APPLICATION FOR NEW LICENSE
MAJOR PROJECT – EXISTING DAM

VOLUME III: EXHIBITS F – H

TRANSMITTAL LETTER
EXHIBIT F – GENERAL DESIGN DRAWINGS (LIST)
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EXHIBIT H – MISCELLANEOUS FILING INFORMATION

YUBA-BEAR HYDROELECTRIC PROJECT
FERC Project No. 2266-096

SECURITY LEVEL: PUBLIC

Chicago Park Powerhouse

Prepared by
Nevada Irrigation District
1036 West Main Street
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April 2011

NEVADA IRRIGATION DISTRICT
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April 15, 2011

Via Electronic Submittal (eFile)

Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Subject: **Yuba-Bear Hydroelectric Project**
FERC Project No. 2266-096
Transmittal of Final License Application

Dear Secretary Bose:

Pursuant to 18 CFR § 5.17, Nevada Irrigation District (NID or Licensee), as owner and operator of the Yuba-Bear Hydroelectric Project, FERC No. 2266, (Project) files with the Federal Energy Regulatory Commission (FERC) the attached Application for License for a Major Project – Existing Dam - (FLA). This FLA filing includes five volumes, the contents of which are shown in the Index of Final License Application Materials attached to this transmittal letter.

NID is filing all portions of the FLA following the Commission's e-Filing guidelines. One portion, Appendix E12 to Exhibit E, must be filed by Digital Versatile Discs (DVD) because the size and format of the material included in Appendix E12 preclude uploading it to FERC's e-Library system. Appendix E12 includes the Operations Model (HEC-ResSim) for the Yuba-Bear/Drum-Spaulding Projects, hydrologic information, technical memoranda for relicensing studies, and a helicopter video of Project facilities and stream reaches. NID will file an original and seven copies of Appendix E12 on DVDs.

PROPOSED PROJECT BACKGROUND

The Yuba-Bear Hydroelectric Project is located in northern California in Sierra, Nevada, and Placer counties along the western slope of the Sierra Nevada Range geomorphic provinces. Portions of the Project are on public land managed by either the United States Department of Agriculture (USDA), Forest Service (Forest Service) as part of the Tahoe National Forest (TNF) and by the United States Department of Interior (USDOI), Bureau of Land Management (BLM) as part of the Sierra Resource Management Area. The existing Project consists of four developments - Bowman, Dutch Flat, Chicago Park, and Rollins – which, in total include 13 main dams with a combined usable storage capacity of 210,823 acre-feet of water; four water

conduits; four powerhouses and switchyards with a combined authorized installed capacity of 79.32 megawatts (MW); one 9-mile-long, 60-kilovolt transmission line; 17 campgrounds and associated boat launches, trails, and other recreation facilities; and other appurtenant facilities and structures.

NID's proposed Project includes all existing Project facilities and one new powerhouse – the Rollins Upgrade. The new powerhouse would be located within the existing FERC Project Boundary on NID-owned land adjacent to the existing Rollins Powerhouse. NID's proposed Project also includes a slight expansion of the existing FERC Project Boundary to encompass some roads and environmental measures, including proposed minimum flow releases.

NID proposes to operate the proposed Project in the same fashion that it has historically operated the existing Project – first and foremost to meet the growing water supply demand of its District.

COORDINATION WITH PACIFIC GAS AND ELECTRIC COMPANY'S DRUM-SPAULDING PROJECT RELICENSING – JOINT EXHIBIT E

NID has coordinated the relicensing of its Yuba-Bear Hydroelectric Project with Pacific Gas and Electric Company's (PG&E) relicensing of its Drum-Spaulding Project (FERC Project No. 2310). NID and PG&E are cooperating and coordinating with each other on their relicensing efforts for many reasons, including: 1) the hydro projects are operationally interrelated and generally have physical features located in common watersheds; and 2) the two projects have the same license expiration date of April 30, 2013.

To this end, and because FERC declared in its May 22, 2008, Scoping Document 1 that it intended to prepare a multi-project environment impact statement for both projects, NID and PG&E have prepared a joint, two-project, Exhibit E, Environmental Report, and included the Exhibit E in their respective applications for a new license. This joint Exhibit E document is identical in each application. However, some section of Exhibit E and some Exhibit E appendices only address either the Yuba-Bear Hydroelectric Project or the Drum-Spaulding Project. For example, Exhibit E treats the projects separately and distinctly in key areas, such as proposed measures and Project economics. Exhibit E also provides information such as a description of the affected river basins, applicable laws, and affected environment that is generally applicable to both projects.

SECTION 106 COMPLIANCE

With the Notice of Intent to File an Application for a New License (NOI) on April 9, 2008, NID requested, pursuant to 36 CFR § 800.2(c)(4) that FERC authorize NID to initiate consultation, as described in Section 106 of the National Historic Preservation Act, with the California State Historic Preservation Officer (SHPO), tribes, the Forest Service, BLM and others regarding relicensing of the Project. By letter of June 10, 2008, FERC granted the request thereby designating NID the non-federal representative for Section 106 informal consultation.

ENDANGERED SPECIES ACT PROTECTION

With the NOI filing, NID also requested that FERC, pursuant to Section 7 of the Endangered Species Act, designate NID as the non-federal representative for the purpose of informal consultation with the United States Department of Commerce, National Marine Fisheries Service and USDOI, Fish and Wildlife Service for the Project. By letter of June 10, 2008, FERC granted NID's request.

PROPOSED PROTECTION, MITIGATION AND ENHANCEMENT MEASURES

Appendix E3 of Exhibit E of the FLA provides NID's proposed protection, mitigation and enhancement (PM&E) measures. These measures reflect NID's analysis of relicensing study results to date, and in some instances are informed by limited discussions with other Relicensing Participants.

NID affirms its continued commitment to working collaboratively and cooperatively with other interested Relicensing Participants as this Integrated Licensing Process for the Yuba-Bear Hydroelectric Project moves forward. NID is fully committed to working with interested Relicensing Participants to develop approaches, solutions and measures that address as many of the Relicensing Participants' interests as reasonably possible.

FINAL LICENSE APPLICATION DISTRIBUTION

NID will make the information from this FLA (with the exception of Critical Energy Infrastructure Information (CEII) and Privileged materials) available to all interested Relicensing Participants by:

- posting the FLA to the public Project Relicensing website: http://www.nid-relicensing.com/

- making a hardcopy of Volumes I, II and III, the public portions of the FLA, available to the public during regular business hours (8:30 a.m.– 4:30 p.m., Monday through Friday) at NID's place of business:

  Nevada Irrigation District
  1036 West Main Street
  Grass Valley, CA 95945

  The public is instructed to contact Mr. Ron Nelson or his designee by telephone at (530) 273-6185 to make an appointment to review the information.

- making a hardcopy of Volumes I, II and III, the public portions of the FLA, available at the following public libraries in the Project region:

  Nevada County Public Library
  Grass Valley Library - Royce Branch
  207 Mill Street

  Nevada County Public Library
  Madelyn Helling Library
  980 Helling Way

Grass Valley, CA 95945-6711
Placer County Public Library
350 Nevada Street
Auburn, CA 95603-3720

Nevada City, CA 95959-8619
Yuba County Public Library
303 2nd Street
Marysville, CA 95901-6011

NID will also publish a notice of the availability of the FLA (within 15 days of the date it is filed with FERC) in the following newspapers of general circulation:

The Union
464 Sutton Way
Grass Valley, CA 95945
Tel: (530) 273-9561

Auburn Journal
P.O. Box 5910
Auburn, CA 95604
Tel: (530) 885-5656

Appeal-Democrat
P.O. Box 431
Marysville, CA 95901
Tel: (530) 741-2345

The Mountain Messenger
313 Main
Downieville, CA 95936
Tel: (530) 289-3242

Any party may also request a hard copy of the Public volumes of the FLA by contacting Ron Nelson, General Manager, (530) 273-6185 or by e-mail at nelson@nid.dst.ca.gov.

NID looks forward to working with FERC and other interested parties on the Yuba-Bear Hydroelectric Project relicensing. If you have any questions regarding the FLA, please contact me.

Sincerely,

Ron Nelson
General Manager

cc: Alan Mitchnick, FERC Project Coordinator
FERC Project No. 2266 Relicensing Participants Mailing List (via electronic mail)

Attachment: Yuba-Bear Hydroelectric Project Index of Final License Application Materials

Enclosure: Yuba-Bear Hydroelectric Project Final License Application

INDEX OF FINAL LICENSE APPLICATION FOR THE YUBA-BEAR HYDROELECTRIC PROJECT (FERC PROJECT NO. 2266)

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Transmittal Letter

Executive Summary

Initial Statement

Glossary — Definition of Terms, Acronyms, and Abbreviations

Exhibit A. — Project Description

Exhibit B. — Project Operations and Resource Utilization

Exhibit C. — Construction History and Proposed Construction Schedule

Exhibit D. — Statement of Project Costs and Financing

Volume II **Exhibit E. Environmental Report** **Security Level: Public**

Part 1:

Transmittal Letter

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Section 2. — General Description of the River Basins

Section 3. — Cumulative Effects – Geographic and Temporal Scope

Section 4. — Applicable Laws

Section 5. — Project Facilities and Operations

Section 6. — Section 6.0 Introduction to Environmental Analysis

Section 6.1. Geology and Soils

Section 6.2. Water Resources

Section 6.3. Aquatic Resources

Section 6.4. Terrestrial Resources

Section 6.5. Threatened and Endangered Species

Section 6.6. Recreational Resources

Section 6.7. Land Use

Section 6.8. Cultural Resources

Section 6.9. Aesthetic Resources

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Section 7. NID's Economic Analysis – Yuba-Bear Hydroelectric Project

Section 8. PG&E's Economic Analysis – Drum-Spaulding Project

Section 9. Consistency with Comprehensive Plans

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Part 2:

Appendix E1. List of Parties Consulted

Appendix E2. NID's Replies to Comments on the Yuba-Bear Hydroelectric Project Draft License Application

Appendix E3. NID's Proposed Measures included in the Proposed Yuba-Bear Hydroelectric Project

Appendix E4. NID's Proposed Implementation Plans included in the Proposed Yuba-Bear Hydroelectric Project

- Clear and Trap Creeks Stabilization Plan
- Invasive Weeds Management Plan on Federal Land
- Vegetation Management Plan on Federal Land
- Recreation Facilities Plan
- Transportation Management Plan
- Fire Prevention and Response Plan on Federal Land
- Historic Properties Management Plan (*due to its Privileged content, this plan is located in Vol. IV of NID's FLA*)
- Visual Resources Management Plan on Federal Land

Appendix E5. NID's Miscellaneous Information Related to Measures included in the Proposed Yuba-Bear Hydroelectric Project

Appendix E6. PG&E's Replies to Comments on the Draft License Application – Drum-Spaulding Project

Appendix E7. PG&E's Proposed Measures and Rationale Statements – Drum-Spaulding Project

Appendix E8. PG&E's Proposed Implementation Plans included in the Proposed Drum-Spaulding Project

- Recreation Facilities Plan
- Transportation Management Plan for Primary Project Roads
- Fire Prevention and Response Plan on Federal Land
- Historic Properties Management Plan (*due to its Privileged content, this plan is located in Vol. IV of PG&E's FLA*)
- Visual Resources Management Plan on Federal Land

Appendix E9. PG&E's Discussion of Wise Powerhouse Operations – Drum-Spaulding Project

Appendix E10. PG&E's Miscellaneous Information Related to Proposed Measures – Drum-Spaulding Project

Appendix E11. PG&E's Background Information on Water Resources – Drum-Spaulding Project

Part 3:

Appendix E12. Operations Model and Technical Memoranda

- HEC-ResSim Operations Model for the Yuba-Bear Hydroelectric Project and the Drum-Spaulding Project, Including Five Model Scenarios Referenced in Exhibit E Pre-Loaded with Results
- Hydrology and Power Generation DVD for the Yuba-Bear Hydroelectric Project and the Drum-Spaulding Project
- Technical Memoranda for NID's and PG&E's Relicensing Studies
- Helicopter Video of Yuba-Bear Hydroelectric Project Facilities and Affected River Reaches

Volume III **Security Level: Public**

Transmittal Letter

Exhibit F. List of General Design Drawings

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Exhibit H. Miscellaneous Filing Materials

Volume IV **Security Level: Privileged**

Transmittal Letter

Historic Properties Management Plan

Volume V **Security Level: Critical Energy Infrastructure Information (CEII)**

Transmittal Letter

Exhibit F. General Design Drawings (CEII Version)

Application for a New License
Major Project – Existing Dam

Exhibit F
General Design Drawings

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Prepared by:
Nevada Irrigation District
1036 West Main Street
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April 2011

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EXHIBIT F

General Design Drawings

Section 5.18(a)(5)(iii) of Title 18 of the Code of Federal Regulations (CFR) refers to Section 4.51 (License for Major Project—Existing Dam) for a description of information that an applicant must include in Exhibit F. Exhibit F consists of general design drawings of the principal project works described under paragraph (b) of this section (Exhibit A) and supporting information used to demonstrate that existing Project structures are safe and adequate to fulfill their stated functions.

