1993 | 2135 | 2278 | 2420 | 2562 | 2705 | 2847 |
| 543              | 1572                                                                                           | 1715 | 1858 | 2001 | 2144 | 2287 | 2430 | 2573 | 2716 | 2858 |
| 544              | 1578                                                                                           | 1722 | 1865 | 2009 | 2152 | 2296 | 2439 | 2583 | 2726 | 2870 |
| 545              | 1585                                                                                           | 1729 | 1873 | 2017 | 2161 | 2305 | 2449 | 2593 | 2737 | 2881 |
| 546              | 1591                                                                                           | 1735 | 1880 | 2025 | 2169 | 2314 | 2458 | 2603 | 2748 | 2892 |
| 547              | 1597                                                                                           | 1742 | 1887 | 2032 | 2178 | 2323 | 2468 | 2613 | 2758 | 2903 |
| 548              | 1603                                                                                           | 1749 | 1895 | 2040 | 2186 | 2332 | 2477 | 2623 | 2769 | 2915 |
| 549              | 1609                                                                                           | 1756 | 1902 | 2048 | 2194 | 2341 | 2487 | 2633 | 2780 | 2926 |
| 550              | 1615                                                                                           | 1762 | 1909 | 2056 | 2203 | 2350 | 2497 | 2643 | 2790 | 2937 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 7 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 8 FT |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 551              | 1622                                                                                           | 1769 | 1916 | 2064 | 2211 | 2359 | 2506 | 2654 | 2801 | 2948 |
| 552              | 1628                                                                                           | 1776 | 1924 | 2072 | 2220 | 2368 | 2516 | 2664 | 2812 | 2960 |
| 553              | 1634                                                                                           | 1782 | 1931 | 2080 | 2228 | 2377 | 2525 | 2674 | 2822 | 2971 |
| 554              | 1640                                                                                           | 1789 | 1938 | 2087 | 2237 | 2386 | 2535 | 2684 | 2833 | 2982 |
| 555              | 1646                                                                                           | 1796 | 1946 | 2095 | 2245 | 2395 | 2544 | 2694 | 2844 | 2993 |
| 556              | 1653                                                                                           | 1803 | 1953 | 2103 | 2253 | 2404 | 2554 | 2704 | 2854 | 3005 |
| 557              | 1659                                                                                           | 1809 | 1960 | 2111 | 2262 | 2413 | 2563 | 2714 | 2865 | 3016 |
| 558              | 1665                                                                                           | 1816 | 1968 | 2119 | 2270 | 2422 | 2573 | 2724 | 2876 | 3027 |
| 559              | 1671                                                                                           | 1823 | 1975 | 2127 | 2279 | 2431 | 2583 | 2734 | 2886 | 3038 |
| 560              | 1677                                                                                           | 1830 | 1982 | 2135 | 2287 | 2440 | 2592 | 2745 | 2897 | 3050 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 561              | 1683                                                                                           | 1836 | 1989 | 2143 | 2296 | 2449 | 2602 | 2755 | 2908 | 3061 |
| 562              | 1689                                                                                           | 1843 | 1996 | 2150 | 2303 | 2457 | 2610 | 2764 | 2917 | 3071 |
| 563              | 1694                                                                                           | 1849 | 2003 | 2157 | 2311 | 2465 | 2619 | 2773 | 2927 | 3081 |
| 564              | 1700                                                                                           | 1855 | 2009 | 2164 | 2318 | 2473 | 2627 | 2782 | 2936 | 3091 |
| 565              | 1705                                                                                           | 1860 | 2016 | 2171 | 2326 | 2481 | 2636 | 2791 | 2946 | 3101 |
| 566              | 1711                                                                                           | 1866 | 2022 | 2178 | 2333 | 2489 | 2644 | 2800 | 2955 | 3111 |
| 567              | 1716                                                                                           | 1872 | 2028 | 2184 | 2341 | 2497 | 2653 | 2809 | 2965 | 3121 |
| 568              | 1722                                                                                           | 1878 | 2035 | 2191 | 2348 | 2505 | 2661 | 2818 | 2974 | 3131 |
| 569              | 1727                                                                                           | 1884 | 2041 | 2198 | 2355 | 2512 | 2669 | 2827 | 2984 | 3141 |
| 570              | 1733                                                                                           | 1890 | 2048 | 2205 | 2363 | 2520 | 2678 | 2835 | 2993 | 3151 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 571              | 1738                                                                                           | 1896 | 2054 | 2212 | 2370 | 2528 | 2686 | 2844 | 3002 | 3160 |
| 572              | 1744                                                                                           | 1902 | 2061 | 2219 | 2378 | 2536 | 2695 | 2853 | 3012 | 3170 |
| 573              | 1749                                                                                           | 1908 | 2067 | 2226 | 2385 | 2544 | 2703 | 2862 | 3021 | 3180 |
| 574              | 1755                                                                                           | 1914 | 2074 | 2233 | 2393 | 2552 | 2712 | 2871 | 3031 | 3190 |
| 575              | 1760                                                                                           | 1920 | 2080 | 2240 | 2400 | 2560 | 2720 | 2880 | 3040 | 3200 |
| 576              | 1766                                                                                           | 1926 | 2087 | 2247 | 2408 | 2568 | 2729 | 2889 | 3050 | 3210 |
| 577              | 1771                                                                                           | 1932 | 2093 | 2254 | 2415 | 2576 | 2737 | 2898 | 3059 | 3220 |
| 578              | 1777                                                                                           | 1938 | 2100 | 2261 | 2423 | 2584 | 2746 | 2907 | 3069 | 3230 |
| 579              | 1782                                                                                           | 1944 | 2106 | 2268 | 2430 | 2592 | 2754 | 2916 | 3078 | 3240 |
| 580              | 1788                                                                                           | 1950 | 2113 | 2275 | 2438 | 2600 | 2763 | 2925 | 3088 | 3250 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 8 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 405              | 0                                                                                              | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 406              | 3                                                                                              | 6    | 9    | 12   | 14   | 17   | 20   | 23   | 26   | 29   |
| 407              | 6                                                                                              | 12   | 17   | 23   | 29   | 35   | 40   | 46   | 52   | 58   |
| 408              | 9                                                                                              | 17   | 26   | 35   | 43   | 52   | 61   | 69   | 78   | 87   |
| 409              | 12                                                                                             | 23   | 35   | 46   | 58   | 69   | 81   | 92   | 104  | 115  |
| 410              | 14                                                                                             | 29   | 43   | 58   | 72   | 87   | 101  | 115  | 130  | 144  |
| 411              | 17                                                                                             | 35   | 52   | 69   | 87   | 104  | 121  | 138  | 156  | 173  |
| 412              | 20                                                                                             | 40   | 61   | 81   | 101  | 121  | 141  | 162  | 182  | 202  |
| 413              | 23                                                                                             | 46   | 69   | 92   | 115  | 138  | 162  | 185  | 208  | 231  |
| 414              | 26                                                                                             | 52   | 78   | 104  | 130  | 156  | 182  | 208  | 234  | 260  |
| 415              | 29                                                                                             | 58   | 87   | 115  | 144  | 173  | 202  | 231  | 260  | 288  |
| 416              | 32                                                                                             | 63   | 95   | 127  | 159  | 190  | 222  | 254  | 286  | 317  |
| 417              | 35                                                                                             | 69   | 104  | 138  | 173  | 208  | 242  | 277  | 312  | 346  |
| 418              | 38                                                                                             | 75   | 113  | 150  | 188  | 225  | 263  | 300  | 338  | 375  |
| 419              | 39                                                                                             | 78   | 118  | 157  | 196  | 235  | 274  | 314  | 353  | 392  |
| 420              | 41                                                                                             | 82   | 123  | 164  | 205  | 245  | 286  | 327  | 368  | 409  |
| 421              | 43                                                                                             | 85   | 128  | 170  | 213  | 256  | 298  | 341  | 384  | 426  |
| 422              | 44                                                                                             | 89   | 133  | 177  | 222  | 266  | 310  | 355  | 399  | 443  |
| 423              | 46                                                                                             | 92   | 138  | 184  | 230  | 276  | 322  | 368  | 414  | 460  |
| 424              | 48                                                                                             | 95   | 143  | 191  | 239  | 286  | 334  | 382  | 430  | 477  |
| 425              | 49                                                                                             | 99   | 148  | 198  | 247  | 297  | 346  | 395  | 445  | 494  |
| 426              | 51                                                                                             | 102  | 153  | 205  | 256  | 307  | 358  | 409  | 460  | 511  |
| 427              | 53                                                                                             | 106  | 159  | 211  | 264  | 317  | 370  | 423  | 476  | 528  |
| 428              | 55                                                                                             | 109  | 164  | 218  | 273  | 327  | 382  | 436  | 491  | 545  |
| 429              | 56                                                                                             | 113  | 169  | 225  | 281  | 338  | 394  | 450  | 506  | 563  |
| 430              | 58                                                                                             | 116  | 174  | 232  | 290  | 348  | 406  | 464  | 522  | 580  |
| 431              | 60                                                                                             | 119  | 179  | 239  | 298  | 358  | 418  | 477  | 537  | 597  |
| 432              | 61                                                                                             | 123  | 184  | 245  | 307  | 368  | 430  | 491  | 552  | 614  |
| 433              | 63                                                                                             | 126  | 189  | 252  | 315  | 378  | 441  | 505  | 568  | 631  |
| 434              | 65                                                                                             | 130  | 194  | 259  | 324  | 389  | 453  | 518  | 583  | 648  |
| 435              | 66                                                                                             | 133  | 199  | 266  | 332  | 399  | 465  | 532  | 598  | 665  |
| 436              | 68                                                                                             | 136  | 205  | 273  | 341  | 409  | 477  | 545  | 614  | 682  |
| 437              | 70                                                                                             | 140  | 210  | 280  | 349  | 419  | 489  | 559  | 629  | 699  |
| 438              | 72                                                                                             | 143  | 215  | 286  | 358  | 430  | 501  | 573  | 644  | 716  |
| 439              | 73                                                                                             | 147  | 220  | 293  | 366  | 440  | 513  | 586  | 660  | 733  |
| 440              | 75                                                                                             | 150  | 225  | 300  | 375  | 450  | 525  | 600  | 675  | 750  |
| 441              | 76                                                                                             | 153  | 229  | 305  | 381  | 458  | 534  | 610  | 686  | 763  |
| 442              | 78                                                                                             | 155  | 233  | 310  | 388  | 465  | 543  | 620  | 698  | 775  |
| 443              | 79                                                                                             | 158  | 236  | 315  | 394  | 473  | 551  | 630  | 709  | 788  |
| 444              | 80                                                                                             | 160  | 240  | 320  | 400  | 480  | 560  | 640  | 720  | 800  |
| 445              | 81                                                                                             | 163  | 244  | 325  | 406  | 488  | 569  | 650  | 731  | 813  |
| 446              | 83                                                                                             | 165  | 248  | 330  | 413  | 495  | 578  | 660  | 743  | 825  |
| 447              | 84                                                                                             | 168  | 251  | 335  | 419  | 503  | 586  | 670  | 754  | 838  |
| 448              | 85                                                                                             | 170  | 255  | 340  | 425  | 510  | 595  | 680  | 765  | 850  |
| 449              | 86                                                                                             | 173  | 259  | 345  | 431  | 518  | 604  | 690  | 776  | 863  |
| 450              | 88                                                                                             | 175  | 263  | 350  | 438  | 525  | 613  | 700  | 788  | 875  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 8 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 451              | 89                                                                                             | 178  | 266  | 355  | 444  | 533  | 621  | 710  | 799  | 888  |
| 452              | 90                                                                                             | 180  | 270  | 360  | 450  | 540  | 630  | 720  | 810  | 900  |
| 453              | 91                                                                                             | 183  | 274  | 365  | 456  | 548  | 639  | 730  | 821  | 913  |
| 454              | 93                                                                                             | 185  | 278  | 370  | 463  | 555  | 648  | 740  | 833  | 925  |
| 455              | 94                                                                                             | 188  | 281  | 375  | 469  | 563  | 656  | 750  | 844  | 938  |
| 456              | 95                                                                                             | 190  | 285  | 380  | 475  | 570  | 665  | 760  | 855  | 950  |
| 457              | 96                                                                                             | 193  | 289  | 385  | 481  | 578  | 674  | 770  | 866  | 963  |
| 458              | 98                                                                                             | 195  | 293  | 390  | 488  | 585  | 683  | 780  | 878  | 975  |
| 459              | 99                                                                                             | 198  | 296  | 395  | 494  | 593  | 691  | 790  | 889  | 988  |
| 460              | 100                                                                                            | 200  | 300  | 400  | 500  | 600  | 700  | 800  | 900  | 1000 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 461              | 101                                                                                            | 202  | 303  | 404  | 505  | 606  | 707  | 808  | 908  | 1009 |
| 462              | 102                                                                                            | 204  | 306  | 408  | 509  | 611  | 713  | 815  | 917  | 1019 |
| 463              | 103                                                                                            | 206  | 308  | 411  | 514  | 617  | 720  | 823  | 925  | 1028 |
| 464              | 104                                                                                            | 208  | 311  | 415  | 519  | 623  | 726  | 830  | 934  | 1038 |
| 465              | 105                                                                                            | 209  | 314  | 419  | 523  | 628  | 733  | 838  | 942  | 1047 |
| 466              | 106                                                                                            | 211  | 317  | 423  | 528  | 634  | 739  | 845  | 951  | 1056 |
| 467              | 107                                                                                            | 213  | 320  | 426  | 533  | 639  | 746  | 853  | 959  | 1066 |
| 468              | 108                                                                                            | 215  | 323  | 430  | 538  | 645  | 753  | 860  | 968  | 1075 |
| 469              | 108                                                                                            | 217  | 325  | 434  | 542  | 651  | 759  | 868  | 976  | 1084 |
| 470              | 109                                                                                            | 219  | 328  | 438  | 547  | 656  | 766  | 875  | 984  | 1094 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 471              | 110                                                                                            | 221  | 331  | 441  | 552  | 662  | 772  | 883  | 993  | 1103 |
| 472              | 111                                                                                            | 223  | 334  | 445  | 556  | 668  | 779  | 890  | 1001 | 1113 |
| 473              | 112                                                                                            | 224  | 337  | 449  | 561  | 673  | 785  | 898  | 1010 | 1122 |
| 474              | 113                                                                                            | 226  | 339  | 453  | 566  | 679  | 792  | 905  | 1018 | 1131 |
| 475              | 114                                                                                            | 228  | 342  | 456  | 570  | 684  | 798  | 913  | 1027 | 1141 |
| 476              | 115                                                                                            | 230  | 345  | 460  | 575  | 690  | 805  | 920  | 1035 | 1150 |
| 477              | 116                                                                                            | 232  | 348  | 464  | 580  | 696  | 812  | 928  | 1043 | 1159 |
| 478              | 117                                                                                            | 234  | 351  | 468  | 584  | 701  | 818  | 935  | 1052 | 1169 |
| 479              | 118                                                                                            | 236  | 353  | 471  | 589  | 707  | 825  | 943  | 1060 | 1178 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 480              | 119                                                                                            | 238  | 356  | 475  | 594  | 713  | 831  | 950  | 1069 | 1188 |
| 481              | 119                                                                                            | 239  | 358  | 478  | 597  | 717  | 836  | 956  | 1075 | 1195 |
| 482              | 120                                                                                            | 240  | 361  | 481  | 601  | 721  | 841  | 962  | 1082 | 1202 |
| 483              | 121                                                                                            | 242  | 363  | 484  | 605  | 726  | 847  | 968  | 1088 | 1209 |
| 484              | 122                                                                                            | 243  | 365  | 487  | 608  | 730  | 852  | 973  | 1095 | 1217 |
| 485              | 122                                                                                            | 245  | 367  | 490  | 612  | 734  | 857  | 979  | 1102 | 1224 |
| 486              | 123                                                                                            | 246  | 369  | 493  | 616  | 739  | 862  | 985  | 1108 | 1231 |
| 487              | 124                                                                                            | 248  | 372  | 495  | 619  | 743  | 867  | 991  | 1115 | 1239 |
| 488              | 125                                                                                            | 249  | 374  | 498  | 623  | 748  | 872  | 997  | 1121 | 1246 |
| 489              | 125                                                                                            | 251  | 376  | 501  | 627  | 752  | 877  | 1003 | 1128 | 1253 |
| 490              | 126                                                                                            | 252  | 378  | 504  | 630  | 756  | 882  | 1008 | 1134 | 1260 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 491              | 127                                                                                            | 254  | 380  | 507  | 634  | 761  | 887  | 1014 | 1141 | 1268 |
| 492              | 128                                                                                            | 255  | 383  | 510  | 638  | 765  | 893  | 1020 | 1148 | 1275 |