This document consists of drawings referenced in Licensee's Application for New License.

The Federal Energy Regulatory Commission's (FERC) rules for Critical Energy Infrastructure Information (CEII) in Order No. 630, as amended by Order Nos. 630-A, 649 and 702 requires applicants to separate certain information into the following categories:

- Public
- CEII
- Privileged (other non-public)

Drawings of the general design and principal Project works for the Yuba-Bear Hydroelectric Project are classified as CEII under Order 630. To comply with this order, each of these drawings is marked as CEII. The drawings will not be available in FERC's Public Reference Room or as a public access image on FERC's eLibrary web location, except as an indexed item.

1.0 Introduction

NID has prepared this Exhibit F, Report on Design Drawings, as part of its Application for a New Major License (Application) from FERC for the Yuba-Bear Hydroelectric Project (Project), FERC Project No. 2266. This exhibit is prepared in conformance with Title 18 of the Code of Federal Regulations (CFR), Subchapter B (Regulations under the Federal Power Act), Part 5 (Integrated Licensing Process). In particular, this report conforms to the regulations in 18 CFR § 5.18(a)(5)(iii), which requires in part that the application include an Exhibit F in conformance with 18 CFR § 4.51(g) and 4.39. Section 4.41(g) pertains to design drawings and § 4.39 provides specifications for maps and drawings. As a reference, these two sections state:

18 CFR §4.41(g): Exhibit F consists of general design drawings of the principal project works described under paragraph (b) of this section (Exhibit A) and supporting information used as the basis of design. If the Exhibit F submitted with the application is preliminary in nature, applicant must so state in the application. The drawings must conform to the specifications of § 4.39.

(1) The drawings must show all major project structures in sufficient detail to provide a full understanding of the project, including:
   (i) Plans (overhead view);

(ii) Elevations (front view);
(iii) Profiles (side view); and
(iii) Sections.

(2) The applicant may submit preliminary design drawings with the application. The final Exhibit F may be submitted during or after the license process and must show the precise plans and specifications for proposed structures. If the project is licensed on the basis of preliminary designs, the applicant must submit the final Exhibit F for Commission approval prior to the commencement of any construction of the project.

(3) Supporting design report. The applicant must furnish, at a minimum, the following supporting information to demonstrate that existing and proposed structures are safe and adequate to fulfill their stated functions, and must submit such information in a separate report at the time the application is filed. The report must include:
(i) An assessment of the suitability of the site and the reservoir rim stability based on geological and subsurface investigations, including investigations of soils and rock borings and tests for the evaluation of all foundations and construction materials sufficient to determine the location and type of dam structures suitable for the dam site;
(ii) Copies of all boring logs, geology reports and laboratory tests reports;
(iii) An identification of all borrow areas and quarry sites and an estimate of required quantities and suitable construction material;
(iv) Stability and stress analyses for all major structures and critical abutment slopes under all probable loading conditions, including seismic and hydrostatic forces induced by water loads up to the Probable Maximum Flood as appropriate; and
(v) The basis for determination of seismic loading and the Spillway Design Flood in sufficient detail to permit independent staff evaluation.

(4) The applicant must submit two copies of the supporting design report described in paragraph (g)(3) of this section at the time preliminary and final design drawings are submitted to the Commission for review. If the report contains preliminary drawings, it must be designated a "Preliminary Supporting Exhibit Report."

18 CFR §4.39: Specifications for maps and drawings. All required maps and drawings must conform to the following specifications, except as otherwise prescribed in this chapter:

(a) Each original map or drawing must consist of a print on silver or gelatin 35mm microfilm mounted on Type D (3 1/4" by 7 3/8") aperture cards. Full-sized prints of maps and drawings must be on sheets no smaller than 24 by 36 inches and no larger than 28 by 40 inches. A space five inches high by seven inches wide must be provided in the lower right hand corner of each sheet. The upper half of this space must bear the title, numerical and graphical scale, and other pertinent information concerning the map or drawing. The lower half of the space must be left clear. Exhibit G drawings must be stamped by a Registered Land Surveyor. If the drawing size specified in this paragraph limits the scale of structural drawings (exhibit F drawings) described in paragraph (c) of this Section, a smaller scale may be used for those drawings. Potential applicants or licensees may be required to file maps or drawings in electronic format as directed by the Commission.

(b) Each map must have a scale in full-sized prints no smaller than one inch equals 0.5 miles for transmission lines, roads, and similar linear features and no smaller than one inch equals 1,000 feet for other project features, including the project boundary. Where maps at this scale do not show sufficient detail, large scale maps may be required. Each map must show:
(1) True and magnetic meridians;
(2) State, county, and town lines; and
(3) Boundaries of public lands and reservations of the United States [see 16 U.S.C. 796 (1) and (2)], if any. If a public land survey is available, the maps must show all lines of that survey crossing the project area and all official subdivisions of sections for the public lands and reservations, including lots and irregular tracts, as designated on the official plats of survey that may be obtained from the Bureau of Land Management, Washington, D.C., or examined in the local land survey office; to the extent that a

public land survey is not available for public lands and reservations of the United States, the maps must show the protractions of townships and section lines, which, if possible, must be those recognized by the Federal agency administering those lands.

(c) Drawings depicting details of project structures must have a scale in full-sized prints no smaller than:
(1) One inch equals 50 feet for plans, elevations, and profiles; and
(2) One inch equals 10 feet for sections.

(d) Each map or drawing must be drawn and lettered to be legible when it is reduced to a print that is 11 inches on its shorter side. Following notification to the applicant that the application has been accepted for filing [see §4.31(c)], prints reduced to that size must be bound in each copy of the application which is required to be submitted to the Commission or provided to any person, agency, or other entity.

(e) The maps and drawings showing project location information and details of project structures must be filed in accordance with the Commission's instructions on submission of Critical Energy Infrastructure Information in §§388.112 and 388.113 of subchapter X of this chapter.

Besides this introductory material, this Exhibit F includes five sections. Section 2.0 provides a list of all design drawings needed to show all major Project structures in sufficient detail to provide a full understanding of the Project. These include plan, elevation, and section profiles. The design drawings are included in Attachment F-1 to this exhibit. Section 3.0 addresses the use of Licensee's Part 12 Independent Safety Inspection Reports to meet the requirements for a Supporting Design Report for existing Project facilities. Section 4.0 provides Licensee's Supporting Design Report for the proposed Rollins Upgrade. The supporting Design Report is included in Attachment F-2. Sections 5.0 and 6.0 provide a list of attachments to this Exhibit F and a list of references, respectively.

See Exhibit A for a description of Project facilities and features, Exhibit B for a description of Project operations, Exhibit C for a construction history and a construction schedule, Exhibit D for costs and financing information, and Exhibit E for a discussion of potential environmental effects and Licensee's proposed resource management measures. Project maps are included in Exhibit G. Exhibit H contains a detailed description of the need for the electricity provided by the Project, the availability of electrical energy alternatives, and other miscellaneous information.

All elevation data in this exhibit are in National Geodetic Vertical Datum of 1929 (NGVD 29) unless otherwise specified.

2.0 General Design Drawings

General design drawings for Licensee's Yuba-Bear Hydroelectric Project as described in Exhibit A to this Application for a New License are provided in the exhibit drawings listed in Table 2.0-1. With the exception of the Rollins Upgrade facilities, these Design Drawings are not preliminary in nature: Licensee considers these Design Drawings to be final and prepared in conformance to 18 CFR §4.39. These drawings provide plan, elevation, profiles, and sections in accordance with the requirements of 18 CFR § 4.41(g), and were developed primarily from FERC-approved Exhibit L drawings, which depict the as-built principal Project works. The Rollins Upgrade design drawings are considered conceptual in nature. For ease of reference,

Licensee lists the design drawings by their current exhibit number, and the proposed new Exhibit F denotations.

Table 2.0-1. Lists of Exhibit F general design drawings for the Yuba-Bear Hydroelectric Project.

Exhibit L Drawing Number in Existing License	Proposed Exhibit F Drawing Number in New License	Drawing Description
1	1	Jackson Meadows Dam Details
2	2	Milton Dam-Tunnel and Pipeline Details
3	3	Bowman Reservoir North Dam Details
4	4	Bowman Reservoir South Dam Details
5	5	Jackson and French Lake Dams Details
6	6	Faucherie and Sawmill Dams Details
7	7	Bowman-Spaulding Conduit (1 of 3)
8	8	Bowman-Spaulding Conduit (2 of 3)
9	9	Bowman-Spaulding Conduit (3 of 3)
10	10	Dutch Flat No. 2 Conduit
11	11	Dutch Flat No. 2 Forebay and Afterbay Dam Details
12	12	Chicago Park Conduit
13a	13	Rollins Reservoir Dam and Details
14	14	Dutch Flat No. 2 Powerhouse
15	15	Chicago Park Powerhouse
16	16	Rollins Power Plant
17	17	Rollins Power Plant Single Line Diagram
--	18	Dutch Flat No. 2 Forebay Spillway

3.0 Supporting Design Report for Existing Facilities

Section 4.41(g)(2) requires that an applicant file with FERC two copies of a Supporting Design Report when the applicant files a license application. The purpose of the Supporting Design Report is to demonstrate *"…that existing and proposed structures are safe and adequate to fulfill their stated functions…"* Licensee's recent Part 12 Independent Dam Safety Inspection Reports fulfill the requirements of the regulations for filing a Supporting Design Report for existing Project facilities as part of the application for new license. All of the Project's Independent Dam Safety Inspection Reports are on file with FERC.

4.0 Supporting Design Report for Proposed Rollins Upgrade

Attachment F-2 to this Exhibit F includes a Supporting Design Report for the Rollins Upgrade.

5.0 List of Appendices

This exhibit includes two appendices. Both of these appendices are considered CEII, and are not attached to this public version of the Exhibit F. The appendices are:

- Appendix F-1: General Design Drawings
- Appendix F-2: Supporting Design Report for Proposed Rollins Upgrade

6.0 References Cited

de Rubertis. 2002. 2001 Review of Safety, Bowman North Dam, FERC No. 2266, Yuba-Bear Hydroelectric Project, Nevada Irrigation District, Colfax, California.

_____. 2002. 2001 Review of Safety, Bowman South Dam, FERC No. 2266, Yuba-Bear Hydroelectric Project, Nevada Irrigation District, Colfax, California.

_____. 2002. 2001 Review of Safety, Dutch Flat Afterbay Dam, FERC No. 2266, Yuba-Bear Hydroelectric Project, Nevada Irrigation District, Colfax, California.

_____. 2002. 2001 Review of Safety, Dutch Flat No. 2 Forebay Dam, FERC No. 2266, Yuba-Bear Hydroelectric Project, Nevada Irrigation District, Colfax, California.

_____. 2002. 2001 Review of Safety, Faucherie Dam, FERC No. 2266, Yuba-Bear Hydroelectric Project, Nevada Irrigation District, Colfax, California.

_____. 2002. 2001 Review of Safety, French Lake Dam, FERC No. 2266, Yuba-Bear Hydroelectric Project, Nevada Irrigation District, Colfax, California.

_____. 2002. 2001 Review of Safety, Jackson Lake Dam, FERC No. 2266, Yuba-Bear Hydroelectric Project, Nevada Irrigation District, Colfax, California.

_____. 2002. 2001 Review of Safety, Jackson Meadows Dam, FERC No. 2266, Yuba-Bear Hydroelectric Project, Nevada Irrigation District, Colfax, California.