| 493              | 128                                                                                            | 256  | 385  | 513  | 641  | 769  | 898  | 1026 | 1154 | 1282 |
| 494              | 129                                                                                            | 258  | 387  | 516  | 645  | 774  | 903  | 1032 | 1161 | 1290 |
| 495              | 130                                                                                            | 259  | 389  | 519  | 648  | 778  | 908  | 1038 | 1167 | 1297 |
| 496              | 130                                                                                            | 261  | 391  | 522  | 652  | 783  | 913  | 1043 | 1174 | 1304 |
| 497              | 131                                                                                            | 262  | 393  | 525  | 656  | 787  | 918  | 1049 | 1180 | 1311 |
| 498              | 132                                                                                            | 264  | 396  | 528  | 659  | 791  | 923  | 1055 | 1187 | 1319 |
| 499              | 133                                                                                            | 265  | 398  | 530  | 663  | 796  | 928  | 1061 | 1193 | 1326 |
| 500              | 133                                                                                            | 267  | 400  | 533  | 667  | 800  | 933  | 1067 | 1200 | 1333 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 8 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 501              | 134                                                                                            | 268  | 402  | 536  | 670  | 804  | 938  | 1073 | 1207 | 1341 |
| 502              | 135                                                                                            | 270  | 404  | 539  | 674  | 809  | 944  | 1078 | 1213 | 1348 |
| 503              | 136                                                                                            | 271  | 407  | 542  | 678  | 813  | 949  | 1084 | 1220 | 1355 |
| 504              | 136                                                                                            | 273  | 409  | 545  | 681  | 818  | 954  | 1090 | 1226 | 1363 |
| 505              | 137                                                                                            | 274  | 411  | 548  | 685  | 822  | 959  | 1096 | 1233 | 1370 |
| 506              | 138                                                                                            | 275  | 413  | 551  | 689  | 826  | 964  | 1102 | 1239 | 1377 |
| 507              | 138                                                                                            | 277  | 415  | 554  | 692  | 831  | 969  | 1108 | 1246 | 1384 |
| 508              | 139                                                                                            | 278  | 418  | 557  | 696  | 835  | 974  | 1113 | 1253 | 1392 |
| 509              | 140                                                                                            | 280  | 420  | 560  | 699  | 839  | 979  | 1119 | 1259 | 1399 |
| 510              | 141                                                                                            | 281  | 422  | 563  | 703  | 844  | 984  | 1125 | 1266 | 1406 |
| 511              | 141                                                                                            | 283  | 424  | 565  | 707  | 848  | 989  | 1131 | 1272 | 1414 |
| 512              | 142                                                                                            | 284  | 426  | 568  | 710  | 853  | 995  | 1137 | 1279 | 1421 |
| 513              | 143                                                                                            | 286  | 428  | 571  | 714  | 857  | 1000 | 1143 | 1285 | 1428 |
| 514              | 144                                                                                            | 287  | 431  | 574  | 718  | 861  | 1005 | 1148 | 1292 | 1435 |
| 515              | 144                                                                                            | 289  | 433  | 577  | 721  | 866  | 1010 | 1154 | 1298 | 1443 |
| 516              | 145                                                                                            | 290  | 435  | 580  | 725  | 870  | 1015 | 1160 | 1305 | 1450 |
| 517              | 146                                                                                            | 291  | 437  | 583  | 729  | 874  | 1020 | 1166 | 1312 | 1457 |
| 518              | 146                                                                                            | 293  | 439  | 586  | 732  | 879  | 1025 | 1172 | 1318 | 1465 |
| 519              | 147                                                                                            | 294  | 442  | 589  | 736  | 883  | 1030 | 1178 | 1325 | 1472 |
| 520              | 148                                                                                            | 296  | 444  | 592  | 740  | 888  | 1035 | 1183 | 1331 | 1479 |
| 521              | 149                                                                                            | 297  | 446  | 595  | 743  | 892  | 1041 | 1189 | 1338 | 1486 |
| 522              | 149                                                                                            | 299  | 448  | 598  | 747  | 896  | 1046 | 1195 | 1344 | 1494 |
| 523              | 150                                                                                            | 300  | 450  | 600  | 751  | 901  | 1051 | 1201 | 1351 | 1501 |
| 524              | 151                                                                                            | 302  | 453  | 603  | 754  | 905  | 1056 | 1207 | 1358 | 1508 |
| 525              | 152                                                                                            | 303  | 455  | 606  | 758  | 909  | 1061 | 1213 | 1364 | 1516 |
| 526              | 152                                                                                            | 305  | 457  | 609  | 761  | 914  | 1066 | 1218 | 1371 | 1523 |
| 527              | 153                                                                                            | 306  | 459  | 612  | 765  | 918  | 1071 | 1224 | 1377 | 1530 |
| 528              | 154                                                                                            | 308  | 461  | 615  | 769  | 923  | 1076 | 1230 | 1384 | 1538 |
| 529              | 154                                                                                            | 309  | 463  | 618  | 772  | 927  | 1081 | 1236 | 1390 | 1545 |
| 530              | 155                                                                                            | 310  | 466  | 621  | 776  | 931  | 1086 | 1242 | 1397 | 1552 |
| 531              | 156                                                                                            | 312  | 468  | 624  | 780  | 936  | 1092 | 1248 | 1403 | 1559 |
| 532              | 157                                                                                            | 313  | 470  | 627  | 783  | 940  | 1097 | 1253 | 1410 | 1567 |
| 533              | 157                                                                                            | 315  | 472  | 630  | 787  | 944  | 1102 | 1259 | 1417 | 1574 |
| 534              | 158                                                                                            | 316  | 474  | 633  | 791  | 949  | 1107 | 1265 | 1423 | 1581 |
| 535              | 159                                                                                            | 318  | 477  | 635  | 794  | 953  | 1112 | 1271 | 1430 | 1589 |
| 536              | 160                                                                                            | 319  | 479  | 638  | 798  | 958  | 1117 | 1277 | 1436 | 1596 |
| 537              | 160                                                                                            | 321  | 481  | 641  | 802  | 962  | 1122 | 1283 | 1443 | 1603 |
| 538              | 161                                                                                            | 322  | 483  | 644  | 805  | 966  | 1127 | 1288 | 1449 | 1610 |
| 539              | 162                                                                                            | 324  | 485  | 647  | 809  | 971  | 1132 | 1294 | 1456 | 1618 |
| 540              | 163                                                                                            | 325  | 488  | 650  | 813  | 975  | 1138 | 1300 | 1463 | 1625 |
| 541              | 163                                                                                            | 326  | 489  | 652  | 815  | 978  | 1141 | 1304 | 1467 | 1630 |
| 542              | 164                                                                                            | 327  | 491  | 654  | 818  | 982  | 1145 | 1309 | 1472 | 1636 |
| 543              | 164                                                                                            | 328  | 492  | 657  | 821  | 985  | 1149 | 1313 | 1477 | 1641 |
| 544              | 165                                                                                            | 329  | 494  | 659  | 823  | 988  | 1153 | 1318 | 1482 | 1647 |
| 545              | 165                                                                                            | 330  | 496  | 661  | 826  | 991  | 1157 | 1322 | 1487 | 1652 |
| 546              | 166                                                                                            | 332  | 497  | 663  | 829  | 995  | 1160 | 1326 | 1492 | 1658 |
| 547              | 166                                                                                            | 333  | 499  | 665  | 832  | 998  | 1164 | 1331 | 1497 | 1663 |
| 548              | 167                                                                                            | 334  | 501  | 668  | 834  | 1001 | 1168 | 1335 | 1502 | 1669 |
| 549              | 167                                                                                            | 335  | 502  | 670  | 837  | 1005 | 1172 | 1339 | 1507 | 1674 |
| 550              | 168                                                                                            | 336  | 504  | 672  | 840  | 1008 | 1176 | 1344 | 1512 | 1680 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 8 FT                                                                                           |      |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
|                  | 0.05                                                                                           | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| ELEV<br>(ft MSL) | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 551              | 169                                                                                            | 337  | 506  | 674  | 843  | 1011 | 1180 | 1348 | 1517 | 1685 |
| 552              | 169                                                                                            | 338  | 507  | 676  | 845  | 1014 | 1183 | 1353 | 1522 | 1691 |
| 553              | 170                                                                                            | 339  | 509  | 678  | 848  | 1018 | 1187 | 1357 | 1527 | 1696 |
| 554              | 170                                                                                            | 340  | 510  | 681  | 851  | 1021 | 1191 | 1361 | 1531 | 1702 |
| 555              | 171                                                                                            | 341  | 512  | 683  | 854  | 1024 | 1195 | 1366 | 1536 | 1707 |
| 556              | 171                                                                                            | 343  | 514  | 685  | 856  | 1028 | 1199 | 1370 | 1541 | 1713 |
| 557              | 172                                                                                            | 344  | 515  | 687  | 859  | 1031 | 1203 | 1374 | 1546 | 1718 |
| 558              | 172                                                                                            | 345  | 517  | 689  | 862  | 1034 | 1206 | 1379 | 1551 | 1724 |
| 559              | 173                                                                                            | 346  | 519  | 692  | 865  | 1037 | 1210 | 1383 | 1556 | 1729 |
| 560              | 173                                                                                            | 347  | 520  | 694  | 867  | 1041 | 1214 | 1388 | 1561 | 1735 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 561              | 174                                                                                            | 348  | 522  | 696  | 870  | 1044 | 1218 | 1392 | 1566 | 1740 |
| 562              | 175                                                                                            | 349  | 524  | 698  | 873  | 1047 | 1222 | 1396 | 1571 | 1745 |
| 563              | 175                                                                                            | 350  | 525  | 700  | 875  | 1051 | 1226 | 1401 | 1576 | 1751 |
| 564              | 176                                                                                            | 351  | 527  | 703  | 878  | 1054 | 1229 | 1405 | 1581 | 1756 |
| 565              | 176                                                                                            | 352  | 529  | 705  | 881  | 1057 | 1233 | 1410 | 1586 | 1762 |
| 566              | 177                                                                                            | 353  | 530  | 707  | 884  | 1060 | 1237 | 1414 | 1591 | 1767 |
| 567              | 177                                                                                            | 355  | 532  | 709  | 886  | 1064 | 1241 | 1418 | 1596 | 1773 |
| 568              | 178                                                                                            | 356  | 533  | 711  | 889  | 1067 | 1245 | 1423 | 1600 | 1778 |
| 569              | 178                                                                                            | 357  | 535  | 714  | 892  | 1070 | 1249 | 1427 | 1605 | 1784 |
| 570              | 179                                                                                            | 358  | 537  | 716  | 895  | 1074 | 1252 | 1431 | 1610 | 1789 |
|                  |                                                                                                |      |      |      |      |      |      |      |      |      |
| 571              | 179                                                                                            | 359  | 538  | 718  | 897  | 1077 | 1256 | 1436 | 1615 | 1795 |
| 572              | 180                                                                                            | 360  | 540  | 720  | 900  | 1080 | 1260 | 1440 | 1620 | 1800 |
| 573              | 181                                                                                            | 361  | 542  | 722  | 903  | 1083 | 1264 | 1445 | 1625 | 1806 |
| 574              | 181                                                                                            | 362  | 543  | 724  | 906  | 1087 | 1268 | 1449 | 1630 | 1811 |
| 575              | 182                                                                                            | 363  | 545  | 727  | 908  | 1090 | 1272 | 1453 | 1635 | 1817 |
| 576              | 182                                                                                            | 364  | 547  | 729  | 911  | 1093 | 1275 | 1458 | 1640 | 1822 |
| 577              | 183                                                                                            | 366  | 548  | 731  | 914  | 1097 | 1279 | 1462 | 1645 | 1828 |
| 578              | 183                                                                                            | 367  | 550  | 733  | 917  | 1100 | 1283 | 1466 | 1650 | 1833 |
| 579              | 184                                                                                            | 368  | 552  | 735  | 919  | 1103 | 1287 | 1471 | 1655 | 1839 |
| 580              | 184                                                                                            | 369  | 553  | 738  | 922  | 1106 | 1291 | 1475 | 1660 | 1844 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 8 FT                                                                                           |      |      |      |      |      |      |      |      | 9 FT |
|------------------|------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
| ELEV<br>(ft MSL) | 0.55                                                                                           | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 |      |
|                  | DISCHARGE (cfs)                                                                                |      |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |      |      |      |      |      |      |      |      |      |
| 405              | 0                                                                                              | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| 406              | 32                                                                                             | 35   | 38   | 40   | 43   | 46   | 49   | 52   | 55   | 58   |
| 407              | 63                                                                                             | 69   | 75   | 81   | 87   | 92   | 98   | 104  | 110  | 115  |
| 408              | 95                                                                                             | 104  | 113  | 121  | 130  | 138  | 147  | 156  | 164  | 173  |
| 409              | 127                                                                                            | 138  | 150  | 162  | 173  | 185  | 196  | 208  | 219  | 231  |
| 410              | 159                                                                                            | 173  | 188  | 202  | 216  | 231  | 245  | 260  | 274  | 288  |
| 411              | 190                                                                                            | 208  | 225  | 242  | 260  | 277  | 294  | 312  | 329  | 346  |
| 412              | 222                                                                                            | 242  | 263  | 283  | 303  | 323  | 343  | 363  | 384  | 404  |
| 413              | 254                                                                                            | 277  | 300  | 323  | 346  | 369  | 392  | 415  | 438  | 462  |
| 414              | 286                                                                                            | 312  | 338  | 363  | 389  | 415  | 441  | 467  | 493  | 519  |
| 415              | 317                                                                                            | 346  | 375  | 404  | 433  | 462  | 490  | 519  | 548  | 577  |
| 416              | 349                                                                                            | 381  | 413  | 444  | 476  | 508  | 539  | 571  | 603  | 635  |
| 417              | 381                                                                                            | 415  | 450  | 485  | 519  | 554  | 588  | 623  | 658  | 692  |
| 418              | 413                                                                                            | 450  | 488  | 525  | 563  | 600  | 638  | 675  | 713  | 750  |
| 419              | 431                                                                                            | 470  | 510  | 549  | 588  | 627  | 666  | 706  | 745  | 784  |
| 420              | 450                                                                                            | 491  | 532  | 573  | 614  | 655  | 695  | 736  | 777  | 818  |
| 421              | 469                                                                                            | 511  | 554  | 597  | 639  | 682  | 724  | 767  | 810  | 852  |
| 422              | 488                                                                                            | 532  | 576  | 620  | 665  | 709  | 753  | 798  | 842  | 886  |
| 423              | 506                                                                                            | 552  | 598  | 644  | 690  | 736  | 782  | 828  | 874  | 920  |
| 424              | 525                                                                                            | 573  | 620  | 668  | 716  | 764  | 811  | 859  | 907  | 955  |
| 425              | 544                                                                                            | 593  | 643  | 692  | 741  | 791  | 840  | 890  | 939  | 989  |
| 426              | 563                                                                                            | 614  | 665  | 716  | 767  | 818  | 869  | 920  | 972  | 1023 |
| 427              | 581                                                                                            | 634  | 687  | 740  | 793  | 845  | 898  | 951  | 1004 | 1057 |
| 428              | 600                                                                                            | 655  | 709  | 764  | 818  | 873  | 927  | 982  | 1036 | 1091 |
| 429              | 619                                                                                            | 675  | 731  | 788  | 844  | 900  | 956  | 1013 | 1069 | 1125 |
| 430              | 638                                                                                            | 695  | 753  | 811  | 869  | 927  | 985  | 1043 | 1101 | 1159 |
| 431              | 656                                                                                            | 716  | 776  | 835  | 895  | 955  | 1014 | 1074 | 1134 | 1193 |
| 432              | 675                                                                                            | 736  | 798  | 859  | 920  | 982  | 1043 | 1105 | 1166 | 1227 |
| 433              | 694                                                                                            | 757  | 820  | 883  | 946  | 1009 | 1072 | 1135 | 1198 | 1261 |
| 434              | 713                                                                                            | 777  | 842  | 907  | 972  | 1036 | 1101 | 1166 | 1231 | 1295 |
| 435              | 731                                                                                            | 798  | 864  | 931  | 997  | 1064 | 1130 | 1197 | 1263 | 1330 |
| 436              | 750                                                                                            | 818  | 886  | 955  | 1023 | 1091 | 1159 | 1227 | 1295 | 1364 |
| 437              | 769                                                                                            | 839  | 909  | 978  | 1048 | 1118 | 1188 | 1258 | 1328 | 1398 |