_____. 2002. 2001 Review of Safety, Rollins Dam, FERC No. 2266, Yuba-Bear Hydroelectric Project, Nevada Irrigation District, Colfax, California.

_____. 2002. 2001 Review of Safety, Sawmill Dam, FERC No. 2266, Yuba-Bear Hydroelectric Project, Nevada Irrigation District, Colfax, California.

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Application for a New License
Major Project – Existing Dam

Exhibit G
Project Maps

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Prepared by:
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April 2011

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EXHIBIT G

Project Maps

1.0 Introduction

The Nevada Irrigation District (NID or Licensee) has prepared this Exhibit G, Report on Project Maps, as part of its Application for a License for a Major Project – Existing Dam - (Application) from the Federal Energy Regulatory Commission (FERC) for the Yuba-Bear Hydroelectric Project (Project), FERC Project No. 2266. This exhibit is prepared in conformance with Title 18 of the Code of Federal Regulations (CFR), Subchapter B (Regulations under the Federal Power Act), Part 5 (Integrated Licensing Process). In particular, this report conforms to the regulations in 18 CFR § 5.18(a)(5)(iii), which requires in part that the application include an Exhibit G in conformance with 18 CFR § 4.41(h) and 4.39. Section 4.41(h) pertains to Project maps and § 4.39 provides specifications for maps and drawings. As a reference, these two sections state:

18 CFR § 4.41(h): Exhibit G is a map of the project that must conform to the specifications of § 4.39. In addition, to the other components of Exhibit G, the applicant must provide the project boundary data in a geo-referenced electronic format - such as ArcView shape files, GeoMedia files, MapInfo files, or any similar format. The electronic boundary data must be positionally accurate to ± 40 feet, in order to comply with the National Map Accuracy Standards for maps at a 1:24,000 scale (the scale of USGS quadrangle maps). The electronic Exhibit G data must include a text file describing the map projection used (*i.e.*, UTM, State Plane, Decimal Degrees, etc.), the map datum (*i.e.*, feet, meters, miles, etc.). Three sets of the maps must be submitted on compact disk or other appropriate electronic media. If more than one sheet is used for the paper maps, the sheets must be numbered consecutively, and each sheet must bear a small insert sketch showing the entire project and indicate that portion of the project depicted on that sheet. Each sheet must contain a minimum of three known reference points. The latitude and longitude coordinates, or state plane coordinates, of each reference point must be shown. If at any time after the application is filed there is any change in the project boundary, the applicant must submit, within 90 days following the completion of project construction, a final exhibit G showing the extent of such changes. The map must show:

(1) *Location of the project and principal features.* The map must show the location of the project as a whole with reference to the affected stream or other body of water and, if possible, to a nearby town or any other permanent monuments or objects, such as roads, transmission lines or other structures, that can be noted on the map and recognized in the field. The map must also show the relative locations and physical interrelationships of the principal project works and other features described under paragraph (b) of this section (Exhibit A).

(2) *Project boundary.* The map must show a project boundary enclosing all project works and other features described under paragraph (b) of this section (Exhibit A) that are to be licensed. If accurate survey information is not available at the time the application is filed, the applicant must so state, and a tentative boundary may be submitted. The boundary must enclose only those lands necessary for operation and maintenance of the project and for other project purposes, such as recreation, shoreline control, or protection of environmental resources (*see* paragraph (f) of this section (Exhibit E)). Existing residential, commercial, or other structures may be included within the boundary only to the extent that underlying lands are needed for project purposes (e.g., for flowage, public recreation, shoreline control, or protection of environmental resources). If the boundary is on land covered by a public survey, ties must be shown on the map at sufficient points to permit accurate platting of the position of the boundary relative to the lines of the public land survey. If the lands are not covered by a public land survey, the best available legal

description of the position of the boundary must be provided, including distances and directions from fixed monuments or physical features. The boundary must be described as follows:

(i) *Impoundments.*

(A) The boundary around a project impoundment must be described by one of the following:
(1) Contour lines, including the contour elevation (preferred method);
(2) Specified courses and distances (metes and bounds);
(3) If the project lands are covered by a public land survey, lines upon or parallel to the lines of the survey; or
(4) Any combination of the above methods.

(B) The boundary must be located no more than 200 feet (horizontal measurement) from the exterior margin of the reservoir, defined by the normal maximum surface elevation, except where deviations may be necessary in describing the boundary according to the above methods or where additional lands are necessary for project purposes, such as public recreation, shoreline control, or protection of environmental resources.

(ii) *Continuous features.* The boundary around linear ("continuous") project features such as access roads, transmission lines, and conduits may be described by specified distances from center lines or offset lines of survey. The width of such corridors must not exceed 200 feet unless good cause is shown for a greater width. Several sections of a continuous feature may be shown on a single sheet with information showing the sequence of contiguous sections.

(iii) *Noncontinuous features.*

(A) The boundary around noncontinuous project works such as dams, spillways, and powerhouses must be described by one of the following:
(1) Contour lines;
(2) Specified courses and distances;
(3) If the project lands are covered by a public land survey, lines upon or parallel to the lines of the survey; or
(4) Any combination of the above methods.

(B) The boundary must enclose only those lands that are necessary for safe and efficient operation and maintenance of the project or for other specified project purposes, such as public recreation or protection of environmental resources.

(3) *Federal lands.* Any public lands and reservations of the United States ("Federal lands") [*see* 16 U.S.C. 795(1) and (2)] that are within the project boundary, such as lands administered by the U.S. Forest Service, Bureau of Land Management, or National Park Service, or Indian tribal lands, and the boundaries of those Federal lands, must be identified as such on the map by:

(i) Legal subdivisions of a public land survey of the affected area (a protraction of identified township and section lines is sufficient for this purpose); and

(ii) The Federal agency, identified by symbol or legend, that maintains or manages each identified subdivision of the public land survey within the project boundary; or

(iii) In the absence of a public land survey, the location of the Federal lands according to the distances and directions from fixed monuments or physical features. When a Federal survey monument or a Federal bench mark will be destroyed or rendered unusable by the construction of project works, at least two permanent, marked witness monuments or bench marks must be established at accessible points. The maps show the location (and elevation, for bench marks) of the survey monument or bench mark which will be destroyed or rendered unusable, as well as of the witness monuments or bench marks. Connecting courses and distances from the witness monuments or bench marks to the original must also be shown.

(iv) The project location must include the most current information pertaining to affected Federal lands as described under §4.81(b)(5).

(4) *Non-Federal lands.* For those lands within the project boundary not identified under paragraph (h)(3) of this section, the map must identify by legal subdivision:

(i) Lands owned in fee by the applicant and lands that the applicant plans to acquire in fee; and

(ii) Lands over which the applicant has acquired or plans to acquire rights to occupancy and use other than fee title, including rights acquired or to be acquired by easement or lease.

18 CFR §4.39: Specifications for maps and drawings. All required maps and drawings must conform to the following specifications, except as otherwise prescribed in this chapter:

(a) Each original map or drawing must consist of a print on silver or gelatin 35mm microfilm mounted on Type D (3 1/4" by 7 3/8") aperture cards. Full-sized prints of maps and drawings must be on sheets no smaller than 24 by 36 inches and no larger than 28 by 40 inches. A space five inches high by seven inches wide must be provided in the lower right hand corner of each sheet. The upper half of this space must bear the title, numerical and graphical scale, and other pertinent information concerning the map or drawing. The lower half of the space must be left clear. Exhibit G drawings must be stamped by a Registered Land Surveyor. If the drawing size specified in this paragraph limits the scale of structural drawings (exhibit F drawings) described in paragraph (c) of this Section, a smaller scale may be used for those drawings. Potential applicants or licensees may be required to file maps or drawings in electronic format as directed by the Commission.

(b) Each map must have a scale in full-sized prints no smaller than one inch equals 0.5 miles for transmission lines, roads, and similar linear features and no smaller than one inch equals 1,000 feet for other project features, including the project boundary. Where maps at this scale do not show sufficient detail, large scale maps may be required. Each map must show:

(1) True and magnetic meridians;
(2) State, county, and town lines; and
(3) Boundaries of public lands and reservations of the United States [see 16 U.S.C. 796 (1) and (2)], if any. If a public land survey is available, the maps must show all lines of that survey crossing the project area and all official subdivisions of sections for the public lands and reservations, including lots and irregular tracts, as designated on the official plats of survey that may be obtained from the Bureau of Land Management, Washington, D.C., or examined in the local land survey office; to the extent that a public land survey is not available for public lands and reservations of the United States, the maps must show the protractions of townships and section lines, which, if possible, must be those recognized by the Federal agency administering those lands.

(c) Drawings depicting details of project structures must have a scale in full-sized prints no smaller than:

(1) One inch equals 50 feet for plans, elevations, and profiles; and
(2) One inch equals 10 feet for sections.

(d) Each map or drawing must be drawn and lettered to be legible when it is reduced to a print that is 11 inches on its shorter side. Following notification to the applicant that the application has been accepted for filing [see §4.31(c)], prints reduced to that size must be bound in each copy of the application which is required to be submitted to the Commission or provided to any person, agency, or other entity.

(e) The maps and drawings showing project location information and details of project structures must be filed in accordance with the Commission's instructions on submission of Critical Energy Infrastructure Information in §§388.112 and 388.113 of subchapter X of this chapter.

Besides this introductory material, this Exhibit G includes three sections. Section 2.0 provides a list of all Project maps to show the FERC Project Boundary for the proposed Project as described in this Application. The Project maps are included in Attachment G-1 to this exhibit. Sections 3.0 and 4.0 provide a list of attachments to this Exhibit G and a list of references, respectively.

See Exhibit A for a description of Project facilities and features, Exhibit B for a description of Project operations, Exhibit C for a construction history and a construction schedule, Exhibit D for costs and financing information, and Exhibit E for a discussion of potential environmental effects and Licensee's proposed resource management measures. Design Drawings are included in Exhibit F. Exhibit H contains a detailed description of the need for the electricity provided by the Project, the availability of electrical energy alternatives, and other miscellaneous information.

1.1 Description of Data Presented in Project Maps

In an attempt to use best data available to prepare the Project maps, multiple data sources were queried. The following discusses the data sources, and the process used by NID to develop the Yuba-Bear Hydroelectric Project Exhibit G Project maps provided in this exhibit.

Project maps were developed using Geographic Information Systems (GIS).

The primary reference for all geospatial information displayed on the Project maps was the Public Land Survey System (PLSS) obtained from the United States Department of Interior (UDOI), Bureau of Land Management's (BLM) California State Office geospatial clearinghouse. The data were obtained in September 2010. All other data on the Project maps tie to the PLSS system as digitally represented by the BLM source data.

The FERC Project Boundary did not previously exist in a digital or georeferenced format. The existing FERC Project Boundary is depicted on 24 hardcopy Exhibit K maps (Hydroelectric Project Boundary) and 3 hardcopy exhibit G maps (Bowman-Spaulding Transmission Line Project Boundary), which are part of the existing FERC license, and have the boundary described by surveyed coordinates, offsets and angles referenced to PLSS coordinates. To create a digital representation of the existing FERC Project Boundary in a projected coordinate system, the boundary was digitized into AutoCAD using the coordinates displayed on the Exhibit K maps. The boundaries were then georeferenced into GIS using the PLSS data. The boundary was then edited, as necessary, to close the polygons and tie the boundary to the PLSS reference points depicted on the Exhibit K drawings.

Where errors in the boundary were found, the boundary was modified using best data available. Data sources for modified boundaries included map grade sub-meter Geographic Positioning Systems (GPS) data and high-resolution color orthorectified aerial images from the United States Department of Agriculture (USDA), National Agriculture Imagery Program (NAIP) and archives of imagery from the aerial imagery vendor Digital Globe®.

Once the boundary was defined digitally, updates and changes to the FERC Project Boundary that are proposed in Exhibit A, Section 6.2 were integrated into the boundary. Primary Project access road alignments and expansions to include portions of existing Project recreation facilities were integrated using field surveyed and aerial photo checked sub-meter GPS data.

Boundaries around Project reservoirs were changed from the surveyed metes and bounds to the FERC preferred method of defining the boundary by a contour above the reservoir high water. Topographic contours representing elevations above normal maximum water surface elevations are based on the United States Geologic Survey (USGS) National Elevation Dataset (NED) 1/3 arc second Digital Elevation Model (DEM), accessed from the USGS web server in August 2010. The DEM data were converted from the USGS standard vertical datum (North American Vertical Datum of 1988, or NAVD88) to the vertical datum standard for Project maps, which is the National Geodetic Vertical Datum of 1929 (NGVD 29). Once the vertical datum of the DEM was converted, the contours were generated based on those data. Contours that defined the FERC Project Boundary were selected that best approximate the existing FERC Project Boundary and that met the operational needs of Licensee, within guidelines established by FERC regarding use of the contour data. Where the selected contour exceeded 200 feet (ft), horizontally from the reservoir high water, a 200 ft horizontal buffer of the reservoir high water was used to define the FERC Project Boundary.

Land ownership information was derived from multiple sources as well. NID and private land ownership were taken from GIS data sets that used parcel geometry developed by Placer, Sierra and Nevada counties. All data were obtained in January 2008. Federal land ownership was taken from both the GIS clearinghouses for the State of California office of the BLM for BLM land ownership and from USDA Forest Service Region 5 for Tahoe National Forest land ownership, which was obtained in September 2010. The various datasets were combined and slightly modified where overlap or gaps occurred in the geometry and, in the case of the county parcel data, where they did not match the PLSS data geometry. All three data sets have disclaimers that state the dataset is not intended to be used to determine land ownership of specific locations on the ground, and are intended to be used for planning and information purposes only.

Non-Project roads have geometry that originated from a GIS data set provided by the Tahoe National Forest. Reservoir high water level polygons were derived from the USGS National Hydrography Data Set. Both of these datasets were checked and modified to match high-resolution color aerial imagery from the USDA NAIP and archives of imagery from the aerial imagery vendor Digital Globe®.

All elevation data in this exhibit are in NGVD 29 unless otherwise specified.

2.0 Project Maps

General maps for the NID's Project, as described in this Application, are provided in the exhibit maps listed in Table 2-0-1. These maps depict the proposed FERC Project Boundary in conformance with 18 CFR § 4.39.

Table 2.0-1. Lists of Exhibit G Project maps for the Yuba-Bear Hydroelectric Project.

Proposed Exhibit G Project Map Number in New License	Drawing Name
G-1	Project Overview Map
G-2	Project Boundary Map - Jackson Meadow Reservoir (1 of 2)
G-3	Project Boundary Map - Jackson Meadow Reservoir (2 of 2)
G-4	Project Boundary Map - Milton Reservoir and Diversion Structures
G-5	Project Boundary Map - Milton-Bowman Tunnel
G-6	Project Boundary Map - Bowman Reservoir
G-7	Project Boundary Map - French Lake
G-8	Project Boundary Map - Jackson Lake
G-9	Project Boundary Map - Faucherie and Sawmill Reservoirs
G-10	Project Boundary Map - Bowman-Spaulding Conduit & 60 kV Transmission Line (1 of 7)
G-11	Project Boundary Map - Bowman-Spaulding Conduit & 60 kV Transmission Line (2 of 7)
G-12	Project Boundary Map - Bowman-Spaulding Conduit & 60 kV Transmission Line (3 of 7)
G-13	Project Boundary Map - Bowman-Spaulding Conduit & 60 kV Transmission Line (4 of 7)
G-14	Project Boundary Map - Bowman-Spaulding Conduit & 60 kV Transmission Line (5 of 7)
G-15	Project Boundary Map - Bowman-Spaulding Conduit & 60 kV Transmission Line (6 of 7)
G-16	Project Boundary Map - Bowman-Spaulding Conduit & 60 kV Transmission Line (7 of 7)
G-17	Project Boundary Map – 60 kV Transmission Line
G-18	Project Boundary Map - Dutch Flat No.2 Conduit (1 of 3)
G-19	Project Boundary Map - Dutch Flat No. 2 Conduit (2 of 3)
G-20	Project Boundary Map - Dutch Flat No. 2 Conduit (3 of 3)
G-21	Project Boundary Map - Dutch Flat Forebay and Afterbay
G-22	Project Boundary Map - Chicago Park Conduit (1 of 3)
G-23	Project Boundary Map - Chicago Park Conduit (2 of 3)
G-24	Project Boundary Map - Chicago Park Conduit (3 of 3)
G-25	Project Boundary Map - Rollins Reservoir (1 of 3)
G-26	Project Boundary Map - Rollins Reservoir (2 of 3)
G-27	Project Boundary Map - Rollins Reservoir (3 of 3)

3.0 List of Appendices

This exhibit includes one appendix:

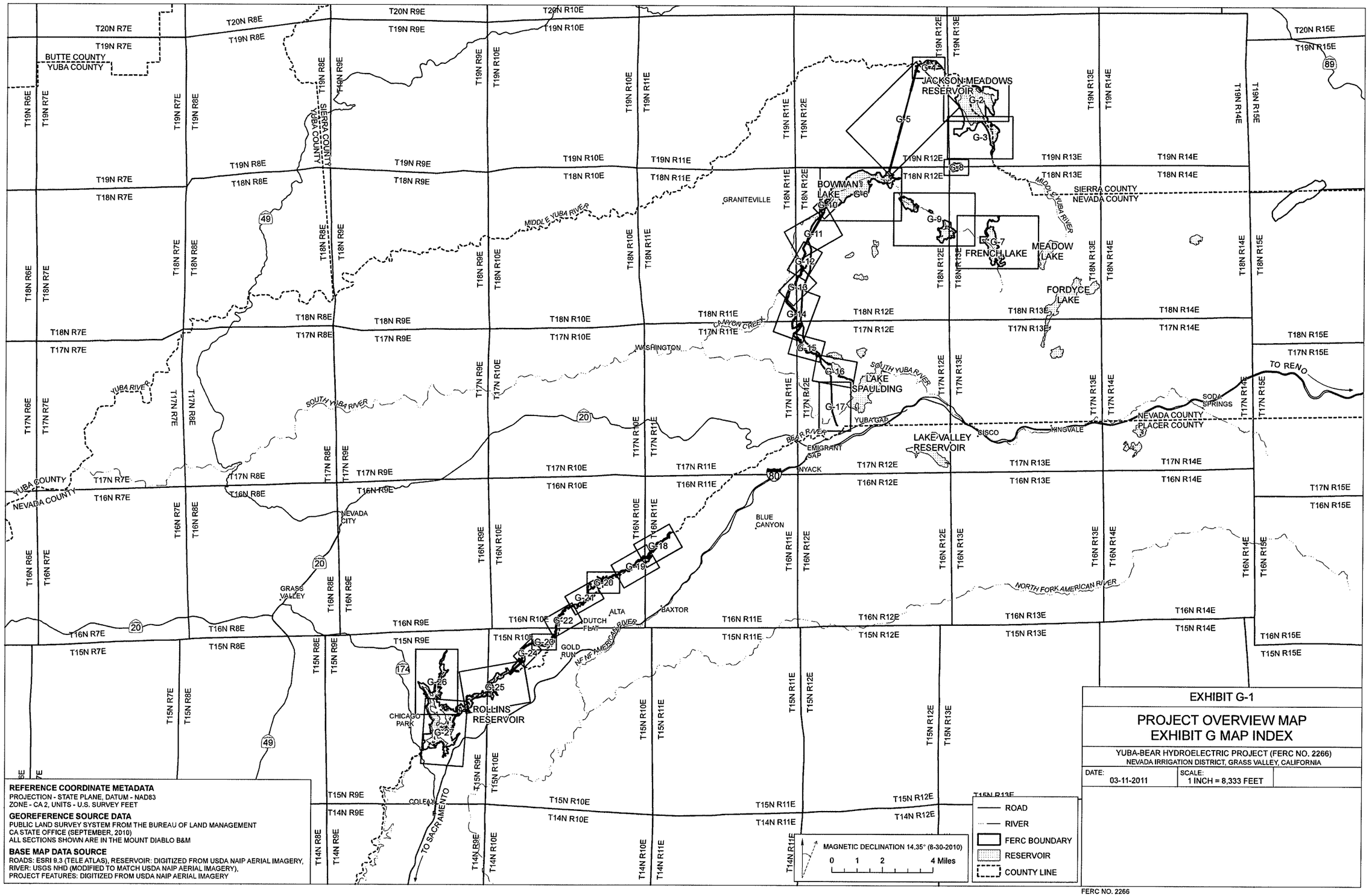
- Appendix G-1: Project Maps (27 maps)

4.0 References Cited

None.

APPENDIX G1

Yuba-Bear Hydroelectric Project
Exhibit G Maps



REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

MAGNETIC DECLINATION 14.35° (8-30-2010)
0 1 2 4 Miles

ROAD
RIVER
FERC BOUNDARY
RESERVOIR
COUNTY LINE

EXHIBIT G-1

PROJECT OVERVIEW MAP
EXHIBIT G MAP INDEX

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 8,333 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY, RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY), PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

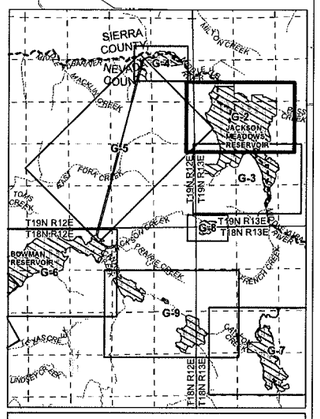
STATE OF MAINE
STEPHEN W EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

G2-1
N: 2314847
E: 6965976

LOW LEVEL OUTLET ACCESS RD (YBJMO_001)
LOW LEVEL OUTLET STRUCTURE
SPILLWAY CHANNEL
MIDDLE YUBA RIVER
JACKSON MEADOWS VISTA
JACKSON MEADOWS DAM
JACKSON MEADOWS SPILLWAY
USDA FOREST SERVICE
NID
ASPEN GROUP
USDA FOREST SERVICE
PASS CREEK CAMPGROUND
ASPEN PICNIC
HENNESS PASS RD (SIE-0301)
PASS CREEK
PINOLT RIDGE RD
T19N R12E
T19N R13E
SIERRA COUNTY
NEVADA COUNTY
NID
PROJECT BOUNDARY DEFINED BY CONTOUR 9 FT ABOVE HIGH WATER
EAST MEADOW CAMPGROUND
JACKSON MEADOWS RESERVOIR NORMAL MAXIMUM WATER SURFACE ELEVATION 6,036 FT
JACKSON POINT CAMPGROUND
USDA FOREST SERVICE
NID
G2-2
N: 2309659
E: 6973849
G2-3
N: 2309614
E: 6968577
PROJECT BOUNDARY DEFINED BY CONTOUR 9 FT ABOVE HIGH WATER
MATCH LINE, G-3
USDA FOREST SERVICE
GRANITEVILLE RD
NID



- REFERENCE POINT
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR
- COUNTY LINE

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- USDA FOREST SERVICE

EXHIBIT G-2

PROJECT BOUNDARY MAP JACKSON MEADOWS RESERVOIR (1 OF 2)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:
03-11-2011	1 INCH = 400 FEET

FERC NO. 2266

T19N R13E

PROJECT BOUNDARY DEFINED BY CONTOUR 9 FT ABOVE HIGH WATER

MATCH LINE, G-2

G3-2
N: 2306985
E: 6968640

G3-1
N: 2307052
E: 6976548

GRANITEVILLE RD

USDA FOREST SERVICE

WOODCAMP PICNIC

SILVER TIP GROUP CAMPGROUND

NID

FIR TOP CAMPGROUND

RINDLEY CAMPGROUND

WOODCAMP CAMPGROUND

WOODCAMP ACCESS RD

JACKSON MEADOWS ADMINISTRATIVE CENTER

JACKSON MEADOWS RESERVOIR NORMAL MAXIMUM WATER SURFACE ELEVATION 6,036 FT

SIERRA COUNTY
NEVADA COUNTY

USDA FOREST SERVICE

INTERRRETIVE TRAIL

INTERRRETIVE TRAIL PARKING AND INFORMATION SIGN

WOODCAMP CREEK

25 30 29 28
30 31 32 29 32 33

SIERRA COUNTY
NEVADA COUNTY

G-1 G-2 G-3 G-4 G-5 G-6 G-7 G-8 G-9

T19N R12E T19N R13E T18N R12E T18N R13E

MEADOW LAKE RD

G3-3
N: 2301788
E: 6974028

USDA FOREST SERVICE

NID

MIDDLE YUBA RIVER

MAGNETIC DECLINATION 14.35° E (6-30-2010)
0 200 400 800 Feet

- REFERENCE POINT
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR
- COUNTY LINE