| 438              | 788                                                                                            | 859  | 931  | 1002 | 1074 | 1145 | 1217 | 1289 | 1360 | 1432 |
| 439              | 806                                                                                            | 880  | 953  | 1026 | 1099 | 1173 | 1246 | 1319 | 1393 | 1466 |
| 440              | 825                                                                                            | 900  | 975  | 1050 | 1125 | 1200 | 1275 | 1350 | 1425 | 1500 |
| 441              | 839                                                                                            | 915  | 991  | 1068 | 1144 | 1220 | 1296 | 1373 | 1449 | 1525 |
| 442              | 853                                                                                            | 930  | 1008 | 1085 | 1163 | 1240 | 1318 | 1395 | 1473 | 1550 |
| 443              | 866                                                                                            | 945  | 1024 | 1103 | 1181 | 1260 | 1339 | 1418 | 1496 | 1575 |
| 444              | 880                                                                                            | 960  | 1040 | 1120 | 1200 | 1280 | 1360 | 1440 | 1520 | 1600 |
| 445              | 894                                                                                            | 975  | 1056 | 1138 | 1219 | 1300 | 1381 | 1463 | 1544 | 1625 |
| 446              | 908                                                                                            | 990  | 1073 | 1155 | 1238 | 1320 | 1403 | 1485 | 1568 | 1650 |
| 447              | 921                                                                                            | 1005 | 1089 | 1173 | 1256 | 1340 | 1424 | 1508 | 1591 | 1675 |
| 448              | 935                                                                                            | 1020 | 1105 | 1190 | 1275 | 1360 | 1445 | 1530 | 1615 | 1700 |
| 449              | 949                                                                                            | 1035 | 1121 | 1208 | 1294 | 1380 | 1466 | 1553 | 1639 | 1725 |
| 450              | 963                                                                                            | 1050 | 1138 | 1225 | 1313 | 1400 | 1488 | 1575 | 1663 | 1750 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 8 FT                                                                                           |                 |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|-----------------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60            | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 9 FT |
| ELEV<br>(ft MSL) |                                                                                                | DISCHARGE (cfs) |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |                 |      |      |      |      |      |      |      |      |
| 451              | 976                                                                                            | 1065            | 1154 | 1243 | 1331 | 1420 | 1509 | 1598 | 1686 | 1775 |
| 452              | 990                                                                                            | 1080            | 1170 | 1260 | 1350 | 1440 | 1530 | 1620 | 1710 | 1800 |
| 453              | 1004                                                                                           | 1095            | 1186 | 1278 | 1369 | 1460 | 1551 | 1643 | 1734 | 1825 |
| 454              | 1018                                                                                           | 1110            | 1203 | 1295 | 1388 | 1480 | 1573 | 1665 | 1758 | 1850 |
| 455              | 1031                                                                                           | 1125            | 1219 | 1313 | 1406 | 1500 | 1594 | 1688 | 1781 | 1875 |
| 456              | 1045                                                                                           | 1140            | 1235 | 1330 | 1425 | 1520 | 1615 | 1710 | 1805 | 1900 |
| 457              | 1059                                                                                           | 1155            | 1251 | 1348 | 1444 | 1540 | 1636 | 1733 | 1829 | 1925 |
| 458              | 1073                                                                                           | 1170            | 1268 | 1365 | 1463 | 1560 | 1658 | 1755 | 1853 | 1950 |
| 459              | 1086                                                                                           | 1185            | 1284 | 1383 | 1481 | 1580 | 1679 | 1778 | 1876 | 1975 |
| 460              | 1100                                                                                           | 1200            | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 461              | 1110                                                                                           | 1211            | 1312 | 1413 | 1514 | 1615 | 1716 | 1817 | 1918 | 2019 |
| 462              | 1121                                                                                           | 1223            | 1324 | 1426 | 1528 | 1630 | 1732 | 1834 | 1936 | 2038 |
| 463              | 1131                                                                                           | 1234            | 1337 | 1439 | 1542 | 1645 | 1748 | 1851 | 1953 | 2056 |
| 464              | 1141                                                                                           | 1245            | 1349 | 1453 | 1556 | 1660 | 1764 | 1868 | 1971 | 2075 |
| 465              | 1152                                                                                           | 1256            | 1361 | 1466 | 1570 | 1675 | 1780 | 1884 | 1989 | 2094 |
| 466              | 1162                                                                                           | 1268            | 1373 | 1479 | 1584 | 1690 | 1796 | 1901 | 2007 | 2113 |
| 467              | 1172                                                                                           | 1279            | 1385 | 1492 | 1598 | 1705 | 1812 | 1918 | 2025 | 2131 |
| 468              | 1183                                                                                           | 1290            | 1398 | 1505 | 1613 | 1720 | 1828 | 1935 | 2043 | 2150 |
| 469              | 1193                                                                                           | 1301            | 1410 | 1518 | 1627 | 1735 | 1843 | 1952 | 2060 | 2169 |
| 470              | 1203                                                                                           | 1313            | 1422 | 1531 | 1641 | 1750 | 1859 | 1969 | 2078 | 2188 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 471              | 1213                                                                                           | 1324            | 1434 | 1544 | 1655 | 1765 | 1875 | 1986 | 2096 | 2206 |
| 472              | 1224                                                                                           | 1335            | 1446 | 1558 | 1669 | 1780 | 1891 | 2003 | 2114 | 2225 |
| 473              | 1234                                                                                           | 1346            | 1458 | 1571 | 1683 | 1795 | 1907 | 2019 | 2132 | 2244 |
| 474              | 1244                                                                                           | 1358            | 1471 | 1584 | 1697 | 1810 | 1923 | 2036 | 2149 | 2263 |
| 475              | 1255                                                                                           | 1369            | 1483 | 1597 | 1711 | 1825 | 1939 | 2053 | 2167 | 2281 |
| 476              | 1265                                                                                           | 1380            | 1495 | 1610 | 1725 | 1840 | 1955 | 2070 | 2185 | 2300 |
| 477              | 1275                                                                                           | 1391            | 1507 | 1623 | 1739 | 1855 | 1971 | 2087 | 2203 | 2319 |
| 478              | 1286                                                                                           | 1403            | 1519 | 1636 | 1753 | 1870 | 1987 | 2104 | 2221 | 2338 |
| 479              | 1296                                                                                           | 1414            | 1532 | 1649 | 1767 | 1885 | 2003 | 2121 | 2238 | 2356 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 480              | 1306                                                                                           | 1425            | 1544 | 1663 | 1781 | 1900 | 2019 | 2138 | 2256 | 2375 |
| 481              | 1314                                                                                           | 1434            | 1553 | 1673 | 1792 | 1912 | 2031 | 2151 | 2270 | 2390 |
| 482              | 1322                                                                                           | 1443            | 1563 | 1683 | 1803 | 1923 | 2044 | 2164 | 2284 | 2404 |
| 483              | 1330                                                                                           | 1451            | 1572 | 1693 | 1814 | 1935 | 2056 | 2177 | 2298 | 2419 |
| 484              | 1338                                                                                           | 1460            | 1582 | 1703 | 1825 | 1947 | 2068 | 2190 | 2312 | 2433 |
| 485              | 1346                                                                                           | 1469            | 1591 | 1714 | 1836 | 1958 | 2081 | 2203 | 2326 | 2448 |
| 486              | 1354                                                                                           | 1478            | 1601 | 1724 | 1847 | 1970 | 2093 | 2216 | 2339 | 2463 |
| 487              | 1362                                                                                           | 1486            | 1610 | 1734 | 1858 | 1982 | 2106 | 2229 | 2353 | 2477 |
| 488              | 1370                                                                                           | 1495            | 1620 | 1744 | 1869 | 1993 | 2118 | 2243 | 2367 | 2492 |
| 489              | 1378                                                                                           | 1504            | 1629 | 1754 | 1880 | 2005 | 2130 | 2256 | 2381 | 2506 |
| 490              | 1386                                                                                           | 1513            | 1639 | 1765 | 1891 | 2017 | 2143 | 2269 | 2395 | 2521 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 491              | 1394                                                                                           | 1521            | 1648 | 1775 | 1902 | 2028 | 2155 | 2282 | 2409 | 2535 |
| 492              | 1403                                                                                           | 1530            | 1658 | 1785 | 1913 | 2040 | 2168 | 2295 | 2423 | 2550 |
| 493              | 1411                                                                                           | 1539            | 1667 | 1795 | 1923 | 2052 | 2180 | 2308 | 2436 | 2565 |
| 494              | 1419                                                                                           | 1548            | 1676 | 1805 | 1934 | 2063 | 2192 | 2321 | 2450 | 2579 |
| 495              | 1427                                                                                           | 1556            | 1686 | 1816 | 1945 | 2075 | 2205 | 2334 | 2464 | 2594 |
| 496              | 1435                                                                                           | 1565            | 1695 | 1826 | 1956 | 2087 | 2217 | 2348 | 2478 | 2608 |
| 497              | 1443                                                                                           | 1574            | 1705 | 1836 | 1967 | 2098 | 2229 | 2361 | 2492 | 2623 |
| 498              | 1451                                                                                           | 1583            | 1714 | 1846 | 1978 | 2110 | 2242 | 2374 | 2506 | 2638 |
| 499              | 1459                                                                                           | 1591            | 1724 | 1856 | 1989 | 2122 | 2254 | 2387 | 2519 | 2652 |
| 500              | 1467                                                                                           | 1600            | 1733 | 1867 | 2000 | 2133 | 2267 | 2400 | 2533 | 2667 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 8 FT                                                                                           |                 |      |      |      |      |      |      |      |      |
|------------------|------------------------------------------------------------------------------------------------|-----------------|------|------|------|------|------|------|------|------|
|                  | 0.55                                                                                           | 0.60            | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 9 FT |
| ELEV<br>(ft MSL) |                                                                                                | DISCHARGE (cfs) |      |      |      |      |      |      |      |      |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |                 |      |      |      |      |      |      |      |      |
| 501              | 1475                                                                                           | 1609            | 1743 | 1877 | 2011 | 2145 | 2279 | 2413 | 2547 | 2681 |
| 502              | 1483                                                                                           | 1618            | 1752 | 1887 | 2022 | 2157 | 2291 | 2426 | 2561 | 2696 |
| 503              | 1491                                                                                           | 1626            | 1762 | 1897 | 2033 | 2168 | 2304 | 2439 | 2575 | 2710 |
| 504              | 1499                                                                                           | 1635            | 1771 | 1908 | 2044 | 2180 | 2316 | 2453 | 2589 | 2725 |
| 505              | 1507                                                                                           | 1644            | 1781 | 1918 | 2055 | 2192 | 2329 | 2466 | 2603 | 2740 |
| 506              | 1515                                                                                           | 1653            | 1790 | 1928 | 2066 | 2203 | 2341 | 2479 | 2616 | 2754 |
| 507              | 1523                                                                                           | 1661            | 1800 | 1938 | 2077 | 2215 | 2353 | 2492 | 2630 | 2769 |
| 508              | 1531                                                                                           | 1670            | 1809 | 1948 | 2088 | 2227 | 2366 | 2505 | 2644 | 2783 |
| 509              | 1539                                                                                           | 1679            | 1819 | 1959 | 2098 | 2238 | 2378 | 2518 | 2658 | 2798 |
| 510              | 1547                                                                                           | 1688            | 1828 | 1969 | 2109 | 2250 | 2391 | 2531 | 2672 | 2813 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 511              | 1555                                                                                           | 1696            | 1838 | 1979 | 2120 | 2262 | 2403 | 2544 | 2686 | 2827 |
| 512              | 1563                                                                                           | 1705            | 1847 | 1989 | 2131 | 2273 | 2415 | 2558 | 2700 | 2842 |
| 513              | 1571                                                                                           | 1714            | 1857 | 1999 | 2142 | 2285 | 2428 | 2571 | 2713 | 2856 |
| 514              | 1579                                                                                           | 1723            | 1866 | 2010 | 2153 | 2297 | 2440 | 2584 | 2727 | 2871 |
| 515              | 1587                                                                                           | 1731            | 1876 | 2020 | 2164 | 2308 | 2453 | 2597 | 2741 | 2885 |
| 516              | 1595                                                                                           | 1740            | 1885 | 2030 | 2175 | 2320 | 2465 | 2610 | 2755 | 2900 |
| 517              | 1603                                                                                           | 1749            | 1894 | 2040 | 2186 | 2332 | 2477 | 2623 | 2769 | 2915 |
| 518              | 1611                                                                                           | 1758            | 1904 | 2050 | 2197 | 2343 | 2490 | 2636 | 2783 | 2929 |
| 519              | 1619                                                                                           | 1766            | 1913 | 2061 | 2208 | 2355 | 2502 | 2649 | 2797 | 2944 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 520              | 1627                                                                                           | 1775            | 1923 | 2071 | 2219 | 2367 | 2515 | 2663 | 2810 | 2958 |
| 521              | 1635                                                                                           | 1784            | 1932 | 2081 | 2230 | 2378 | 2527 | 2676 | 2824 | 2973 |
| 522              | 1643                                                                                           | 1793            | 1942 | 2091 | 2241 | 2390 | 2539 | 2689 | 2838 | 2988 |
| 523              | 1651                                                                                           | 1801            | 1951 | 2101 | 2252 | 2402 | 2552 | 2702 | 2852 | 3002 |
| 524              | 1659                                                                                           | 1810            | 1961 | 2112 | 2263 | 2413 | 2564 | 2715 | 2866 | 3017 |
| 525              | 1667                                                                                           | 1819            | 1970 | 2122 | 2273 | 2425 | 2577 | 2728 | 2880 | 3031 |
| 526              | 1675                                                                                           | 1828            | 1980 | 2132 | 2284 | 2437 | 2589 | 2741 | 2894 | 3046 |
| 527              | 1683                                                                                           | 1836            | 1989 | 2142 | 2295 | 2448 | 2601 | 2754 | 2907 | 3060 |
| 528              | 1691                                                                                           | 1845            | 1999 | 2153 | 2306 | 2460 | 2614 | 2768 | 2921 | 3075 |
| 529              | 1699                                                                                           | 1854            | 2008 | 2163 | 2317 | 2472 | 2626 | 2781 | 2935 | 3090 |
| 530              | 1707                                                                                           | 1863            | 2018 | 2173 | 2328 | 2483 | 2639 | 2794 | 2949 | 3104 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 531              | 1715                                                                                           | 1871            | 2027 | 2183 | 2339 | 2495 | 2651 | 2807 | 2963 | 3119 |
| 532              | 1723                                                                                           | 1880            | 2037 | 2193 | 2350 | 2507 | 2663 | 2820 | 2977 | 3133 |
| 533              | 1731                                                                                           | 1889            | 2046 | 2204 | 2361 | 2518 | 2676 | 2833 | 2991 | 3148 |
| 534              | 1739                                                                                           | 1898            | 2056 | 2214 | 2372 | 2530 | 2688 | 2846 | 3004 | 3163 |
| 535              | 1747                                                                                           | 1906            | 2065 | 2224 | 2383 | 2542 | 2701 | 2859 | 3018 | 3177 |
| 536              | 1755                                                                                           | 1915            | 2075 | 2234 | 2394 | 2553 | 2713 | 2873 | 3032 | 3192 |
| 537              | 1763                                                                                           | 1924            | 2084 | 2244 | 2405 | 2565 | 2725 | 2886 | 3046 | 3206 |
| 538              | 1771                                                                                           | 1933            | 2094 | 2255 | 2416 | 2577 | 2738 | 2899 | 3060 | 3221 |
| 539              | 1779                                                                                           | 1941            | 2103 | 2265 | 2427 | 2588 | 2750 | 2912 | 3074 | 3235 |
| 540              | 1788                                                                                           | 1950            | 2113 | 2275 | 2438 | 2600 | 2763 | 2925 | 3088 | 3250 |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |
| 541              | 1794                                                                                           | 1957            | 2120 | 2283 | 2446 | 2609 | 2772 | 2935 | 3098 | 3261 |
| 542              | 1800                                                                                           | 1963            | 2127 | 2290 | 2454 | 2618 | 2781 | 2945 | 3108 | 3272 |
| 543              | 1806                                                                                           | 1970            | 2134 | 2298 | 2462 | 2626 | 2790 | 2955 | 3119 | 3283 |
| 544              | 1812                                                                                           | 1976            | 2141 | 2306 | 2470 | 2635 | 2800 | 2964 | 3129 | 3294 |
| 545              | 1818                                                                                           | 1983            | 2148 | 2313 | 2479 | 2644 | 2809 | 2974 | 3140 | 3305 |
| 546              | 1824                                                                                           | 1989            | 2155 | 2321 | 2487 | 2653 | 2818 | 2984 | 3150 | 3316 |
| 547              | 1830                                                                                           | 1996            | 2162 | 2329 | 2495 | 2661 | 2828 | 2994 | 3160 | 3327 |
| 548              | 1836                                                                                           | 2003            | 2169 | 2336 | 2503 | 2670 | 2837 | 3004 | 3171 | 3338 |
| 549              | 1842                                                                                           | 2009            | 2177 | 2344 | 2511 | 2679 | 2846 | 3014 | 3181 | 3349 |
| 550              | 1848                                                                                           | 2016            | 2184 | 2352 | 2520 | 2688 | 2856 | 3024 | 3192 | 3360 |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 2)