LAND OWNERSHIP

- NEVADA IRRIGATION DISTRICT
- USDA FOREST SERVICE

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

EXHIBIT G-3

PROJECT BOUNDARY MAP
JACKSON MEADOWS RESERVOIR (2 OF 2)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 400 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

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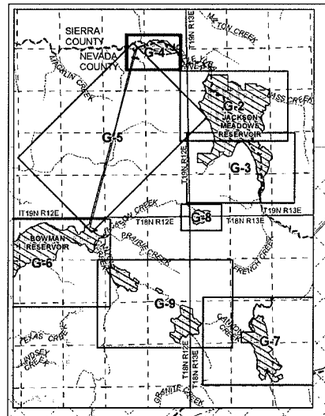


T19N R12E

G4-2
N: 2320142
E: 6961877

MILTON DIVERSION
IMPOUNDMENT NORMAL MAXIMUM
WATER SURFACE ELEVATION 5,690 FT

MIDDLE YUBA RIVER

NID

MAIN DAM

SOUTH DAM

USDA FOREST SERVICE

MILTON DAY USE

HENNESS PASS RD (SIE-0301)

USFS 301-35

MIDDLE YUBA RIVER

SIERRA COUNTY
NEVADA COUNTY

ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE

PIPELINE OUTLET ACCESS RD (YBWSD_001)

CONDUIT
60' PROJECT WIDTH
30' ON EITHER SIDE
OF CENTERLINE

BEGIN PIPELINE

CONDUIT
100' PROJECT WIDTH
50' ON EITHER SIDE
OF CENTERLINE

BEGIN TUNNEL

WILSON CREEK
DIVERSION DAM

WILSON CREEK
DIVERSION RD
(YBWSD_001)

ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE

USDA
FOREST
SERVICE

TUNNEL
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

WILSON CREEK

MATCH LINE G-5

G4-1
N: 2317517
E: 6960603

NID

G4-3
N: 2317486
E: 6964591

MAGNETIC DECLINATION 14.37° E, (6-30-2010)

0 200 400 800 Feet

- REFERENCE POINT
- CANAL
- PIPELINE
- TUNNEL
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR
- COUNTY LINE

LAND OWNERSHIP

- NEVADA IRRIGATION DISTRICT
- USDA FOREST SERVICE

EXHIBIT G-4

PROJECT BOUNDARY MAP
MILTON RESERVOIR & DIVERSION STRUCTURES

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 200 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL LAND SURVEYOR

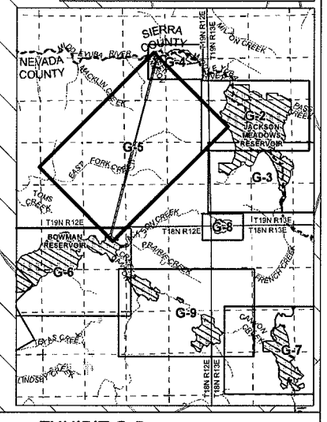
SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

USDA FOREST SERVICE
T19N.E12E
EAST FORK CREEK
G5-1
N: 2302916
E: 6950227
CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE
CONDUIT
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE
USDA FOREST SERVICE
MEADOW LAKE RD
FLOW GAGE YB-303
MATCH LINE: G-6
NID
CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE
FUR HILL NORTH RD
FUR HILL SOUTH RD
AUSTIN MEADOWS RD
PINOLI RIDGE RD
USDA FOREST SERVICE
G5-3
N: 2309592
E: 6962091
MACKLIN CREEK
CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE
0041-020
G5-2
N: 2313523
E: 6956721
MATCH LINE: G-4
WILSON CREEK
0041-020-10
NID
NID
USDA FOREST SERVICE

- REFERENCE POINT
- CANAL
- PIPELINE
- TUNNEL
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- USDA FOREST SERVICE



MAGNETIC DECLINATION 14.37° E (8-30-2010)
0 300 600 1,200 Feet

EXHIBIT G-5

PROJECT BOUNDARY MAP
MILTON-BOWMAN DIVERSION CONDUIT

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 600 FEET	

FERC NO. 2266

T18N R12E

NID

USDA FOREST SERVICE

MCMURRAY LAKE RD

G6-1
N: 2296170
E: 6942322

MEADOW LAKE RD

MATCH LINE G-5

BEGIN CANAL

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

FLOW GAGE
YB-303

BOWMAN LAKE
CAMPGROUND

JACKSON CREEK

PROJECT BOUNDARY DEFINED
BY CONTOUR 52 FT ABOVE
HIGH WATER

BOWMAN LAKE NORMAL
MAXIMUM WATER SURFACE
ELEVATION 5,562 FT

CANYON CREEK

BOWMAN DAM ACCESS RD
(YBBND_001)

BOWMAN
NORTH DAM

BOWMAN
POWERHOUSE

BOWMAN-SPAULDING
DIVERSION DAM

MATCH LINE G-10

BOWMAN
HOUSE
GARAGE

BOWMAN
HOUSE

BEGIN TUNNEL

SPILLWAY CHANNEL

BOWMAN SOUTH DAM

BOWMAN SPILLWAY

BOWMAN-SPAULDING 60KV

GAGE
YB-314

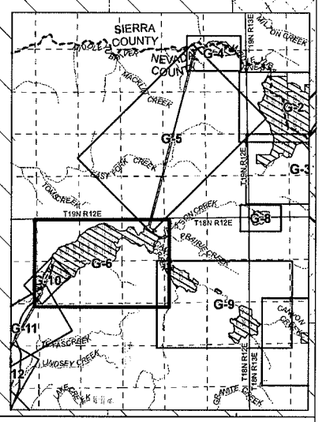
BOWMAN RD

G6-2
N: 2289533
E: 6945043

G6-3
N: 2292272
E: 6951703

PROJECT BOUNDARY DEFINED
BY CONTOUR 52 FT ABOVE HIGH WATER

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE



REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT
THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

MAGNETIC DECLINATION 14.35° E (8-30-2010)
0 250 500 1,000 1,500 Feet

- REFERENCE POINT
- CANAL
- TUNNEL
- TRANSMISSION LINE
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR
- COUNTY LINE

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- USDA FOREST SERVICE

EXHIBIT G-6

PROJECT BOUNDARY MAP
BOWMAN LAKE

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 500 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2151
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

T18N R13E

MATCH LINE, G-9

USFS 843-20

(VBFL 901)

ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE

WEIL LAKE

NID

CANYON CREEK

FRENCH LAKE SPILLWAY

PROJECT BOUNDARY
DEFINED BY CONTOUR
5 FT ABOVE HIGH WATER

FRENCH LAKE DAM

FRENCH LAKE NORMAL
MAXIMUM WATER SURFACE
ELEVATION 6,660.28 FT

PROJECT BOUNDARY
DEFINED BY CONTOUR
5 FT ABOVE HIGH WATER

NID

USDA FOREST SERVICE

G7-1
N: 2277882
E: 6972957

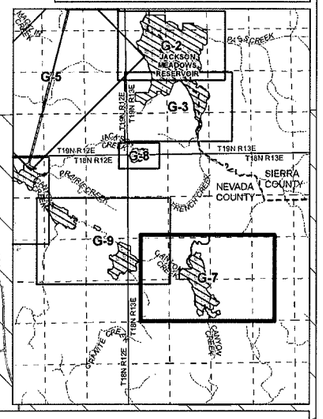
G7-2
N: 2284586
E: 6978199

G7-3
N: 2277884
E: 6978243

CANYON CREEK

- REFERENCE POINT
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- USDA FOREST SERVICE



MAGNETIC DECLINATION = 14.33° E, (8-30-2010)

0 500 1,000 2,000 Feet

EXHIBIT G-7

PROJECT BOUNDARY MAP
FRENCH LAKE

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 500 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2151
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

G8-1
N: 2299080
E: 6966314

JACKSON CREEK

T19N R12E
T19N R13E

JACKSON LAKE DAM RD

SPILLWAY CHANNEL

PROJECT BOUNDARY
DEFINED BY CONTOUR
10 FEET ABOVE HIGH WATER

JACKSON LAKE
DAM

NID

JACKSON LAKE
SPILLWAY

PROJECT BOUNDARY
DEFINED BY CONTOUR
10 FEET ABOVE HIGH WATER

T19N R12E
T18N R12E
36 31 T19N R13E
1 6

JACKSON LAKE NORMAL
MAXIMUM WATER SURFACE
ELEVATION 6,592.67 FT

G8-3
N: 2297794
E: 6968806

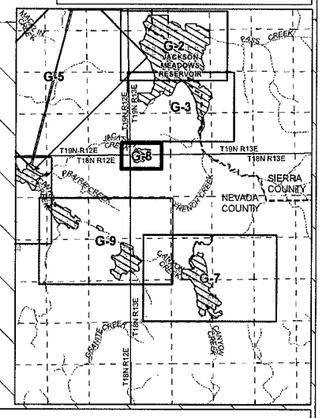
T18N R12E
T18N R13E

USDA FOREST SERVICE

G8-2
N: 2296440
E: 6967495

- REFERENCE POINT
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR
- COUNTY LINE

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- USDA FOREST SERVICE



MAGNETIC DECLINATION = 14.35° E, (8-30-2010)
0 150 300 600 Feet

EXHIBIT G-8

PROJECT BOUNDARY MAP
JACKSON LAKE

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 150 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY, RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY), PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

PROJECT BOUNDARY DATA
THE PROJECT BOUNDARY AROUND THE RESERVOIRS ON THIS SHEET ARE DEFINED BY BOTH A CONTOUR ABOVE AND BY A HORIZONTAL BUFFER FROM THE RESERVOIR HIGH WATER, AS DENOTED ON THE DRAWING.

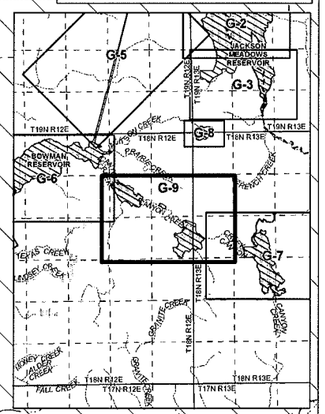
STATE OF MAINE
STEPHEN W. EVERETT
2151
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT
THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

PROJECT BOUNDARY DEFINED BY CONTOUR 17 FT ABOVE HIGH WATER
PROJECT BOUNDARY DEFINED BY 200 FT BUFFER FROM HIGH WATER
CANYON CREEK
SAWMILL LAKE DAM
SAWMILL SPILLWAY NID
SAWMILL LAKE NORMAL MAXIMUM WATER SURFACE ELEVATION 5,860 FT
PROJECT BOUNDARY DEFINED BY CONTOUR 17 FT ABOVE HIGH WATER
PRAIRIE CREEK
FAUCHERIE LAKE RD
PROJECT BOUNDARY DEFINED BY 200 FT FROM HIGH WATER
CANYON CREEK AREA CAMPGROUND
CANYON CREEK
PRAIRIE CREEK SO SPUR
G9-1
N: 2288307
E: 6957092
MATCH LINE G-6
SOUTH FORK CANYON CREEK
G9-2
N: 2289784
E: 6966389
T18 N R12E
T18 N R13E
MATCH LINE G-7
FAUCHERIE GROUP CAMPGROUND
PROJECT BOUNDARY DEFINED BY 200 FT FROM HIGH WATER
FAUCHERIE SPILLWAY
PROJECT BOUNDARY DEFINED BY CONTOUR 29 FT ABOVE HIGH WATER
FAUCHERIE LAKE DAM
DAY USE/ BOAT LAUNCH
NID
USDA FOREST SERVICE
PROJECT BOUNDARY DEFINED BY CONTOUR 29 FT ABOVE HIGH WATER
PROJECT BOUNDARY DEFINED BY 200 FT FROM HIGH WATER
FAUCHERIE LAKE NORMAL MAXIMUM WATER SURFACE ELEVATION 6,123 FT
PROJECT BOUNDARY DEFINED BY CONTOUR 29 FT ABOVE HIGH WATER
NID
NID
G9-3
N: 2281827
E: 6967651