ONE GATE - PARTIALLY OPENED IN INTERVALS OF .05 FT TO FULLY OPENED

| GATE<br>OPENING  | 8 FT                                                                                           |                 |      |      |      |      |      |      |      | 9 FT |  |
|------------------|------------------------------------------------------------------------------------------------|-----------------|------|------|------|------|------|------|------|------|--|
|                  | 0.55                                                                                           | 0.60            | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 |      |  |
| ELEV<br>(ft MSL) |                                                                                                | DISCHARGE (cfs) |      |      |      |      |      |      |      |      |  |
|                  | The computed discharge (cfs) is slightly higher than discharge rate observed during operation. |                 |      |      |      |      |      |      |      |      |  |
| 551              | 1854                                                                                           | 2022            | 2191 | 2359 | 2528 | 2696 | 2865 | 3033 | 3202 | 3370 |  |
| 552              | 1860                                                                                           | 2029            | 2198 | 2367 | 2536 | 2705 | 2874 | 3043 | 3212 | 3381 |  |
| 553              | 1866                                                                                           | 2035            | 2205 | 2375 | 2544 | 2714 | 2883 | 3053 | 3223 | 3392 |  |
| 554              | 1872                                                                                           | 2042            | 2212 | 2382 | 2552 | 2723 | 2893 | 3063 | 3233 | 3403 |  |
| 555              | 1878                                                                                           | 2049            | 2219 | 2390 | 2561 | 2731 | 2902 | 3073 | 3244 | 3414 |  |
| 556              | 1884                                                                                           | 2055            | 2226 | 2398 | 2569 | 2740 | 2911 | 3083 | 3254 | 3425 |  |
| 557              | 1890                                                                                           | 2062            | 2233 | 2405 | 2577 | 2749 | 2921 | 3093 | 3264 | 3436 |  |
| 558              | 1896                                                                                           | 2068            | 2241 | 2413 | 2585 | 2758 | 2930 | 3102 | 3275 | 3447 |  |
| 559              | 1902                                                                                           | 2075            | 2248 | 2421 | 2594 | 2766 | 2939 | 3112 | 3285 | 3458 |  |
| 560              | 1908                                                                                           | 2081            | 2255 | 2428 | 2602 | 2775 | 2949 | 3122 | 3296 | 3469 |  |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |  |
| 561              | 1914                                                                                           | 2088            | 2262 | 2436 | 2610 | 2784 | 2958 | 3132 | 3306 | 3480 |  |
| 562              | 1920                                                                                           | 2095            | 2269 | 2444 | 2618 | 2793 | 2967 | 3142 | 3316 | 3491 |  |
| 563              | 1926                                                                                           | 2101            | 2276 | 2451 | 2626 | 2801 | 2977 | 3152 | 3327 | 3502 |  |
| 564              | 1932                                                                                           | 2108            | 2283 | 2459 | 2635 | 2810 | 2986 | 3162 | 3337 | 3513 |  |
| 565              | 1938                                                                                           | 2114            | 2290 | 2467 | 2643 | 2819 | 2995 | 3171 | 3348 | 3524 |  |
| 566              | 1944                                                                                           | 2121            | 2298 | 2474 | 2651 | 2828 | 3004 | 3181 | 3358 | 3535 |  |
| 567              | 1950                                                                                           | 2127            | 2305 | 2482 | 2659 | 2837 | 3014 | 3191 | 3368 | 3546 |  |
| 568              | 1956                                                                                           | 2134            | 2312 | 2490 | 2667 | 2845 | 3023 | 3201 | 3379 | 3557 |  |
| 569              | 1962                                                                                           | 2141            | 2319 | 2497 | 2676 | 2854 | 3032 | 3211 | 3389 | 3568 |  |
| 570              | 1968                                                                                           | 2147            | 2326 | 2505 | 2684 | 2863 | 3042 | 3221 | 3400 | 3579 |  |
|                  |                                                                                                |                 |      |      |      |      |      |      |      |      |  |
| 571              | 1974                                                                                           | 2154            | 2333 | 2513 | 2692 | 2872 | 3051 | 3231 | 3410 | 3589 |  |
| 572              | 1980                                                                                           | 2160            | 2340 | 2520 | 2700 | 2880 | 3060 | 3240 | 3420 | 3600 |  |
| 573              | 1986                                                                                           | 2167            | 2347 | 2528 | 2709 | 2889 | 3070 | 3250 | 3431 | 3611 |  |
| 574              | 1992                                                                                           | 2173            | 2354 | 2536 | 2717 | 2898 | 3079 | 3260 | 3441 | 3622 |  |
| 575              | 1998                                                                                           | 2180            | 2362 | 2543 | 2725 | 2907 | 3088 | 3270 | 3452 | 3633 |  |
| 576              | 2004                                                                                           | 2187            | 2369 | 2551 | 2733 | 2915 | 3098 | 3280 | 3462 | 3644 |  |
| 577              | 2010                                                                                           | 2193            | 2376 | 2559 | 2741 | 2924 | 3107 | 3290 | 3472 | 3655 |  |
| 578              | 2016                                                                                           | 2200            | 2383 | 2566 | 2750 | 2933 | 3116 | 3299 | 3483 | 3666 |  |
| 579              | 2022                                                                                           | 2206            | 2390 | 2574 | 2758 | 2942 | 3125 | 3309 | 3493 | 3677 |  |
| 580              | 2028                                                                                           | 2213            | 2397 | 2582 | 2766 | 2950 | 3135 | 3319 | 3504 | 3688 |  |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 3)

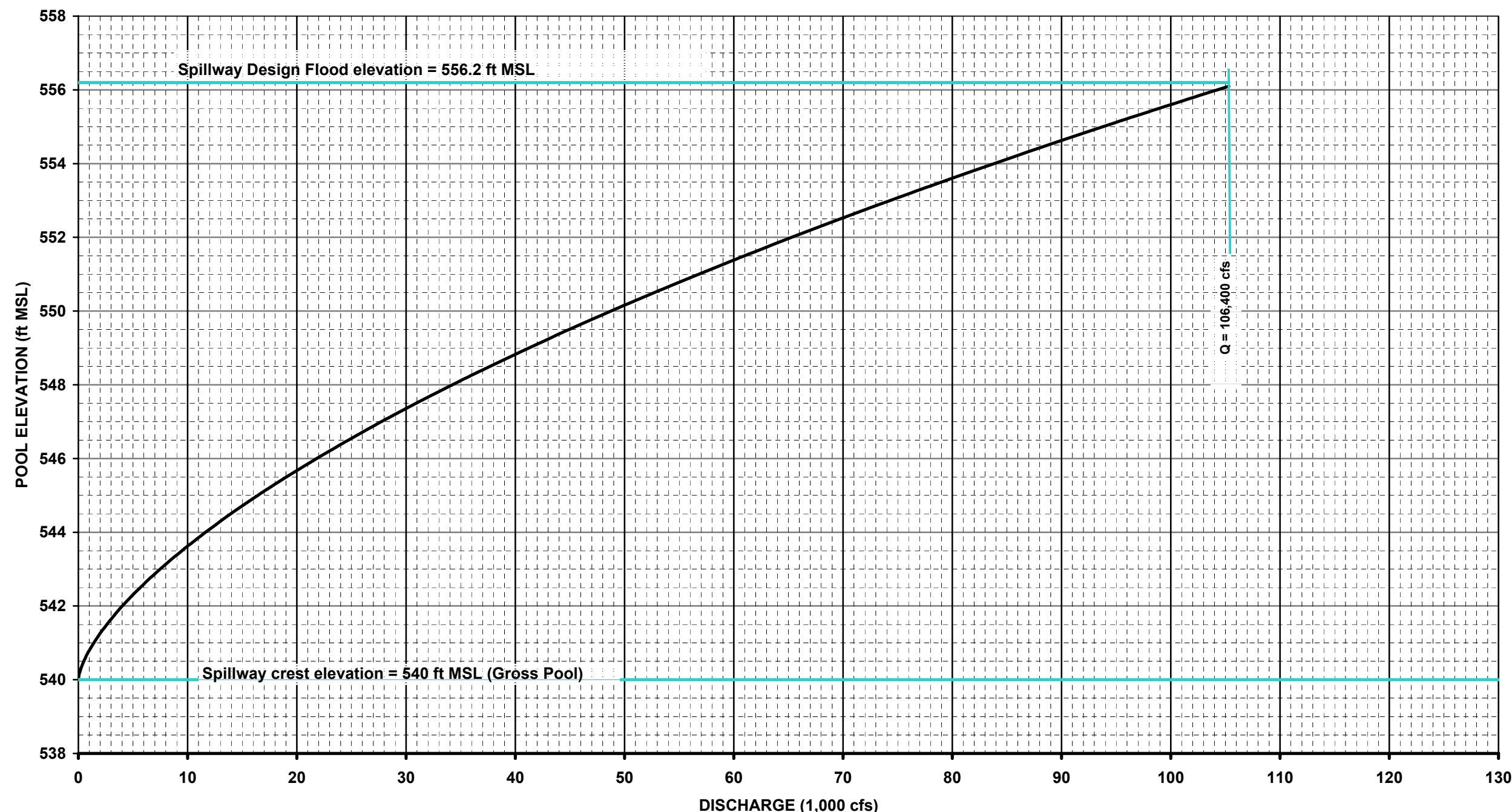
LOW FLOW GATE FULLY OPEN

| DISCHARGE (cfs)  |              |                  |              |                  |              |
|------------------|--------------|------------------|--------------|------------------|--------------|
| ELEV<br>(ft MSL) | FULLY OPENED | ELEV<br>(ft MSL) | FULLY OPENED | ELEV<br>(ft MSL) | FULLY OPENED |
| 410              | 0.0          | 450              | 37.5         | 490              | 51.8         |
| 411              | 4.5          | 451              | 37.9         | 491              | 52.1         |
| 412              | 9.0          | 452              | 38.3         | 492              | 52.4         |
| 413              | 11.0         | 453              | 38.7         | 493              | 52.8         |
| 414              | 13.0         | 454              | 39.1         | 494              | 53.1         |
| 415              | 14.5         | 455              | 39.5         | 495              | 53.4         |
| 416              | 16.0         | 456              | 39.9         | 496              | 53.7         |
| 417              | 17.0         | 457              | 40.3         | 497              | 54.0         |
| 418              | 18.0         | 458              | 40.7         | 498              | 54.4         |
| 419              | 19.0         | 459              | 41.1         | 499              | 54.7         |
|                  |              |                  |              |                  |              |
| 420              | 20.0         | 460              | 41.5         | 500              | 55.0         |
| 421              | 20.7         | 461              | 41.9         | 501              | 55.3         |
| 422              | 21.4         | 462              | 42.2         | 502              | 55.5         |
| 423              | 22.1         | 463              | 42.6         | 503              | 55.8         |
| 424              | 22.8         | 464              | 42.9         | 504              | 56.1         |
| 425              | 23.5         | 465              | 43.3         | 505              | 56.4         |
| 426              | 24.2         | 466              | 43.6         | 506              | 56.6         |
| 427              | 24.9         | 467              | 44.0         | 507              | 56.9         |
| 428              | 25.6         | 468              | 44.3         | 508              | 57.2         |
| 429              | 26.3         | 469              | 44.7         | 509              | 57.4         |
|                  |              |                  |              |                  |              |
| 430              | 27.0         | 470              | 45.0         | 510              | 57.7         |
| 431              | 27.6         | 471              | 45.4         | 511              | 58.0         |
| 432              | 28.2         | 472              | 45.7         | 512              | 58.3         |
| 433              | 28.8         | 473              | 46.1         | 513              | 58.6         |
| 434              | 29.4         | 474              | 46.4         | 514              | 58.9         |
| 435              | 30.0         | 475              | 46.8         | 515              | 59.2         |
| 436              | 30.6         | 476              | 47.1         | 516              | 59.4         |
| 437              | 31.2         | 477              | 47.5         | 517              | 59.7         |
| 438              | 31.8         | 478              | 47.8         | 518              | 60.0         |
| 439              | 32.4         | 479              | 48.2         | 519              | 60.3         |
|                  |              |                  |              |                  |              |
| 440              | 33.0         | 480              | 48.5         | 520              | 60.6         |
| 441              | 33.5         | 481              | 48.8         | 521              | 60.9         |
| 442              | 33.9         | 482              | 49.2         | 522              | 61.1         |
| 443              | 34.4         | 483              | 49.5         | 523              | 61.4         |
| 444              | 34.8         | 484              | 49.8         | 524              | 61.6         |
| 445              | 35.3         | 485              | 50.2         | 525              | 61.9         |
| 446              | 35.7         | 486              | 50.5         | 526              | 62.2         |
| 447              | 36.2         | 487              | 50.8         | 527              | 62.4         |
| 448              | 36.6         | 488              | 51.1         | 528              | 62.7         |
| 449              | 37.1         | 489              | 51.5         | 529              | 62.9         |

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
OUTLET RATING CURVES TABULATION (SEE PLATE A-5, SHEET 3)

LOW FLOW GATE FULLY OPEN

| DISCHARGE (cfs)  |              |                  |              |                  |              |
|------------------|--------------|------------------|--------------|------------------|--------------|
| ELEV<br>(ft MSL) | FULLY OPENED | ELEV<br>(ft MSL) | FULLY OPENED | ELEV<br>(ft MSL) | FULLY OPENED |
| 530              | 63.2         |                  |              |                  |              |
| 531              | 63.5         |                  |              |                  |              |
| 532              | 63.7         |                  |              |                  |              |
| 533              | 64.0         |                  |              |                  |              |
| 534              | 64.2         |                  |              |                  |              |
| 535              | 64.5         |                  |              |                  |              |
| 536              | 64.8         |                  |              |                  |              |
| 537              | 65.0         |                  |              |                  |              |
| 538              | 65.3         |                  |              |                  |              |
| 539              | 65.5         |                  |              |                  |              |
| 540              | 65.8         |                  |              |                  |              |
| 541              | 66.0         |                  |              |                  |              |
| 542              | 66.2         |                  |              |                  |              |
| 543              | 66.4         |                  |              |                  |              |
| 544              | 66.6         |                  |              |                  |              |
| 545              | 66.9         |                  |              |                  |              |
| 546              | 67.1         |                  |              |                  |              |
| 547              | 67.3         |                  |              |                  |              |
| 548              | 67.5         |                  |              |                  |              |
| 549              | 67.7         |                  |              |                  |              |
| 550              | 67.9         |                  |              |                  |              |
| 551              | 68.1         |                  |              |                  |              |
| 552              | 68.3         |                  |              |                  |              |
| 553              | 68.5         |                  |              |                  |              |
| 554              | 68.7         |                  |              |                  |              |
| 555              | 69.0         |                  |              |                  |              |
| 556              | 69.2         |                  |              |                  |              |
| 557              | 69.4         |                  |              |                  |              |
| 558              | 69.6         |                  |              |                  |              |
| 559              | 69.8         |                  |              |                  |              |
| 560              | 70.0         |                  |              |                  |              |



NOTE:  
Uncontrolled, broad-crested section crest length = 575.0 feet

|                                                     |
|-----------------------------------------------------|
| HIDDEN DAM-HENSLEY LAKE<br>FRESNO RIVER, CALIFORNIA |
| <b>SPILLWAY RATING CURVE</b>                        |
| U.S. ARMY CORPS OF ENGINEERS<br>SACRAMENTO DISTRICT |