- REFERENCE POINT
- RIVER
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- USDA FOREST SERVICE



MAGNETIC DECLINATION = 14.33°, (8-30-2010)
0 500 1,000 2,000 Feet

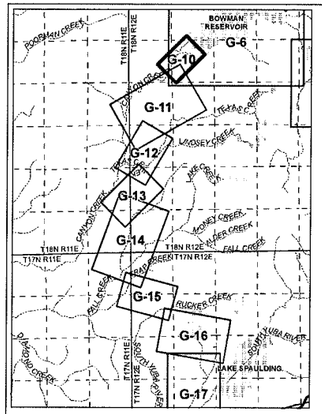
EXHIBIT G-9

PROJECT BOUNDARY MAP
FAUCHERIE & SAWMILL LAKES

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
04-07-2011	1 INCH = 500 FEET	

FERC NO. 2266



T18N R12E

G10-1
N: 2290402
E: 6939716

TRANSMISSION LINE
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE

BOWMAN HOUSE GARAGE

BOWMAN HOUSE

USDA
FOREST
SERVICE

CANYON CREEK

BOWMAN POWERHOUSE ACCESS RD (YBBPH_001)

BOWMAN POWERHOUSE

BOWMAN-SPAULDING DIVERSION DAM

BEGIN CANAL

BEGIN TUNNEL

BOWMAN-SPAULDING 60KV

ROAD
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE

SPILLWAY CHANNEL

BUNKHOUSE RD (YBBNK_001)

NID

ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE

MATCH LINE G-11

G10-2
N: 2288154
E: 6939754

TRANSMISSION LINE
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE

BEGIN CANAL

GAGE YB-314

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

BEGIN TUNNEL

USDA FOREST
SERVICE

MATCH LINE G-11

G10-3
N: 2290841
E: 6942367

BOWMAN SOUTH DAM

BOWMAN SPILLWAY

BOWMAN RESERVOIR

- REFERENCE POINT
- CANAL
- TUNNEL
- TRANSMISSION LINE
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR

LAND OWNERSHIP

- NEVADA IRRIGATION DISTRICT
- USDA FOREST SERVICE

MAGNETIC DECLINATION 14.35° E (6-30-2010)

0 75 150 300 Feet

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

EXHIBIT G-10

PROJECT BOUNDARY MAP
BOWMAN-SPAULDING CONDUIT & 60KV TRANSMISSION LINE (1 OF 7)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:
03-11-2011	1 INCH = 150 FEET

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

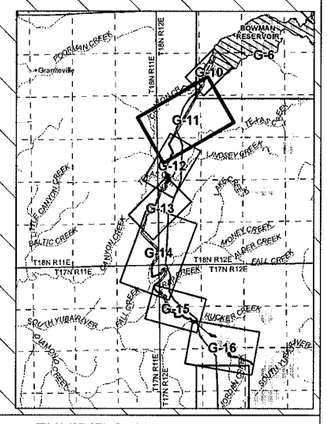
BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

CANYON CREEK
T18N R11E
T18N R12E
13 18 24 19
BOWMAN RD
G11-1
N: 2282801
E: 6935780
TRANSMISSION LINE
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE
BOWMAN-SPAULDING 60KV
CANYON CREEK
BEGIN TUNNEL
CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE
MATCH LINE G-10
7 8 18 17
MATCH LINE G-10
CONDUIT
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE
CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE
G11-3
N: 2285494
E: 6939837
USDA FOREST SERVICE
CONDUIT
100' PROJECT WIDTH
70' UPSLOPE AND
30' DOWNSLOPE OF CENTERLINE
USFS 18-21
BEGIN CANAL
MATCH LINE G-12
CONDUIT
115' PROJECT WIDTH
40' UPSLOPE AND
75' DOWNSLOPE OF CENTERLINE
BOWMAN-SPAULDING BERM ROAD (YBBSC_001)
G11-2
N: 2281490
E: 6938613
MATCH LINE G-12
TEXAS CREEK



MAGNETIC DECLINATION 14.35° E (8-30-2010)
0 150 300 600 Feet

- REFERENCE POINT
- CANAL
- TUNNEL
- TRANSMISSION LINE
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY

LAND OWNERSHIP
- USDA FOREST SERVICE

EXHIBIT G-11

PROJECT BOUNDARY MAP
BOWMAN-SPAULDING CONDUIT & 60KV TRANSMISSION LINE (2 OF 7)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 300 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET

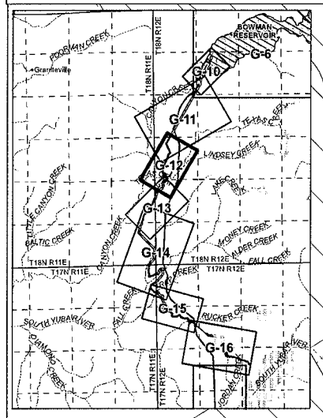
GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.



MATCH LINE G-11

USDA FOREST SERVICE

USFS 18-21

BEGIN CANAL

CONDUIT
115' PROJECT WIDTH
40' UPSLOPE AND
75' DOWNSLOPE OF CENTERLINE

CONDUIT
100' PROJECT WIDTH
70' UPSLOPE AND
30' DOWNSLOPE OF CENTERLINE

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

G12-2
N: 2277454
E: 6934530

T18N R11E
T18N R12E

CONDUIT
140' PROJECT WIDTH
40' UPSLOPE AND
100' DOWNSLOPE OF CENTERLINE

NID

BOWMAN-SPAULDING BERM ROAD (YBBSC_001)

G12-3
N: 2280146
E: 6937212

BOWMAN-SPAULDING 60KV

BOWMAN RD

MATCH LINE G-13

BEGIN TUNNEL

TEXAS CREEK DIVERSION ACCESS RD (YBBSC_003)

MATCH LINE G-11

TRANSMISSION LINE
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE

USFS 18-18

BOX CAR SECTION RD

BEGIN CANAL

TEXAS CREEK DIVERSION DAM

BEGIN TUNNEL

ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE

TEXAS CREEK DIVERSION ACCESS RD

G12-1
N: 2277481
E: 6937211

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

MATCH LINE G-13

TEXAS CREEK

LINDSEY CREEK

USDA FOREST SERVICE

BOWMAN RD

- REFERENCE POINT
- CANAL
- TUNNEL
- TRANSMISSION LINE
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- USDA FOREST SERVICE

MAGNETIC DECLINATION 14.35° E (8-30-2010)
0 100 200 400 Feet

EXHIBIT G-12

PROJECT BOUNDARY MAP
BOWMAN-SPAULDING CONDUIT & 60KV TRANSMISSION LINE (3 OF 7)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 200 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W EVERETT 2151
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

G13-1
N: 2274785
E: 6934579

G13-2
N: 2273465
E: 6935890

G13-3
N: 2272075
E: 6933241

BEGIN CANAL

NID

TEXAS CREEK

CONDUIT
130' PROJECT WIDTH
50' UPSLOPE AND
80' DOWNSLOPE OF CENTERLINE

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

USFS 18-18

USFS 18-18-01

MATCH LINE, G-12

MATCH LINE, G-14

MATCH LINE, G-14

BOX CAR SECTION RD (YBBSC, 014)

USDA FOREST SERVICE

USDA FOREST SERVICE

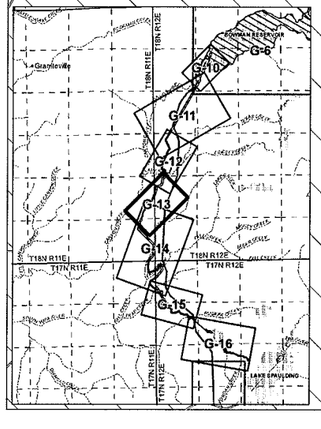
TRANSMISSION LINE
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE

BOWMAN RD

BOWMAN-SPAULDING
60KV

25 30
36 31

T18N R11E
T18N R12E



⊕ REFERENCE POINT
CANAL
TUNNEL
TRANSMISSION LINE
ROAD
PRIMARY PROJECT ACCESS ROAD
RIVER
SECTION LINE
FERC BOUNDARY

LAND OWNERSHIP
NEVADA IRRIGATION DISTRICT
USDA FOREST SERVICE

MAGNETIC DECLINATION 14.35° E (8-30-2010)
0 100 200 400 Feet

EXHIBIT G-13

PROJECT BOUNDARY MAP
BOWMAN-SPAULDING CONDUIT & 60KV TRANSMISSION LINE (4 OF 7)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE: 03-11-2011
SCALE: 1 INCH = 200 FEET

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET

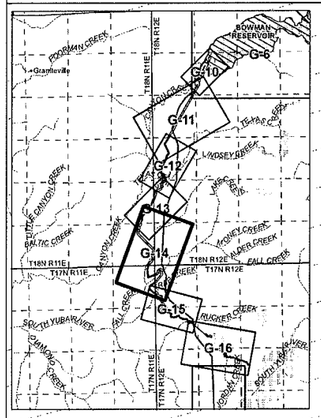
GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.



BEGIN CLEAR CREEK TUNNEL

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

BOX CAR SECTION RD (YBBSC_004)

CONDUIT
130' PROJECT WIDTH
50' UPSLOPE AND
80' DOWNSLOPE
OF CENTERLINE

USFS 18-18-01

USFS 18-18

USDA
FOREST SERVICE

T18N R11E
T17N R11E

BEGIN CANAL

USFS 18-14-02

G14-1
N: 2265439
E: 6933373

PG&E

USFS 18-14

CLEAR CREEK

MATCH LINE G-13

CHRISTMAS TREE
WASTEWAY

BOWMAN SPAULDING BERM RD (YBBSC_006)

T18N R11E
T18N R12E

CLEAR CREEK DIVERSION
AND WASTEWAY

USDA FOREST SERVICE

BOWMAN-SPAULDING60KV

G14-3
N: 2269471
E: 6935946

FALL CREEK

CONDUIT
110' PROJECT WIDTH
40' UPSLOPE AND
70' DOWNSLOPE OF CENTERLINE

11E23

CONDUIT
115' PROJECT WIDTH
45' UPSLOPE AND
70' DOWNSLOPE
OF CENTERLINE

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

MATCH LINE G-15

T17N R11E
T17N R12E

BEGIN FLUME

BOWMAN RD

BOWMAN-SPAULDING BERM RD (YBBSC_006)

USFS 18-14

TRANSMISSION LINE
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE

TRAP CREEK

TRAP CREEK DIVERSION
AND WASTEWAY

MATCH LINE G-15

BEGIN CANAL

FALL CREEK

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

FALL CREEK
DIVERSION DAM

T18N R12E
T17N R12E

GROUSE RIDGE RD

G14-2
N: 2265500
E: 6937313

MAGNETIC DECLINATION 14.35° E (8-30-2010)
0 150 300 600 Feet

- ⊕ REFERENCE POINT
- CANAL
- FLUME
- TUNNEL
- TRANSMISSION LINE
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY

LAND OWNERSHIP
- PACIFIC GAS & ELECTRIC COMPANY
- USDA FOREST SERVICE

EXHIBIT G-14

PROJECT BOUNDARY MAP
BOWMAN-SPAULDING CONDUIT &
60KV TRANSMISSION LINE (5 OF 7)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 300 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

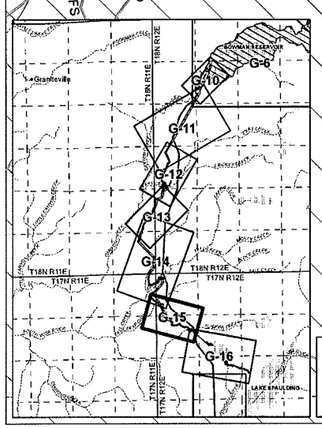
BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

TRAP CREEK
CONDUIT
110' PROJECT WIDTH
40' UPSLOPE AND
70' DOWNSLOPE OF CENTERLINE
TRAP CREEK DIVERSION AND WASTEWAY
BOWMAN-SPAULDING 60KV
MATCH LINE G-14
11E23
USDA FOREST SERVICE
TRANSMISSION LINE
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE
0018-006
G15-3
N: 2261476
E: 6934780
MATCH LINE G-14
11E23
BOWMAN SPAULDING BERM RD (YBBSC_006)
USFS 18-12
PG&E
T17N R12E
T17N R11E
1 6 12 7
G15-1
N: 2260246
E: 6938770
6 5 7 8
STEEL BRIDGE RD
11E23
CANAL
CONDUIT
115' PROJECT WIDTH
45' UPSLOPE AND
70' DOWNSLOPE OF CENTERLINE
BOWMAN RD
BOWMAN-SPAULDING 60KV
RUCKER LAKE RD
RUCKER CREEK DIVERSION
AND WASTEWAY
CONDUIT
25' PROJECT WIDTH
12.5' ON EITHER SIDE
OF CENTERLINE
PG&E
BEGIN
TUNNEL
MATCH LINE G-16
USFS 18-12.1
USFS
USDA FOREST SERVICE
CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE
RUCKER CREEK
ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE
G15-2
N: 2258815
E: 6934820



MAGNETIC DECLINATION 14.35° E (8-30-2010)
0 100 200 400 Feet

- REFERENCE POINT
- CANAL
- TUNNEL
- TRANSMISSION LINE
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY

LAND OWNERSHIP
- PACIFIC GAS & ELECTRIC COMPANY
- USDA FOREST SERVICE

EXHIBIT G-15

PROJECT BOUNDARY MAP
BOWMAN-SPAULDING CONDUIT & 60KV TRANSMISSION LINE (6 OF 7)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 200 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

MAGNETIC DECLINATION 14.33° E (8-30-2010)
0 125 250 500 Feet

T17N R12E

RUCKER CREEK

BOWMAN RD

PG&E
BEGIN TUNNEL

RUCKER CREEK DIVERSION AND WASTEWAY

CONDUIT
25' PROJECT WIDTH
12.5' ON EITHER SIDE
OF CENTERLINE

USDA FOREST SERVICE

GOLDEN SHEEN WAY

MATCH LINE G-15

FULLER LAKE DAY USE AREA

G16-2
N: 2256309
E: 6941519

FULLER LAKE (PG&E)

USFS 18-04

USDA FOREST SERVICE

BOWMAN-SPAULDING 60KV

BOWMAN RD

FULLER LAKE DAM (PG&E)

G16-1
N: 2255065
E: 6944244

PG&E

8 9
17 16

CONDUIT
130' PROJECT WIDTH
50' UPSLOPE AND
80' DOWNSLOPE OF CENTERLINE

CONDUIT
50' PROJECT WIDTH
30' ON NORTH SIDE AND
20' ON SOUTH SIDE OF CENTERLINE

CONDUIT
100' PROJECT WIDTH
40' UPSLOPE AND
70' DOWNSLOPE OF CENTERLINE

BEGIN CANAL

CONDUIT
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE

CONDUIT
80' PROJECT WIDTH
30' UPSLOPE AND
50' DOWNSLOPE OF CENTERLINE

7 8
18 17

TRANSMISSION LINE
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE

FULLER LAKE SPILLWAY (PG&E)

BEGIN TUNNEL

BEGIN CANAL

BEGIN CANAL

BEGIN PENSTOCK
(SPAULDING NO. 3, PG&E)

CANAL ACCESS RD (YBZION 001)

TRAIL PARKING

GAGE YB-14

12E10

JORDAN CREEK

BEGIN SIPHON
JORDAN CREEK SIPHON

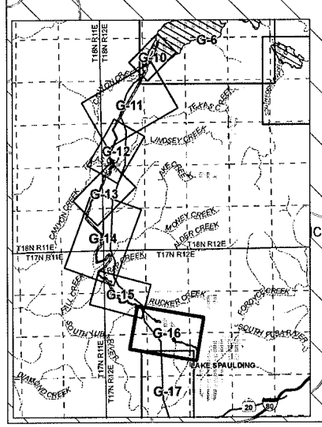
JORDAN WASTEWAY

ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE

USDA FOREST SERVICE

G16-3
N: 2253641
E: 6941564

MATCH LINE G-17



- REFERENCE POINT
- CANAL
- PENSTOCK
- SIPHON
- TUNNEL
- TRANSMISSION LINE
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR
- COUNTY LINE

LAND OWNERSHIP
- PACIFIC GAS & ELECTRIC COMPANY
- USDA FOREST SERVICE

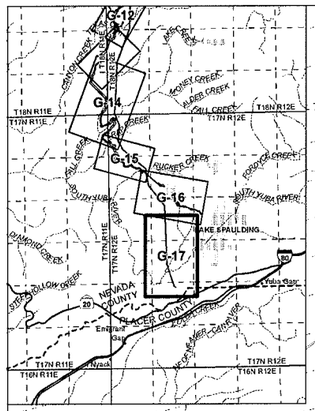
EXHIBIT G-16

PROJECT BOUNDARY MAP
BOWMAN-SPAULDING CONDUIT & 60KV TRANSMISSION LINE (7 OF 7)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 250 FEET	

FERC NO. 2266



T17N R12E

16 | 21
17 | 20

LAKE SPAULDING (PG&E)

LAKE SPAULDING RD

LAKE SPAULDING DAM

SOUTH YUBA RIVER

PG&E

JORDAN CREEK

SPAULDING-SUMMIT 60KV

G17-2
N: 2245715
E: 6944276

DRUM-SUMMIT #1, #2 115KV

MATCH LINE, G-16

G17-1
N: 2250992
E: 6942923

NID

BOWMAN RD

BOWMAN-SPAULDING 60KV

G17-3
N: 2244315
E: 6941647

TRANSMISSION LINE
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE

USDA FOREST SERVICE

17 | 20
18 | 19

USDA FOREST SERVICE

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF WAINE
STEPHEN W. FVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

MAGNETIC DECLINATION 14.33° E (8-30-2010)
0 150 300 600 Feet

- REFERENCE POINT
- TRANSMISSION LINE
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- PACIFIC GAS & ELECTRIC COMPANY
- USDA FOREST SERVICE

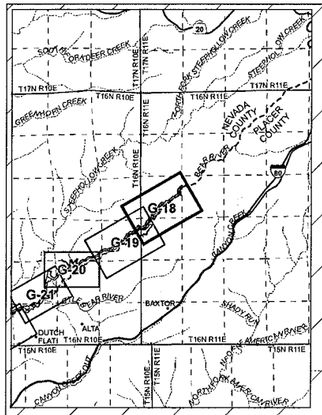
EXHIBIT G-17

PROJECT BOUNDARY MAP
60KV TRANSMISSION LINE

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 300 FEET	

FERC NO. 2266



REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY, RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY), PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT
THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

BUREAU OF LAND MANAGEMENT

USDA FOREST SERVICE

G18-1
N: 2221283
E: 6907151

G18-2
N: 2218621
E: 6903284

G18-3
N: 2217339
E: 6907198

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

BEGIN CONCRETE BOX FLUME

BEGIN TUNNEL

DUTCH FLAT NO.2
FLUME INTAKE

GAGING STATION
YB-238

DRUM AFTERBAY
(PG&E)

DUTCH FLAT NO. 2
CONDUIT INTAKE ACCESS RD
(YBDFI_001)

SPILLWAY TO
BEAR RIVER

ROAD
30' PROJECT WIDTH
15' ON EITHER SIDE
OF CENTERLINE

T16N R10E
T16N R11E

MATCH LINE, G-19

13
18
24
19

USDA FOREST SERVICE

NID

BEAR RIVER

NEVADA COUNTY
PLACER COUNTY

DRUM POWERHOUSE RD

PG&E

ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE

"B" ALARM RD (YBBAL_001)

DRUM POWERHOUSE RD

PG&E

MAGNETIC DECLINATION = 14.33° E (8-30-2010)
0 250 500 1,000 Feet

- REFERENCE POINT
- FLUME
- TUNNEL
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- COUNTY LINE

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- PACIFIC GAS & ELECTRIC COMPANY
- BUREAU OF LAND MANAGEMENT
- USDA FOREST SERVICE

EXHIBIT G-18

PROJECT BOUNDARY MAP
DUTCH FLAT NO. 2 CONDUIT (1 of 3)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 250 FEET	

FERC NO. 2266

MAGNETIC DECLINATION = 14.33° E (8-31-2010)

0 250 500 1,000 Feet

PG&E

G19-2
N: 2214347
E: 6898392

G19-1
N: 2215757
E: 6900969

BUREAU OF LAND MANAGEMENT

MATCH LINE, G-18

MATCH LINE, G-20

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

CONCRETE BOX FLUME

NID

"B" ALARM RD (YBBAL 001)

NEVADA COUNTY
PLACER COUNTY

BEAR RIVER

ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE

BUREAU OF LAND MANAGEMENT

USDA FOREST SERVICE

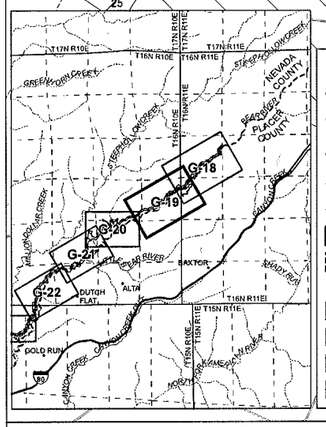
T16N R10E
T16N R11E

"B" ALARM RD (YBBAL 001)

PG&E

DRUM POWERHOUSE RD

G19-3
N: 2211960
E: 6900845



- REFERENCE POINT
- FLUME
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- COUNTY LINE

LAND OWNERSHIP

- NEVADA IRRIGATION DISTRICT
- PACIFIC GAS & ELECTRIC COMPANY
- BUREAU OF LAND MANAGEMENT
- USDA FOREST SERVICE

REFERENCE COORDINATE METADATA

PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET

GEOREFERENCE SOURCE DATA

PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE

ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W EVERETT
2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

EXHIBIT G-19

PROJECT BOUNDARY MAP
DUTCH FLAT NO. 2 CONDUIT (2 OF 3)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 250 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL
LAND SURVEYOR

SURVEYORS STATEMENT
THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

T16N R10E

G20-2
N: 2211983
E: 6892595

PG&E

(2) DRUM-HALSEY JUNCTION 115KV

LOWELL HILL RD

STUMP CANYON INTAKE ACCESS RD (YBSCS_001)

BEGIN CANAL

DUTCH FLAT NO. 2 FOREBAY
NORMAL MAXIMUM WATER
SURFACE ELEVATION 3,330.0 FT

NID

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

STUMP CANYON SIPHON
LOW LEVEL VALVE
ACCESS ROAD
(YBSCS_002)

ROAD
50' PROJECT WIDTH
25' ON EITHER SIDE
OF CENTERLINE

PG&E

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

BUREAU OF LAND MANAGEMENT

G20-3
N: 2211973
E: 6896750

MATCH LINE: G-19

STUMP CANYON WASTEWAY

BEGIN STUMP CANYON SIPHON

USDA FOREST SERVICE

6018-001

NEVADA COUNTY
PLACER COUNTY

NID

PROJECT BOUNDARY
DEFINED BY CONTOUR
20 FEET ABOVE HIGH WATER

STUMP CANYON SIPHON OUTLET ACCESS RD (YBSCS_003)

DIGGINS HILL RD

USDA FOREST SERVICE

PROJECT BOUNDARY
DEFINED BY
CONTOUR 20 FEET
ABOVE HIGH WATER

BEAR RIVER

DUTCH FLAT NO. 2
FOREBAY SPILLWAY

G20-1
N: 2209314
E: 6894030

MATCH LINE: G-21

PG&E

BUREAU
OF LAND MANAGEMENT

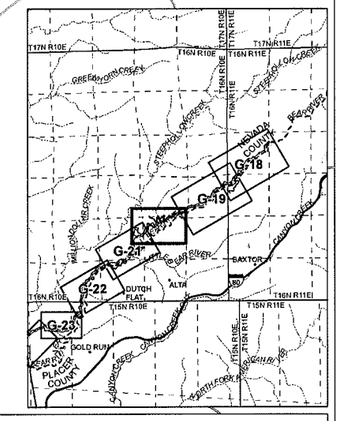
SPILLWAY CHANNEL

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

BEAR RIVER

NEVADA COUNTY
PLACER COUNTY

USDA FOREST SERVICE



- REFERENCE POINT
- CANAL
- FLUME
- PENSTOCK
- SIPHON
- TRANSMISSION LINE
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR
- COUNTY LINE

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- PACIFIC GAS & ELECTRIC COMPANY
- BUREAU OF LAND MANAGEMENT
- USDA FOREST SERVICE