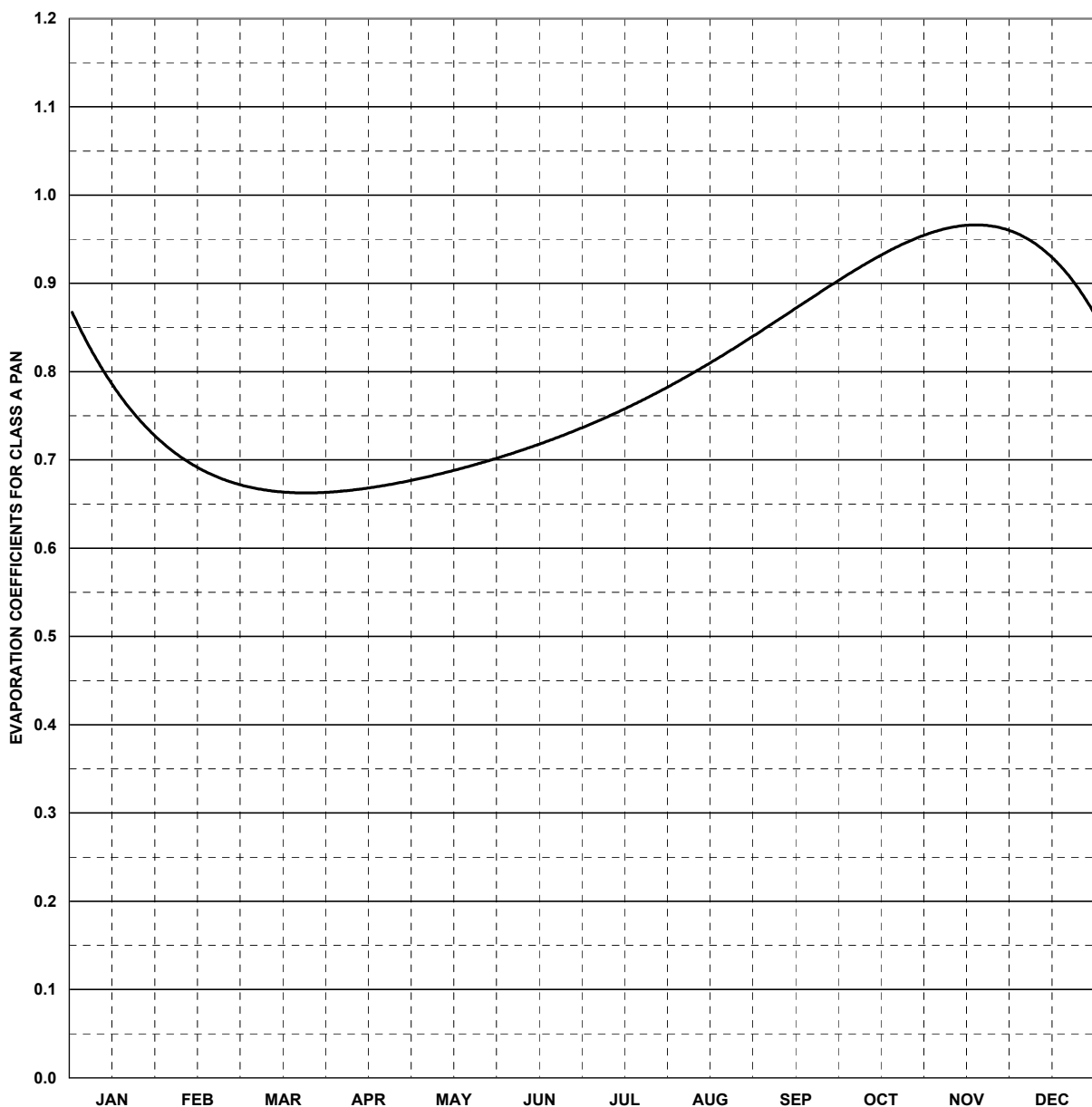
Prepared by JLB

Revised Oct 2004

PLATE A-7

HIDDEN DAM AND HENSLEY LAKE, FRESNO RIVER, CALIFORNIA  
SPILLWAY RATING TABLE (SEE PLATE A-7)

| ELEV. (FT) | CFS    |        |        |        |        |        |        |        |        |        |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|            | 0.00   | 0.1    | 0.2    | 0.3    | 0.4    | 0.5    | 0.6    | 0.7    | 0.8    | 0.9    |
| 540        | 0      | 40     | 130    | 230    | 350    | 500    | 650    | 820    | 1010   | 1200   |
| 541        | 1410   | 1630   | 1860   | 2100   | 2350   | 2610   | 2870   | 3150   | 3440   | 3730   |
| 542        | 4030   | 4340   | 4660   | 4990   | 5320   | 5670   | 6020   | 6370   | 6740   | 7110   |
| 543        | 7490   | 7870   | 8260   | 8660   | 9070   | 9480   | 9900   | 10330  | 10760  | 11200  |
| 544        | 11640  | 12090  | 12550  | 13010  | 13480  | 13960  | 14440  | 14930  | 15420  | 15930  |
| 545        | 16430  | 16940  | 17460  | 17980  | 18510  | 19050  | 19590  | 20140  | 20690  | 21250  |
| 546        | 21810  | 22380  | 22960  | 23540  | 24120  | 24710  | 25310  | 25910  | 26520  | 27140  |
| 547        | 27750  | 28380  | 29010  | 29640  | 30280  | 30930  | 31580  | 32240  | 32900  | 33570  |
| 548        | 34240  | 34910  | 35600  | 36280  | 36980  | 37680  | 38380  | 39090  | 39800  | 40520  |
| 549        | 41240  | 41970  | 42710  | 43450  | 44190  | 44940  | 45700  | 46450  | 47220  | 47990  |
| 550        | 48760  | 49540  | 50330  | 51120  | 51910  | 52710  | 53520  | 54330  | 55140  | 55960  |
| 551        | 56790  | 57620  | 58450  | 59290  | 60140  | 60980  | 61840  | 62700  | 63560  | 64430  |
| 552        | 65310  | 66180  | 67070  | 67960  | 68850  | 69750  | 70650  | 71560  | 72470  | 73390  |
| 553        | 74320  | 75240  | 76180  | 77110  | 78060  | 79000  | 79950  | 80910  | 81870  | 82840  |
| 554        | 83810  | 84790  | 85770  | 86750  | 87750  | 88740  | 89740  | 90750  | 91760  | 92770  |
| 555        | 93790  | 94820  | 95840  | 96880  | 97920  | 98960  | 100010 | 101060 | 102120 | 103180 |
| 556        | 104250 | 105320 | 106400 | 107480 | 108570 | 109660 | 110760 | 111860 | 112960 | 114080 |
| 557        | 115190 | 116310 | 117440 | 118570 | 119700 | 120840 | 121980 | 123130 | 124290 | 125450 |



#### EVAPORATION COEFFICIENT VALUES

|     |       |
|-----|-------|
| Jan | 0.804 |
| Feb | 0.696 |
| Mar | 0.672 |
| Apr | 0.672 |
| May | 0.684 |
| Jun | 0.720 |
| Jul | 0.768 |
| Aug | 0.816 |
| Sep | 0.876 |
| Oct | 0.936 |
| Nov | 0.960 |
| Dec | 0.924 |

HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

#### EVAPORATION COEFFICIENTS

U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

Prepared by JLB

EVAPORATION COEFFICIENTS VALUES TABLE  
HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA  
SEE PLATE A-9 SHEET 1

| Day/<br>Month | Coefficient<br>Value | Day/<br>Month | Coefficient<br>Value | Day/<br>Month | Coefficient<br>Value | Day/<br>Month | Coefficient<br>Value |
|---------------|----------------------|---------------|----------------------|---------------|----------------------|---------------|----------------------|
| 01-Jan        | 0.867                | 01-Feb        | 0.722                | 01-Mar        | 0.671                | 01-Apr        | 0.664                |
| 02-Jan        | 0.861                | 02-Feb        | 0.719                | 02-Mar        | 0.670                | 02-Apr        | 0.664                |
| 03-Jan        | 0.854                | 03-Feb        | 0.716                | 03-Mar        | 0.669                | 03-Apr        | 0.664                |
| 04-Jan        | 0.847                | 04-Feb        | 0.713                | 04-Mar        | 0.669                | 04-Apr        | 0.664                |
| 05-Jan        | 0.841                | 05-Feb        | 0.711                | 05-Mar        | 0.668                | 05-Apr        | 0.665                |
| 06-Jan        | 0.835                | 06-Feb        | 0.708                | 06-Mar        | 0.667                | 06-Apr        | 0.665                |
| 07-Jan        | 0.829                | 07-Feb        | 0.706                | 07-Mar        | 0.667                | 07-Apr        | 0.665                |
| 08-Jan        | 0.823                | 08-Feb        | 0.704                | 08-Mar        | 0.666                | 08-Apr        | 0.666                |
| 09-Jan        | 0.817                | 09-Feb        | 0.702                | 09-Mar        | 0.666                | 09-Apr        | 0.666                |
| 10-Jan        | 0.812                | 10-Feb        | 0.699                | 10-Mar        | 0.665                | 10-Apr        | 0.667                |
| 11-Jan        | 0.806                | 11-Feb        | 0.697                | 11-Mar        | 0.665                | 11-Apr        | 0.667                |
| 12-Jan        | 0.801                | 12-Feb        | 0.695                | 12-Mar        | 0.665                | 12-Apr        | 0.667                |
| 13-Jan        | 0.796                | 13-Feb        | 0.693                | 13-Mar        | 0.664                | 13-Apr        | 0.668                |
| 14-Jan        | 0.791                | 14-Feb        | 0.692                | 14-Mar        | 0.664                | 14-Apr        | 0.668                |
| 15-Jan        | 0.786                | 15-Feb        | 0.690                | 15-Mar        | 0.664                | 15-Apr        | 0.669                |
| 16-Jan        | 0.781                | 16-Feb        | 0.688                | 16-Mar        | 0.663                | 16-Apr        | 0.669                |
| 17-Jan        | 0.777                | 17-Feb        | 0.687                | 17-Mar        | 0.663                | 17-Apr        | 0.670                |
| 18-Jan        | 0.772                | 18-Feb        | 0.685                | 18-Mar        | 0.663                | 18-Apr        | 0.670                |
| 19-Jan        | 0.768                | 19-Feb        | 0.684                | 19-Mar        | 0.663                | 19-Apr        | 0.671                |
| 20-Jan        | 0.764                | 20-Feb        | 0.682                | 20-Mar        | 0.663                | 20-Apr        | 0.671                |
| 21-Jan        | 0.759                | 21-Feb        | 0.681                | 21-Mar        | 0.663                | 21-Apr        | 0.672                |
| 22-Jan        | 0.755                | 22-Feb        | 0.679                | 22-Mar        | 0.663                | 22-Apr        | 0.672                |
| 23-Jan        | 0.752                | 23-Feb        | 0.678                | 23-Mar        | 0.663                | 23-Apr        | 0.673                |
| 24-Jan        | 0.748                | 24-Feb        | 0.677                | 24-Mar        | 0.663                | 24-Apr        | 0.674                |
| 25-Jan        | 0.744                | 25-Feb        | 0.676                | 25-Mar        | 0.663                | 25-Apr        | 0.674                |
| 26-Jan        | 0.741                | 26-Feb        | 0.675                | 26-Mar        | 0.663                | 26-Apr        | 0.675                |
| 27-Jan        | 0.737                | 27-Feb        | 0.674                | 27-Mar        | 0.663                | 27-Apr        | 0.676                |
| 28-Jan        | 0.734                | 28-Feb        | 0.673                | 28-Mar        | 0.663                | 28-Apr        | 0.676                |
| 29-Jan        | 0.731                | 29-Feb        | 0.672                | 29-Mar        | 0.663                | 29-Apr        | 0.677                |
| 30-Jan        | 0.728                |               |                      | 30-Mar        | 0.663                | 30-Apr        | 0.678                |
| 31-Jan        | 0.725                |               |                      | 31-Mar        | 0.663                |               |                      |

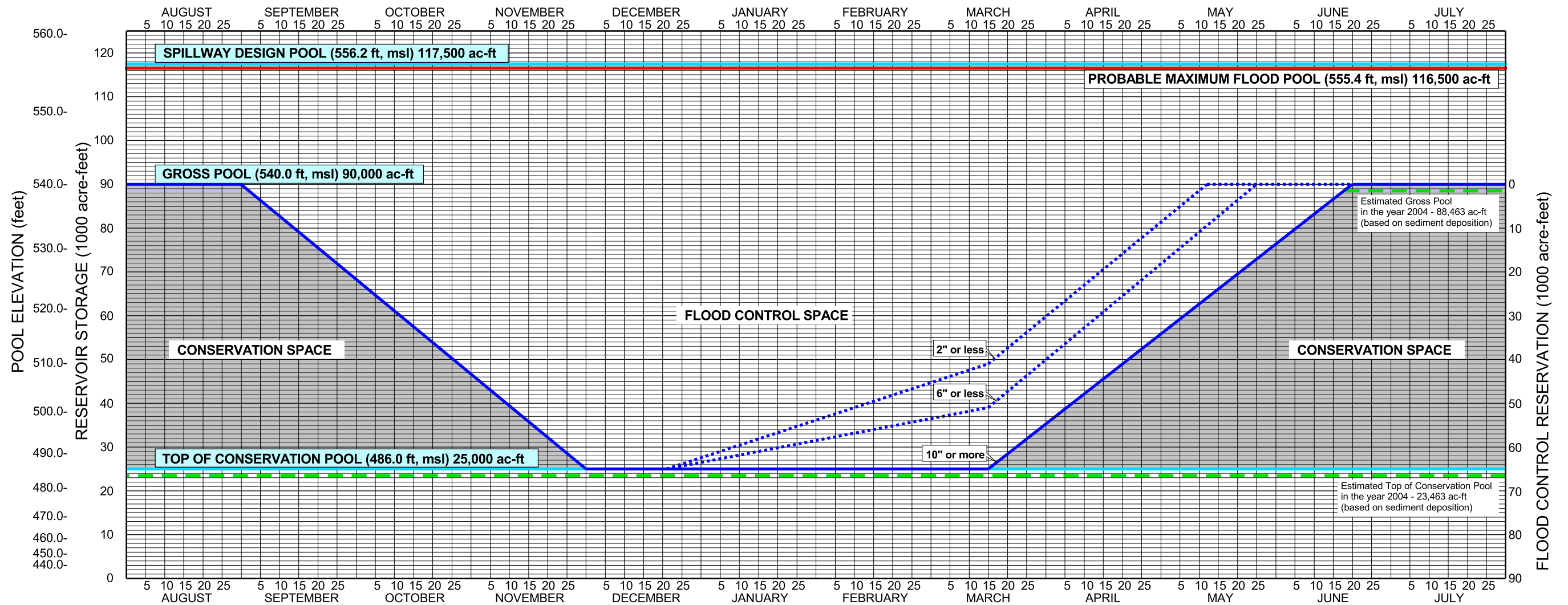
EVAPORATION COEFFIECIENTS VALUES TABLE  
HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA  
SEE PLATE A-9 SHEET 1

| Day/<br>Month | Coefficient<br>Value | Day/<br>Month | Coefficient<br>Value | Day/<br>Month | Coefficient<br>Value | Day/<br>Month | Coefficient<br>Value |
|---------------|----------------------|---------------|----------------------|---------------|----------------------|---------------|----------------------|
| <b>01-May</b> | 0.678                | <b>01-Jun</b> | 0.705                | <b>01-Jul</b> | 0.741                | <b>01-Aug</b> | 0.789                |
| <b>02-May</b> | 0.679                | <b>02-Jun</b> | 0.706                | <b>02-Jul</b> | 0.742                | <b>02-Aug</b> | 0.791                |
| <b>03-May</b> | 0.680                | <b>03-Jun</b> | 0.707                | <b>03-Jul</b> | 0.743                | <b>03-Aug</b> | 0.793                |
| <b>04-May</b> | 0.680                | <b>04-Jun</b> | 0.708                | <b>04-Jul</b> | 0.745                | <b>04-Aug</b> | 0.795                |
| <b>05-May</b> | 0.681                | <b>05-Jun</b> | 0.709                | <b>05-Jul</b> | 0.746                | <b>05-Aug</b> | 0.797                |
| <b>06-May</b> | 0.682                | <b>06-Jun</b> | 0.710                | <b>06-Jul</b> | 0.748                | <b>06-Aug</b> | 0.799                |
| <b>07-May</b> | 0.683                | <b>07-Jun</b> | 0.711                | <b>07-Jul</b> | 0.749                | <b>07-Aug</b> | 0.800                |
| <b>08-May</b> | 0.683                | <b>08-Jun</b> | 0.712                | <b>08-Jul</b> | 0.750                | <b>08-Aug</b> | 0.802                |
| <b>09-May</b> | 0.684                | <b>09-Jun</b> | 0.713                | <b>09-Jul</b> | 0.752                | <b>09-Aug</b> | 0.804                |
| <b>10-May</b> | 0.685                | <b>10-Jun</b> | 0.715                | <b>10-Jul</b> | 0.753                | <b>10-Aug</b> | 0.806                |
| <b>11-May</b> | 0.686                | <b>11-Jun</b> | 0.716                | <b>11-Jul</b> | 0.755                | <b>11-Aug</b> | 0.808                |
| <b>12-May</b> | 0.687                | <b>12-Jun</b> | 0.717                | <b>12-Jul</b> | 0.756                | <b>12-Aug</b> | 0.810                |
| <b>13-May</b> | 0.687                | <b>13-Jun</b> | 0.718                | <b>13-Jul</b> | 0.758                | <b>13-Aug</b> | 0.812                |
| <b>14-May</b> | 0.688                | <b>14-Jun</b> | 0.719                | <b>14-Jul</b> | 0.759                | <b>14-Aug</b> | 0.814                |
| <b>15-May</b> | 0.689                | <b>15-Jun</b> | 0.720                | <b>15-Jul</b> | 0.761                | <b>15-Aug</b> | 0.816                |
| <b>16-May</b> | 0.690                | <b>16-Jun</b> | 0.721                | <b>16-Jul</b> | 0.763                | <b>16-Aug</b> | 0.818                |
| <b>17-May</b> | 0.691                | <b>17-Jun</b> | 0.723                | <b>17-Jul</b> | 0.764                | <b>17-Aug</b> | 0.820                |
| <b>18-May</b> | 0.692                | <b>18-Jun</b> | 0.724                | <b>18-Jul</b> | 0.766                | <b>18-Aug</b> | 0.822                |
| <b>19-May</b> | 0.693                | <b>19-Jun</b> | 0.725                | <b>19-Jul</b> | 0.767                | <b>19-Aug</b> | 0.824                |
| <b>20-May</b> | 0.693                | <b>20-Jun</b> | 0.726                | <b>20-Jul</b> | 0.769                | <b>20-Aug</b> | 0.826                |
| <b>21-May</b> | 0.694                | <b>21-Jun</b> | 0.727                | <b>21-Jul</b> | 0.771                | <b>21-Aug</b> | 0.828                |
| <b>22-May</b> | 0.695                | <b>22-Jun</b> | 0.729                | <b>22-Jul</b> | 0.772                | <b>22-Aug</b> | 0.830                |
| <b>23-May</b> | 0.696                | <b>23-Jun</b> | 0.730                | <b>23-Jul</b> | 0.774                | <b>23-Aug</b> | 0.832                |
| <b>24-May</b> | 0.697                | <b>24-Jun</b> | 0.731                | <b>24-Jul</b> | 0.776                | <b>24-Aug</b> | 0.834                |
| <b>25-May</b> | 0.698                | <b>25-Jun</b> | 0.733                | <b>25-Jul</b> | 0.777                | <b>25-Aug</b> | 0.836                |
| <b>26-May</b> | 0.699                | <b>26-Jun</b> | 0.734                | <b>26-Jul</b> | 0.779                | <b>26-Aug</b> | 0.838                |
| <b>27-May</b> | 0.700                | <b>27-Jun</b> | 0.735                | <b>27-Jul</b> | 0.781                | <b>27-Aug</b> | 0.840                |
| <b>28-May</b> | 0.701                | <b>28-Jun</b> | 0.736                | <b>28-Jul</b> | 0.782                | <b>28-Aug</b> | 0.842                |
| <b>29-May</b> | 0.702                | <b>29-Jun</b> | 0.738                | <b>29-Jul</b> | 0.784                | <b>29-Aug</b> | 0.844                |
| <b>30-May</b> | 0.703                | <b>30-Jun</b> | 0.739                | <b>30-Jul</b> | 0.786                | <b>30-Aug</b> | 0.846                |
| <b>31-May</b> | 0.704                |               |                      | <b>31-Jul</b> | 0.788                | <b>31-Aug</b> | 0.848                |

EVAPORATION COEFFICIENTS VALUES TABLE  
HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA  
SEE PLATE A-9 SHEET 1

| Day/<br>Month | Coefficient<br>Value | Day/<br>Month | Coefficient<br>Value | Day/<br>Month | Coefficient<br>Value | Day/<br>Month | Coefficient<br>Value |
|---------------|----------------------|---------------|----------------------|---------------|----------------------|---------------|----------------------|
| <b>01-Sep</b> | 0.851                | <b>01-Oct</b> | 0.913                | <b>01-Nov</b> | 0.961                | <b>01-Dec</b> | 0.951                |
| <b>02-Sep</b> | 0.853                | <b>02-Oct</b> | 0.915                | <b>02-Nov</b> | 0.962                | <b>02-Dec</b> | 0.949                |
| <b>03-Sep</b> | 0.855                | <b>03-Oct</b> | 0.917                | <b>03-Nov</b> | 0.962                | <b>03-Dec</b> | 0.947                |
| <b>04-Sep</b> | 0.857                | <b>04-Oct</b> | 0.919                | <b>04-Nov</b> | 0.963                | <b>04-Dec</b> | 0.945                |
| <b>05-Sep</b> | 0.859                | <b>05-Oct</b> | 0.921                | <b>05-Nov</b> | 0.964                | <b>05-Dec</b> | 0.943                |
| <b>06-Sep</b> | 0.861                | <b>06-Oct</b> | 0.923                | <b>06-Nov</b> | 0.964                | <b>06-Dec</b> | 0.941                |
| <b>07-Sep</b> | 0.863                | <b>07-Oct</b> | 0.925                | <b>07-Nov</b> | 0.965                | <b>07-Dec</b> | 0.938                |
| <b>08-Sep</b> | 0.865                | <b>08-Oct</b> | 0.927                | <b>08-Nov</b> | 0.965                | <b>08-Dec</b> | 0.935                |
| <b>09-Sep</b> | 0.867                | <b>09-Oct</b> | 0.928                | <b>09-Nov</b> | 0.966                | <b>09-Dec</b> | 0.933                |
| <b>10-Sep</b> | 0.870                | <b>10-Oct</b> | 0.930                | <b>10-Nov</b> | 0.966                | <b>10-Dec</b> | 0.930                |
| <b>11-Sep</b> | 0.872                | <b>11-Oct</b> | 0.932                | <b>11-Nov</b> | 0.966                | <b>11-Dec</b> | 0.926                |
| <b>12-Sep</b> | 0.874                | <b>12-Oct</b> | 0.934                | <b>12-Nov</b> | 0.966                | <b>12-Dec</b> | 0.923                |
| <b>13-Sep</b> | 0.876                | <b>13-Oct</b> | 0.935                | <b>13-Nov</b> | 0.966                | <b>13-Dec</b> | 0.920                |
| <b>14-Sep</b> | 0.878                | <b>14-Oct</b> | 0.937                | <b>14-Nov</b> | 0.966                | <b>14-Dec</b> | 0.916                |
| <b>15-Sep</b> | 0.880                | <b>15-Oct</b> | 0.939                | <b>15-Nov</b> | 0.966                | <b>15-Dec</b> | 0.912                |
| <b>16-Sep</b> | 0.882                | <b>16-Oct</b> | 0.940                | <b>16-Nov</b> | 0.966                | <b>16-Dec</b> | 0.908                |
| <b>17-Sep</b> | 0.884                | <b>17-Oct</b> | 0.942                | <b>17-Nov</b> | 0.966                | <b>17-Dec</b> | 0.904                |
| <b>18-Sep</b> | 0.887                | <b>18-Oct</b> | 0.944                | <b>18-Nov</b> | 0.965                | <b>18-Dec</b> | 0.900                |
| <b>19-Sep</b> | 0.889                | <b>19-Oct</b> | 0.945                | <b>19-Nov</b> | 0.965                | <b>19-Dec</b> | 0.896                |
| <b>20-Sep</b> | 0.891                | <b>20-Oct</b> | 0.947                | <b>20-Nov</b> | 0.964                | <b>20-Dec</b> | 0.891                |
| <b>21-Sep</b> | 0.893                | <b>21-Oct</b> | 0.948                | <b>21-Nov</b> | 0.964                | <b>21-Dec</b> | 0.886                |
| <b>22-Sep</b> | 0.895                | <b>22-Oct</b> | 0.949                | <b>22-Nov</b> | 0.963                | <b>22-Dec</b> | 0.881                |
| <b>23-Sep</b> | 0.897                | <b>23-Oct</b> | 0.951                | <b>23-Nov</b> | 0.962                | <b>23-Dec</b> | 0.876                |
| <b>24-Sep</b> | 0.899                | <b>24-Oct</b> | 0.952                | <b>24-Nov</b> | 0.961                | <b>24-Dec</b> | 0.871                |
| <b>25-Sep</b> | 0.901                | <b>25-Oct</b> | 0.953                | <b>25-Nov</b> | 0.960                | <b>25-Dec</b> | 0.865                |
| <b>26-Sep</b> | 0.903                | <b>26-Oct</b> | 0.954                | <b>26-Nov</b> | 0.959                | <b>26-Dec</b> | 0.859                |
| <b>27-Sep</b> | 0.905                | <b>27-Oct</b> | 0.956                | <b>27-Nov</b> | 0.958                | <b>27-Dec</b> | 0.853                |
| <b>28-Sep</b> | 0.907                | <b>28-Oct</b> | 0.957                | <b>28-Nov</b> | 0.956                | <b>28-Dec</b> | 0.847                |
| <b>29-Sep</b> | 0.909                | <b>29-Oct</b> | 0.958                | <b>29-Nov</b> | 0.955                | <b>29-Dec</b> | 0.841                |
| <b>30-Sep</b> | 0.911                | <b>30-Oct</b> | 0.959                | <b>30-Nov</b> | 0.953                | <b>30-Dec</b> | 0.834                |
|               |                      | <b>31-Oct</b> | 0.960                |               |                      | <b>31-Dec</b> | 0.828                |





### USE OF DIAGRAM

1. Rainflood parameters relate the weighted accumulation of seasonal basin mean precipitation to the required flood control space reservation on any given day. Parameter values are computed daily, beginning with the first rainfall in October, by adding the current day's basin mean precipitation in inches to 97% of the parameter value computed through the preceding day. The parameter is reset to zero on 1 September.
2. When empty space is less than indicated by the diagram, water shall be released as rapidly as possible without causing flows in Fresno River at Madera Canal to exceed 5,000 cfs. During rainfloods, flows on Willow Creek should be estimated on a short-term basis by using 10 percent of Hensley Lake inflows.
3. Minimum irrigation release = 100 cfs
4. Flood control releases shall not be changed more than 500 cfs per hour.
5. No flood control reservation is required during the months of July and August.
6. This diagram will be adjusted as information concerning sediment deposition in the lake becomes available. Between sediment surveys, it is projected that sediment deposition is 53 acre-feet per year (5,300 acre-feet per 100-years.) The sediment deposition into Hensley Lake will reduce conservation space on an acre-feet for acre-feet basis. Slopes for all lines on the diagram will remain fixed as sediment accumulates in the reservoir.
7. A sample computation of the wetness parameter (PAR) for determination of reservoir flood control space requirement is available in Exhibit A, (Section A-02a-(9) Basin Wetness Parameter).
8. The Corps' Water Management Section may direct that releases be increased or decreased from those required by the Water Control Plan depending on conditions prevailing at the time.

HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

### WATER CONTROL DIAGRAM

U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

Developed by JLB - Prepared by JSM

Revised Oct 2004

PLATE A-11

WATER CONTROL MANUAL  
HIDDEN DAM AND HENSLEY LAKE

Fresno River  
California

EXHIBIT B

CESPD-R-1110-2-8

GUIDANCE ON THE PREPARATION OF DEVIATIONS  
FROM APPROVED WATER CONTROL PLANS

U.S. Army Corps of Engineers  
Sacramento District  
Sacramento, California  
Manual Revised October 2004

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DEPARTMENT OF THE ARMY  
SOUTH PACIFIC DIVISION CORPS OF ENGINEERS

CESPD-MT-E  
333 Market Street  
San Francisco, California 94105-2195

REGULATION  
No. 1110-2-8

12 September 2002

Engineering and Design  
GUIDANCE ON THE PREPARATION OF DEVIATIONS  
FROM APPROVED WATER CONTROL PLANS

1. PURPOSE. This document establishes the protocol for reporting deviations from approved Water Control Plans for water control projects within the South Pacific Division. It defines coordination, review, and approval procedures between the Division and District offices. Approval from Division must be obtained from all deviations (reference e., paragraph 6.b.)<sup>1</sup>

2. APPLICABILITY. The following is applicable to all South Pacific Division Districts and field-operating activities having civil works responsibilities.

3. REFERENCES. Authority and guidance can be found in:

- a. ER 200-2-2 (33 CFR 230), 4 March 1988, subject: Procedures for Implementing NEPA.
- b. ER 1105-2-100, 22 April 2000, subject: Guidance for Conducting Civil Works Planning Studies.
- c. ER 1110-2-240 (33 CFR 222.5), 8 October 1982, subject: Water Control Management.
- d. ER 1110-2-241 (33 CFR 208.1), 24 May 1990, subject: Use of Storage Allocated for Flood Control and Navigation at Non-Corps Projects.
- e. ER 1110-2-1400, 30 September 1993, subject: Reservoir Water Control Centers.
- f. ER 1110-2-8156, 31 August 1995, subject: Preparation of Water Control Manuals.
- g. ER 1165-2-501, 30 September 1999, subject: Civil Works Ecosystem Restoration Policy.

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<sup>1</sup> This regulation supercedes CESPD-ET-EW Regulation, Subject: Guidance On The Preparation Of Deviations From Approved Water Control Plans dated 1 August 1999.

- h. EP 1165-2-502, 30 September 1999, subject: Ecosystem Restoration – Supporting Policy Information.
- i. EM 1110-2-3600, 30 November 1987, subject: Management of Water Control Systems.
- j. CESPD R 1110-2-8, August 1999, subject: Guidance on the Preparation of Deviations From Approved Water Control Plans.

#### 4. OVERVIEW.

a. Water Control Plans are prepared for all Corps projects and non-Corps projects within Federal flood control space. For Corps projects, the Water Control Plan is all encompassing in that it covers regulation of the project over the entire regime of pool elevations and conditions. The Corps' responsibility regarding non-Corps reservoirs is defined by Section 7 of the Flood Control Act of 1944 (58 Stat 890), which directs the Secretary of the Army to prescribe regulations for the use of storage allocated for flood control or navigation at all reservoirs constructed wholly or in part with Federal funds.

b. Water Control Plans define the regulation criteria and guidelines that govern how and when water will be stored and released from a project. The process of formulation and eventual approval of the Water Control Plan is a complex and time-consuming process because the plan must account for diverse goals (flood control, the environment, water quality, recreation, water supply, hydropower, etc.) and situations (e.g. normal, flood, drought, and emergency operations). Formulation of these plans requires a comprehensive knowledge of such diverse items as: project goals, project history, authorizing legislation, Corps policies and regulations, how a project interacts with other reservoirs within a basin, the role of other water interests/agencies, the effects to the general public in relation to environmental and aesthetic considerations, basin meteorology and hydrology, changing conditions (e.g. sedimentation, channel capacity, scour, etc.), and the physical capabilities of project features, such as outlet works, spillways, flood routing characteristics, etc.). Prior to approval and implementation, the proposed Water Control Plan is released for public review and comment. The public review process normally occurs concurrently with the NEPA public review process.

c. Deviations from approved Water Control Plans occur because every possible circumstance cannot be accounted for in a Water Control Plan. The competing goals and complex interactions of interested groups/agencies can cause even seemingly inconsequential deviations from an approved plan to lead to unforeseen environmental and legal complications. This regulation serves to assist a District in preparing their deviation requests. It outlines a minimum set of considerations that need to be addressed when making a recommendation to deviate from an approved Water Control Plan.

d. Deviations from approved Water Control Plans are intended, therefore, to address unforeseen and unique circumstances. They are not intended as a means for identifying or

initiating new opportunities to re-operate or reallocate storage in response to new and changing public needs.

## 5. DEFINITIONS.

*a. Emergency Deviations.* An emergency deviation from an approved Water Control Plan is one that is required due to an emergency situation. An emergency situation is defined herein as a situation in which there is a potential for injury, loss of life, threat to the project, or other serious hazards; but furthermore, also demanding immediate action, such that time constraints render impractical notification to the division. Depending upon the need for immediate action, an emergency situation could include: drowning and other accidents, assistance to local authorities responding to an emergency (e.g. police and fire departments), failure of operations facilities, chemical spills, treatment plant failures, and other temporary pollution or water quality problems. Water control actions necessary to abate the problem are taken immediately unless such action would create equal or worse conditions.

*b. Planned Deviations.* Planned deviations cover all other deviations not addresses by an emergency deviation.

6. OFFICE OF RECORD. The originating District's water control management office will be responsible for maintaining all relevant records documenting the deviation.

## 7. GENERAL INFORMATION FOR PREPARING ALL DEVIATIONS.

*a. Approval of Deviations.* Approval for all deviations must be obtained from the Division Commander or delegated representative prior to their implementation. As noted in paragraph 5.a, an emergency deviation situation may warrant an immediate action, delegated to the Leader, Water Management Team or his designated representative. The Leader of the Water Management Team shall consult with the Chief of Engineering and Construction and appropriate SPD staff and subsequently advise the Director, Military and Technical Services Directorate of the temporary change. Approval may be made by telephone, E-mail, or FAX.

*b. Preparation of Deviations.* Processing of a deviation request originates at the District water control management office. The District Commander may delegate signature authority for requesting deviations from approved water control plans to the appropriate functional division head or designated representative. Consultation with the District staffs, including engineering, planning, environmental, economics, operations, construction and legal must take place.

*c. Costs and Charges for Preparing Deviations.* Deviations from approved Water Control Plans require a similar level of scrutiny as applied to permanent changes to a water control plan. Any District charges incurred for processing a deviation are to be assessed and collected from the agency/entity requesting the deviation. The District should estimate the cost to process the deviation and provide that estimate to the requesting agency/entity. The District must collect the funds (in a revolving fund advance account under Support for Others) prior to processing the deviation request. Examples of costs for which the requesting entity would be responsible include costs for any required reviews or studies concerning associated hydrologic, water

control, legal, real estate, and environmental matters. After the deviation work is completed, any amount of funds left over in the account would be paid back to the requesting entity.

*d. Fees for Water Supply Deviations.* Deviations that result in Corps project flood control space being used for water supply purposes must address reimbursement by the sponsor to the Federal government for use of the flood control space. The district's deviation request package must include an economic analysis that determines a value for the reallocated flood control space. Section 7 projects will not require the economic analysis, as water supply charges are under the authority of the project owner.

*e. Time to Prepare Deviations.* District offices should also inform potential agencies/entities that the lead time required to assemble the necessary information required to evaluate a deviation request may be on the order of months (normally due to the required environmental analysis and the public review process). Thus, the request to the District should be made well in advance of the proposed initiation date for the deviation. The requesting agency/entity should also be made aware that approval of the deviation request would depend upon such things as a review of the impacts (e.g., environmental, hydrologic, legal, etc.).

*f. Coordinating with Division Staff.* Preparation of a deviation package is a time consuming and costly undertaking, and incomplete or inadequate package can delay approval. District personnel are encouraged to coordinate any questions or concerns about potential deviations and to discuss any atypical situations with their Division counterparts early in the process and before the package submittal. All technical review will be conducted at the District level and will provide a review certification. In an emergency situation, a formal quality certification will most likely not be required. Appendix D lists the Division staff with which deviation-related issues are to be coordinated. Division will provide updates to Appendix A as needed.

*g. Non-Corps Projects.* Deviation requests for non-Corps (Section 7) projects must be prepared with the approval of the project owner. This is required because project owners are responsible for assuring that the project is operated as prescribed in the Water Control Plan developed in concert with the Corps' flood control interest. The owner is also ultimately responsible for dam safety at the project and for funding the project.

*h. Environmental Requirements.* Each deviation request shall include a summary of the environmental effects of the proposed deviation and a statement of how the proposal is in compliance with pertinent environmental requirements, including but not limited to the National Environmental Policy Act (NEPA), Endangered Species Act, the Clean Water Act, and the Clean Air Act and Section 176 Conformity Determination. NEPA documentation requirements ordinarily are met by an Environmental Assessment (EA) of the proposed action with a Finding of No Significant Impact (FONSI) signed by the District Commander. If an existing Environmental Impact Statement/Record of Decision or EA/FONSI accurately covers the action, and if there have been no environmental changes since that documentation, this can be cited. Supporting environmental documents shall be included in the deviation request package when it is submitted. Typically these will include an EA, a signed FONSI, a Biological Assessment, and a final Biological Opinion or a letter from Fish & Wildlife or National Marine and Fishery

Service concurring that there is not likely to be adverse effect on listed species. Sometimes other documents, such as 404(b)(1) evaluation are required. In the case of emergency deviation, the emergency provisions and requirements of the various environmental laws should be followed.

*i. Required Information/Analysis.* Table 1 outlines the information and analysis that are required in a deviation request package that is submitted to Division.

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TABLE 1  
Information and Analysis Required in a Deviation Request Package

---

- a. Copy of sponsor's/project owner's letter requesting a deviation.
  - b. A description of the deviation.
  - c. Its effects on the operational objectives or project purposes.
  - d. A description of the potential flood threat over the period of the deviation.
  - e. The current and predicted maximum reservoir storage and elevation.
  - f. Documentation that the proposed deviation is in compliance with all pertinent environmental laws.
  - g. The effect on other agencies and individual interest.
  - h. The coordination that has taken place with other agencies.
  - i. Alternative measures that could be taken.
  - j. Recommendation/rationale on whether a permanent change to the Water Control Plan for this situation is warranted.
  - k. A District legal opinion.
  - l. Any recommended fees or reimbursements to the Federal Government.
  - m. Any other information that may be pertinent to the deviation request.
  - n. The District Commander's recommendation.
  - o. Quality Control Certification
- 

## 8. PREPARING EMERGENCY DEVIATIONS

a. Emergency deviations are the only type of deviation that do not require prior approval from Division, and must only be used if events warrant an immediate emergency action, such that time constraints render impractical notification to the Division. However, even in an emergency situation, the District shall notify the Division of the action as soon as possible, and shall comply with all applicable requirements.

b. A record of the emergency deviation shall be developed at the district office and transmitted to the Division office within a day of the action taken.

c. Procedures for emergency deviations:

(1) Take the necessary action.

(2) Contact Division as soon as possible (See Appendix A for telephone numbers) to describe the action taken and the cause (NOTE: The order of (1) and (2) may be reversed depending on the nature of the emergency). Continuation of the deviation will require Division approval.

(3) The District shall provide written conformation to the Division office within 7 days of the deviation. The correspondence shall include the items outlined in Table 1 (as applicable).

(4) The Division shall respond within 3 days of the district's notification of the emergency deviation.

## 9. PREPARING PLANNED DEVIATIONS.

a. The District shall inform Division within 2 days of receiving a request for a proposed deviation.

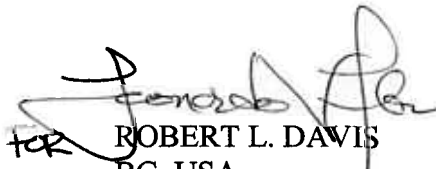
b. At least 7 days prior to the proposed action, the District shall transmit a deviation request package to the Division office. The deviation request package shall include the items in Table 1. This package may be initially transmitted electronically.

c. The Division shall review the proposal and approve or disapprove the District's deviation request within 5 days, assuming a complete package with all required documentation has been received. Early, detailed, coordination and transmittal of documents to Division may reduce the processing time.

d. The District and Division shall follow-up with formal correspondence within 3 days of their electronically transmitted request (District) and approval/disapproval (Division).

## 10. SPECIAL CIRCUMSTANCES.

Per reference 3.c, Water Control Plans are subject to continuing and progressive study in order to keep them current. Should a new re-operation or reallocation opportunity be identified for a Corps project, then it should be addressed under authority of Section 216 of Public Law 911-611, an Initial Appraisal Report can be conducted with O&M funding to determine whether or not a study, if deemed appropriate, among other things, could initiate the process to incorporate the new opportunity in the project's Water Control Plan. Re-operation or reallocation studies for non-Corps projects would need to be initiated by the project owner.

  
for ROBERT L. DAVIS  
BG, USA  
Commanding

COL, EN  
DEPCDR

### 1 Appendix

APP A – CESPD Phone list for Coordination of Water Control Plan Deviations

APP B - Quality Control Certification

### DISTRIBUTION:

Electronic Copy Available

**APPENDIX A**

**CESPD Phone List for  
Coordination of Water Control Plan Deviations**

Note: Initial District notification to the Division shall be made to Water Management.



**Members**

## APPENDIX B

### DISTRICT ENGINEER'S QUALITY CERTIFICATION

#### COMPLETION OF QUALITY CONTROL ACTIVITIES

The District has completed the review/analysis of the water control deviation from the Approved Water Control Plan for (Project Name and Location). Certification is hereby given that all quality control activities appropriate to the level of risk and complexity inherent in this analysis have been completed.

#### GENERAL FINDINGS

Compliance with clearly established policy principles and procedures, utilizing clearly justified and valid assumptions, data and the reasonableness of the results. The undersigned recommends certification of the quality control certification for this deviation request.

\_\_\_\_\_  
(Signature)  
Chief, Responsible Functional Element

\_\_\_\_\_  
(Date)

#### CERTIFICATION OF LEGAL REVIEW\*

The request for a water control deviation from the approved Water Control Plan report for indicate name of project, has been fully reviewed by the Office of Counsel, and is approved as legally sufficient.

\_\_\_\_\_  
(Signature)  
District Counsel

\_\_\_\_\_  
(Date)

#### QUALITY CERTIFICATION

All issues and concerns resulting from technical review of the water control deviation have been resolved. This deviation is recommended for approval.

\_\_\_\_\_  
(Signature)  
District Commander

\_\_\_\_\_  
(Date)

WATER CONTROL MANUAL  
HIDDEN DAM AND HENSLEY LAKE  
Fresno River  
California

EXHIBIT C  
DROUGHT CONTINGENCY PLAN  
FOR  
HIDDEN DAM AND HENSLEY LAKE

U.S. Army Corps of Engineers  
Sacramento District  
Sacramento, California  
July 1994

Revised October 2004  
C-i

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DROUGHT CONTINGENCY PLAN  
FOR  
HIDDEN DAM AND HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

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## EXHIBIT C

### DROUGHT CONTINGENCY PLAN

#### HIDDEN DAM AND HENSLEY LAKE FRESNO RIVER, CALIFORNIA

##### I - INTRODUCTION

1-01. Purpose. The purpose of this exhibit is to provide guidance for drought coordination with local entities and for possible modifications to the operation of Hensley Lake. Guidance in this exhibit concerns aspects of drought management pertaining to the operation of Hensley Lake, and should be used to complement the state's drought management activities.

The provisions of this plan will mainly apply to extreme situations when there is insufficient water to meet the health and safety needs of urban and rural communities. This plan will have very little impact on releases for irrigation, because the Corps of Engineers does not govern such releases. Instead, the Madera Irrigation District, which is responsible for managing all irrigation storage within Hensley Lake, will direct releases for their purposes.

1-02. Authorities. This plan is prepared under the authority of ER 1110-2-1941, "Engineering and Design, Drought Contingency Plans," dated September 15, 1981.

##### II - DROUGHTS

2-01. Historical. Fresno River flow is highly variable. Between 1912 and 2004, the average annual runoff has varied from approximately 7 percent of the historic average (in water year 1977) to 436 percent in 1983. Runoff has been below 50 percent of average for approximately 39 percent of the time. The driest 5 consecutive years were 1987-1991, and the driest 10 years, 1985-1994. Plate C-1 depicts the percent of average annual runoff for different durations from 1912-2004

2-02. Drought Indicators. The state of California has developed criteria to judge drought severity based on inflow to the Delta at the mouths of the Sacramento and San Joaquin Rivers. Drought conditions are subdivided into three categories: Below Average, Dry and Critical. For purposes of this plan, a drought indicator has been devised based on total forecasted water year runoff, plus the volume of water stored above 5,000 acre-feet ( $6.2 \text{ hm}^3$ ) (i.e., the recreation pool allocation). An annual runoff forecast can be obtained from the graph on Plate C-2. This graph was derived from a least squares estimate of annual runoff based on total runoff to date. This chart provides values that have a 50 percent chance of not being exceeded.

A historic depiction of water supply conditions is provided on Plate C-3. For purposes of this

exhibit, the drought categories have been assigned the following criteria: a forecast less than 100 percent of average annual runoff and equal to or greater than 65 percent is considered Below Average; a forecast of less than 65 percent of average, but equal to or greater than 30 percent, is considered Dry; a forecast less than 30 percent of average annual runoff is considered Critical.

### III - BASIN/PROJECT DESCRIPTION

3-01. Basin Description. Chapter IV of the Hidden Dam and Hensley Lake Project Water Control Manual provides a basin description.

3-02. Project Description. Chapter II of the Hidden Dam and Hensley Lake Project Water Control Manual gives a project description.

### IV - WATER USES/USERS

4-01. Current Uses/Users. Releases from Hensley Lake are either for flood control, in accordance with the current Water Control Plan, or for irrigation, as directed by the Madera Irrigation District. About 5,000 acre-feet ( $6.2 \text{ hm}^3$ ) of water is retained in the reservoir for recreation. Madera Irrigation District duties are described in Chapter IX of the Water Control Manual.

4-02. Available Storage. The allocation of storage in Hensley Lake is discussed in numerous portions of the Water Control Manual. Basically, the reservoir can store up to 90,000 acre-feet ( $111.0 \text{ hm}^3$ ) of water. During the rain flood season, up to 65,000 acre-feet ( $80.2 \text{ hm}^3$ ) of space must be kept empty to control rain floods. The impact of sedimentation in Hensley Lake is discussed in detail in Section 4-04, and is projected to be 5,300 ac-ft ( $6.5 \text{ hm}^3$ ) over 100-years, or 53 ac-ft ( $0.1 \text{ hm}^3$ ) per year. There has not been a soil survey since the Buchanan Dam-H.V. Eastman Lake project was completed, so all storage capacities discussed within this Water Control Manual are based on original storage capacity data. Some encroachment in flood control space is allowed based on the ground wetness index described in Paragraph 6-02b, and an example of the calculation is provided in Exhibit A, Paragraph A-02a(9). During the spring and summer, the reservoir may be filled if water is available. About 5,000 acre-feet ( $6.2 \text{ hm}^3$ ) of space is used to store water for recreation, and 20,000 acre-feet ( $24.7 \text{ hm}^3$ ) of space is available during the winter months to store water for irrigation.

4-03. Potential Uses/Users. In extreme cases, water stored in the Hensley Lake recreation pool has potential for municipal and industrial uses. In a drought emergency, the Governor has the power to intervene in local water distribution decisions. He can nullify existing water rights contracts and redistribute water to areas where it is most needed. Drought emergencies may be statewide or confined to local areas.

## V - CONSTRAINTS

5-01. Water Control Plans. The constraints on project operation are governed by the Water Control Plan. The basic Water Control Plan is explained above, and a detailed explanation is contained in the Water Control Manual.

5-02. Contracts. The U.S. Bureau of Reclamation (USBR) is the federal agent for the contract between the federal government and the local project sponsor. The repayment contract number is 14-06-200-4020A. Significant deviations from the Water Control Plan, which require repayment, would be coordinated with the USBR.

5-03. Water Rights. The State Water Resources Control Board (SWRCB) has declared that all water in the Fresno River is appropriated.

## VI - DROUGHT MANAGEMENT PLAN

6-01. General. At the district level, the Water Management Section, Engineering Division, monitors water supply opportunities on a continual basis. The Office of Counsel, the Operations Branch of the Construction-Operations Division, and the Environmental Resources Branch of the Planning Division provides support. This makes up the Corps' Drought Management Committee.

A rough estimate of the annual water supply at Hensley Lake can be obtained from the criteria in Paragraph 2-02 of Exhibit C and is shown in Plate C-2. This estimate may be used to plan drought impacts on Hensley Lake Recreation facilities. However, a drought declaration, which will significantly impact project operation, will be the state's responsibility. The Governor can declare a statewide drought emergency, giving him broad powers to override the SWRCB.

Upon notification of a drought emergency, coordination with an Interdisciplinary Technical Committee (ITC) will commence. It may be beneficial for the ITC to coordinate when the water supply forecast is critical. The ITC is composed of people most familiar with the project and local area. The ITC may also identify possible modifications to Hensley Lake operation to help alleviate the drought, and will be notified of proposals by other interests. The ITC's recommendations will be forwarded to the District Engineer. The District Engineer will report to the Division Engineer, who is a member of the State Drought Action Team created by Executive Order No. W-3-91.

6-02. Interdisciplinary Technical Committee. The Interdisciplinary Technical Committee will be composed of personnel listed on Plate C-4.

6-03. State Drought Action Team. The State Drought Action Team (SDAT) is composed of key state and federal personnel. The team is responsible for overseeing and coordinating state and federal responses to droughts. The Division Engineer is a member of the SDAT.

## VII - COORDINATION AND TECHNICAL PROCEDURES

7-01. Internal Coordination. Recommended deviations from the Water Control Plan will be coordinated with Division staff and submitted to the South Pacific Division for approval per the Corps of Engineers, South Pacific Division, memorandum dated 1 October 1996. The subject of deviations from normal regulation is further discussed in Chapter VII (Paragraph 7-15), in Exhibit A (Section A-04), and Exhibit B.

7-02. Interagency Coordination. Interagency coordination will be carried out at all levels as required. Coordination between members of the ITC and numerous local, state, and federal agencies will often be required prior to submittal of deviation plans to the Division Engineer.

7-03. Contracts. Under extreme conditions it may be desirable to release water from the 5,000 acre-foot (6.2 hm<sup>3</sup>) recreation pool for public safety. The regulation found in ER 1105-2-100, Planning Guidance Notebook <http://www.usace.army.mil/inet/usace-docs/eng-regs/er1105-2-100/toc.htm>, dated 22 April 2000, Appendix E, Civil Works Programs, Section VIII, Water Supply, E-57, Other Authorities, Paragraph (C) Drought Contingency Water Supply, Page E-215, requires compensation for drought contingency withdrawals. Rates should be at least sufficient to recapture lost project revenues, an appropriate share of yearly project joint-use operation, maintenance and major replacement expense, and any expense specifically attributed to water withdrawal. This includes contract administration costs and mitigation costs for environmental impacts. The format for the contract is also described in Section VIII, E-58, Water Supply Agreements, Paragraph (3), page E-223. The template for the form is found on the internet at: <http://www.hq.usace.army.mil/cecc/ccpca.htm>, Sample Water Agreements and Permits, Appendix K of ER 1105-2-100, Part 3, page 25 and 26. The preferred approach will be for a local agent to enter into a contract with the federal government, and to agree to act as a wholesaler for all water requirements of the individual users.

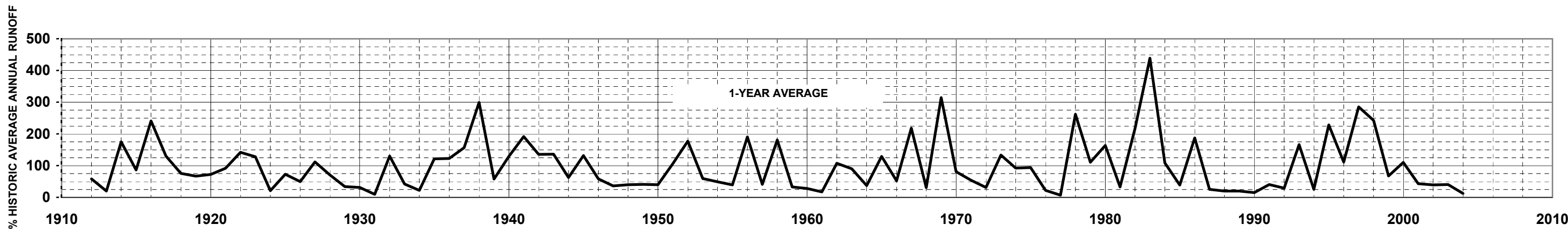
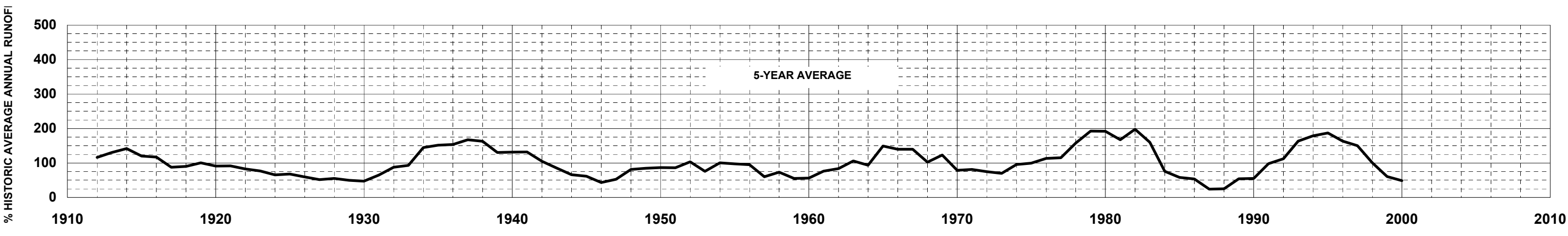
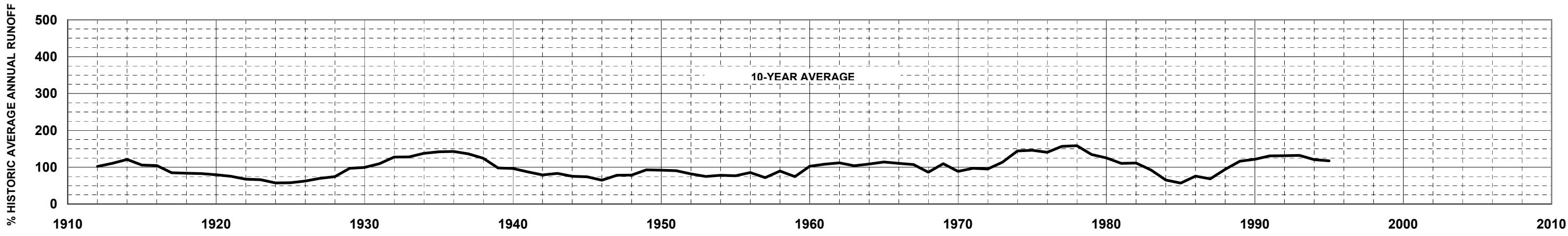
7-04. Environmental Coordination. Depending upon the nature of any specific drought proposal put forward for the modification of the Water Control Plan, the environmental effects and the required environmental coordination, NEPA documentation, and mitigation could vary widely. When a proposal is made, an environmental assessment (EA) will be prepared and coordination with the appropriate resource agencies will be undertaken. The EA will briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement (EIS), or a finding of no significant impact. Coordination will include the U.S. Fish and Wildlife Service and the California Department of Fish and Game, in accordance with the Fish and Wildlife Coordination Act. It may also include other resource agencies and groups, depending on the nature of the proposal and the resources that might be affected. Mitigation, if any is required, will be determined through the NEPA process.

7-05. Public Information. General information on Corps actions is disseminated to the public through the Public Affairs Office, which is briefed by the Chief, Water Management Section,

Engineering Division. Furthermore, District and/or Division representatives of the Corps report Corps drought activities at the periodic meetings of the Governor's Drought Action Team and the Interagency Drought Task Force, which, along with the California Department of Water Resources (DWR) State Drought Information Center, is California's designated lead agency in providing information to the public. The State Drought Center publishes a Weekly Update on Drought Conditions.

7-06. Responsibilities. The Water Management Section of the Sacramento District is responsible for the preparation, revision, and implementation of the Drought Contingency Plan. The Program Technical Division of the South Pacific Division has the responsibility for review and approval.

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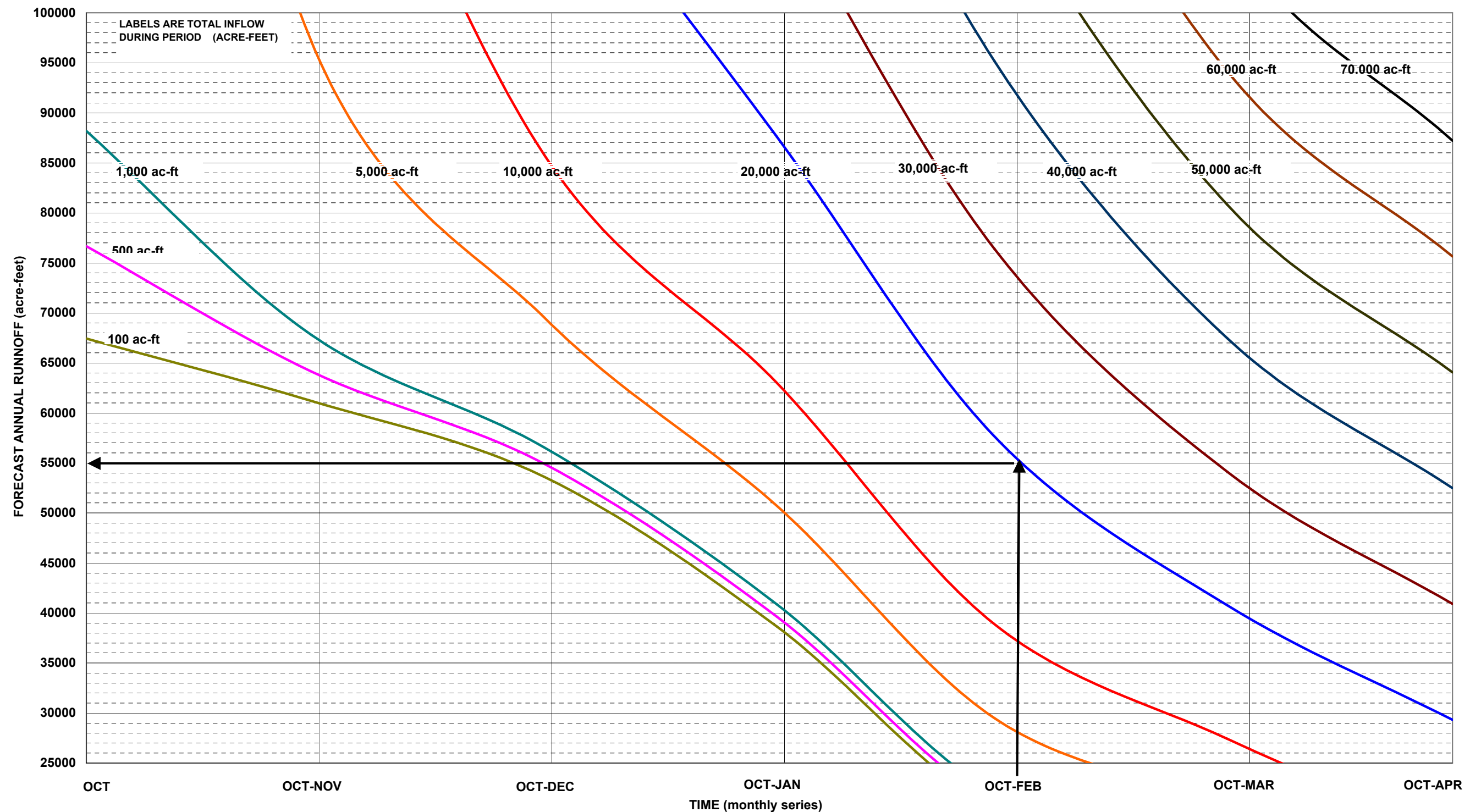
WATER YEAR

Period of record:  
Fresno River near Knowles gage (1912-1941)  
Fresno River near Daulton gage (1941-1975)  
Fresno River inflow at Hidden Dam (1976-2004)

Average Annual Runoff (1912-2004) 81,604 ac-ft

Prepared by JLB

|                                                                                       |
|---------------------------------------------------------------------------------------|
| HIDDEN DAM-HENSLEY LAKE<br>FRESNO RIVER, CALIFORNIA                                   |
| <b>AVERAGE ANNUAL RUNOFF<br/>EXPRESSED AS A PERCENT OF<br/>HISTORIC ANNUAL RUNOFF</b> |
| U.S. ARMY CORPS OF ENGINEERS<br>SACRAMENTO DISTRICT                                   |



EXAMPLE:  
If OCT-FEB total inflow to Hidden Dam-Hensley Lake is approximately 20,000 ac-ft,  
expect to receive approximately 55,000 ac-ft runoff for the water year.

AVERAGE ANNUAL RUNOFF to Hidden Dam-Hensley Lake is 81,604 ac-ft  
Based on period of record 1912-2004:  
Fresno River near Knowles gage (1912-1941)  
Fresno River near Daulton gage (1941-1975)  
Fresno River inflow at Hidden Dam (1976-2004)

Prepared by JLB

|                                                                              |
|------------------------------------------------------------------------------|
| HIDDEN DAM-HENSLEY LAKE<br>FRESNO RIVER, CALIFORNIA                          |
| FORECASTED ANNUAL RUNOFF<br>BASED ON TOTAL INFLOW<br>DURING INDICATED PERIOD |
| U.S. ARMY CORPS OF ENGINEERS<br>SACRAMENTO DISTRICT                          |

Revised Oct 2004

PLATE C-2

**ESTIMATED ANNUAL RUNOFF PLUS STORED WATER  
ABOVE 5,000 ACRE-FEET  
EXPRESSED AS PERCENT OF AVERAGE ANNUAL RUNOFF**

A forecast less than 100% of average annual runoff and equal to or greater than 65% is considered **Below Average**;

A forecast of less than 65% of average, but equal to or greater than 30%, is considered **Dry**;

A forecast less than 30% of average annual runoff is considered **Critical**

| Historic Drought Levels Based On The Above Criteria |         |         |         |         |         |         |         |
|-----------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|
| Water year                                          | OCT     | NOV     | DEC     | JAN     | FEB     | MAR     | APR     |
| 1976                                                | *       | BLW AVG | BLW AVG | DRY     | DRY     | DRY     | CRIT    |
| 1977                                                | BLW AVG | BLW AVG | BLW AVG | DRY     | DRY     | CRIT    | CRIT    |
| 1978                                                | BLW AVG | BLW AVG | BLW AVG | *       | *       | *       | *       |
| 1979                                                | *       | *       | *       | *       | *       | *       | *       |
| 1980                                                | *       | *       | *       | *       | *       | *       | *       |
| 1981                                                | *       | *       | *       | BLW AVG | BLW AVG | BLW AVG | BLW AVG |
| 1982                                                | BLW AVG | BLW AVG | BLW AVG | *       | *       | *       | *       |
| 1983                                                | *       | *       | *       | *       | *       | *       | *       |
| 1984                                                | *       | *       | *       | *       | *       | *       | *       |
| 1985                                                | BLW AVG | BLW AVG | BLW AVG | BLW AVG | DRY     | DRY     | DRY     |
| 1986                                                | BLW AVG | BLW AVG | BLW AVG | BLW AVG | *       | *       | *       |
| 1987                                                | *       | *       | BLW AVG | BLW AVG | DRY     | DRY     | DRY     |
| 1988                                                | BLW AVG | BLW AVG | BLW AVG | DRY     | DRY     | DRY     | CRIT    |
| 1989                                                | BLW AVG | BLW AVG | BLW AVG | DRY     | DRY     | DRY     | CRIT    |
| 1990                                                | BLW AVG | BLW AVG | BLW AVG | DRY     | DRY     | CRIT    | CRIT    |
| 1991                                                | BLW AVG | BLW AVG | BLW AVG | DRY     | CRIT    | DRY     | DRY     |
| 1992                                                | BLW AVG | BLW AVG | BLW AVG | DRY     | DRY     | DRY     | DRY     |
| 1993                                                | BLW AVG | BLW AVG | BLW AVG | *       | *       | *       | *       |
| 1994                                                | *       | *       | *       | BLW AVG | BLW AVG | DRY     | DRY     |
| 1995                                                | BLW AVG | BLW AVG | BLW AVG | *       | *       | *       | *       |
| 1996                                                | *       | *       | *       | *       | *       | *       | *       |
| 1997                                                | *       | *       | *       | *       | *       | *       | *       |
| 1998                                                | *       | BLW AVG | BLW AVG | *       | *       | *       | *       |
| 1999                                                | *       | *       | *       | *       | *       | *       | *       |
| 2000                                                | *       | *       | BLW AVG | BLW AVG | *       | *       | *       |
| 2001                                                | *       | *       | BLW AVG | BLW AVG | BLW AVG | BLW AVG | BLW AVG |
| 2002                                                | BLW AVG | BLW AVG | BLW AVG | BLW AVG | DRY     | DRY     | DRY     |
| 2003                                                | BLW AVG | BLW AVG | BLW AVG | BLW AVG | DRY     | DRY     | DRY     |
| 2004                                                | BLW AVG | BLW AVG | BLW AVG | DRY     | DRY     | CRIT    | CRIT    |

\* Indicates estimated water available is above average

HIDDEN DAM-HENSLEY LAKE  
FRESNO RIVER, CALIFORNIA

**ESTIMATED ANNUAL RUNOFF PLUS STORED  
WATER ABOVE 5000 ACRE-FEET EXPRESSED  
AS PERCENT OF AVERAGE ANNUAL RUNOFF**

U.S. ARMY CORPS OF ENGINEERS  
SACRAMENTO DISTRICT

Prepared by JLB

Revised Oct 2004

PLATE C-3



State Resource Agency  
 Department of Food and Agriculture  
 Office of Emergency Services  
 Department of Finance  
 Department of Fish and Game  
 Department of Forestry and Fire Protection  
 Department of Health Services  
 Office of Planning and Research  
 Adjutant General of the Military Department

Under the Governor's Executive Order W-3-91, representatives from other boards or agencies, as follows, can be appointed.

State Water Resources Control Board  
 Public Utilities Commission  
 United States Department of Agriculture  
 United States Department of the Interior  
 United States Army Corps of Engineers  
 Federal Emergency Management Agency

HIDDEN DAM-HENSLEY LAKE  
 FRESNO RIVER, CALIFORNIA

### **DROUGHT MANAGEMENT COMMITTEES**

U.S. ARMY CORPS OF ENGINEERS  
 SACRAMENTO DISTRICT

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