MAGNETIC DECLINATION = 14.33° (8-31-2010)
0 200 400 800 Feet

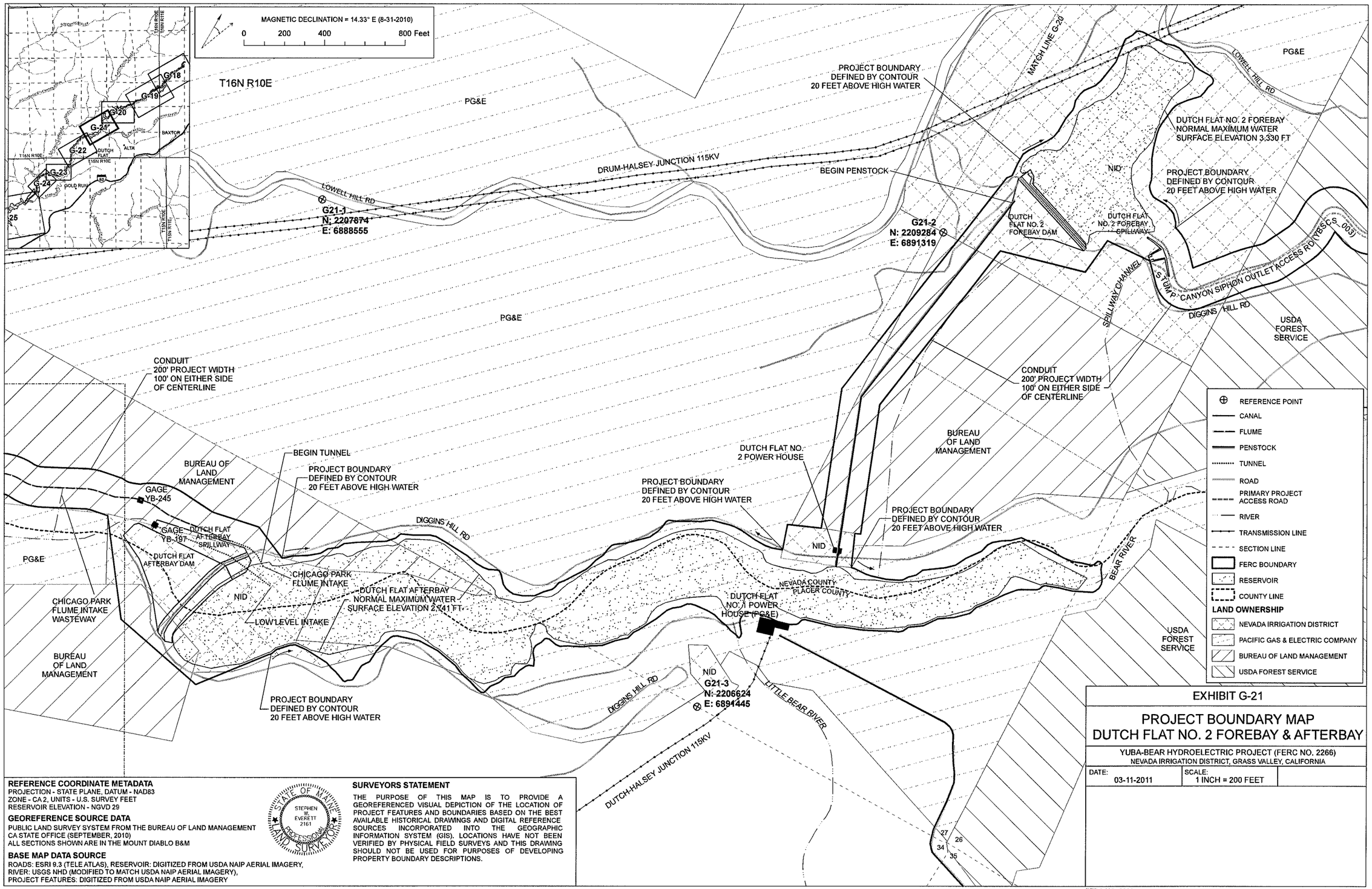
EXHIBIT G-20

PROJECT BOUNDARY MAP
DUTCH FLAT NO.2 CONDUIT (3 of 3)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 200 FEET	

FERC NO. 2266



REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE — STEPHEN W. EVERETT 2161 — PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

EXHIBIT G-21

PROJECT BOUNDARY MAP
DUTCH FLAT NO. 2 FOREBAY & AFTERBAY

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 200 FEET	

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

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CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

DRUM-HALSEY JUNCTION 115KV TRANSMISSION LINE

LOWELL HILL RD

CONCRETE BOX FLUME

"A" ALARM RD

G22-1
N: 2202579
E: 6884727

G22-3
N: 2205216
E: 6887276

NEVADA COUNTY

PLACER COUNTY

BEAR RIVER

PG&E

MATCHLINE, G-18

BUREAU
OF LAND
MANAGEMENT

G22-2
N: 2202614
E: 6887442

T16N R10E
T15N R10E

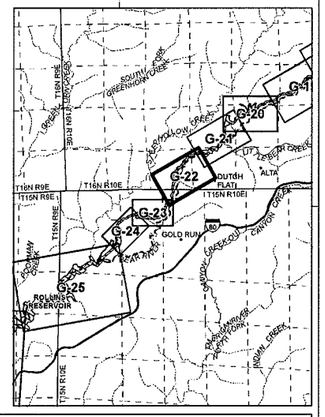
NID

DUTCH FLAT CROSSING RD

MATCH LINE,
G-20

5 4

33 34



MAGNETIC DECLINATION 14.33° E (8-30-2010)
0 200 400 800 Feet

- REFERENCE POINT
- FLUME
- TRANSMISSION LINE
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- PACIFIC GAS & ELECTRIC COMPANY
- BUREAU OF LAND MANAGEMENT
- USDA FOREST SERVICE

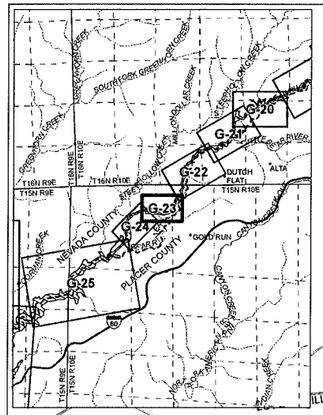
EXHIBIT G-22

PROJECT BOUNDARY MAP
CHICAGO PARK CONDUIT (1 OF 3)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 inch = 200 feet	

FERC NO. 2266



T15N R10E

PG&E

DRUM-HALSEY JUNCTION 115KV TRANSMISSION LINE

ILL RD

DUTCH FLAT CROSSING RD

G23-3
N: 2199563
E: 6883615

MATCH LINE G-22

DUTCH FLAT CROSSING RD

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

BUREAU
OF LAND
MANAGEMENT

G23-1
N: 2198430
E: 6880292

LITTLE YORK BASIN ACCESS RD

LITTLE YORK BASIN
SPILLWAY

LITTLE YORK BASIN
NORMAL MAXIMUM WATER
SURFACE ELEVATION 2,718.18 FT

CONCRETE BOX FLUME

NID

LITTLE YORK DIVERSION DAM ACCESS RD

BEGIN CANAL

LITTLE YORK
BASIN DAM

NID

BEAR RIVER

NEVADA COUNTY
PLACER COUNTY

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

MATCH LINE G-24

PG&E

SPILLWAY CHANNEL

G23-2
N: 2196996
E: 6882318

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL
LAND SURVEYOR

SURVEYORS STATEMENT
THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

MAGNETIC DECLINATION 14.33° E (8-30-2010)
0 75 150 300 450 Feet

- REFERENCE POINT
- CANAL
- FLUME
- TRANSMISSION LINE
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- PACIFIC GAS & ELECTRIC COMPANY
- BUREAU OF LAND MANAGEMENT

EXHIBIT G-23

PROJECT BOUNDARY MAP
CHICAGO PARK CONDUIT (2 OF 3)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:
03-11-2011	1 INCH = 150 FEET

FERC NO. 2266

T15N R10E

G24-1
N: 2195886
E: 6877065

BUREAU OF LAND MANAGEMENT

ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE

ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE
OF CENTERLINE

SPILLWAY CHANNEL

LOWELL HILL RD

CHICAGO PARK FOREBAY RD (YBCPF_003)

SPILLWAY TO
STEEPHOLLOW CREEK

CANAL

DRUM-HALSEY JUNCTION 115KV TRANSMISSION LINE

LITTLE YORK BASIN ACCESS RD

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

CHICAGO PARK FOREBAY RD (YBCPF_004)

MATCH LINE G-23

G24-3
N: 2197103
E: 6879662

NID

MATCH LINE G-25

BEGIN PENSTOCK

CHICAGO PARK FOREBAY DAM

CHICAGO PARK FOREBAY
NORMAL MAXIMUM WATER
SURFACE ELEVATION 2,716 FT

INTAKE
STRUCTURE

MICROWAVE
STATION

LOW LEVEL OUTLET

SPILLWAY CHANNEL

PG&E

G24-2
N: 2195108
E: 6879068

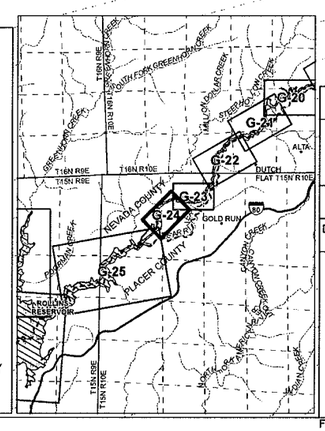
CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE
OF CENTERLINE

MAGNETIC DECLINATION 14.33° E (8-30-2010)
0 75 150 300 450 Feet

- REFERENCE POINT
- CANAL
- PENSTOCK
- TRANSMISSION LINE
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR

LAND OWNERSHIP

- NEVADA IRRIGATION DISTRICT
- PACIFIC GAS & ELECTRIC COMPANY
- BUREAU OF LAND MANAGEMENT



REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT
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EXHIBIT G-24

PROJECT BOUNDARY MAP
CHICAGO PARK CONDUIT (3 OF 3)

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 150 FEET	

FERC NO. 2266

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

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G25-1
N: 2190989
E: 6868070

G25-2
N: 2185700
E: 6867943

G25-3
N: 2190823
E: 6874557

PG&E
BUREAU OF LAND MANAGEMENT
STEEPHOLLOW CREEK
CLATSOP DECLINE
ROAD
40' PROJECT WIDTH
20' ON EITHER SIDE OF CENTERLINE
CHICAGO PARK FOREBAY RD (YBCPF_001)
PENSTOCK
MATCH LINE G-24
CONDUIT
200' PROJECT WIDTH
100' ON EITHER SIDE OF CENTERLINE
CHICAGO PARK POWERHOUSE
CHICAGO PARK POWERHOUSE RD (YBCPH_001)
BEAR RIVER
NID
HAUL RD
GOLD RUN RD
SECRET TOWN RD
POORMAN CREEK
T RANCH
ROLLINS RESERVOIR
NORMAL MAXIMUM WATER
SURFACE ELEVATION 2,171 FT
NEVADA COUNTY
PLACER COUNTY
MATCH LINE G-27
T15N R9E
T15N R10E
SECRET TOWN LN

0 200 400 800 Feet

MAGNETIC DECLINATION = 14.33° E (8-30-2010)

- REFERENCE POINT
- PENSTOCK
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR
- COUNTY LINE

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- PACIFIC GAS & ELECTRIC COMPANY
- BUREAU OF LAND MANAGEMENT

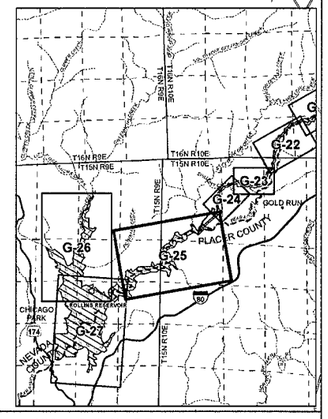


EXHIBIT G- 25

PROJECT BOUNDARY MAP
ROLLINS RESERVOIR, SHEET 1 OF 3

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 400 FEET	

FERC NO. 2266

0 200 400 800 Feet

MAGNETIC DECLINATION = 14.35° E (8-30-2010)

T15N R9E

HALLELUJAH LN

YOU BET RD

ARROWHEAD MINE RD

DANDEE HILL RD

GREENHORN CREEK

YOU BET RD

MULBERRY LN

KITKITDIZZE DR

FIFIELD RD

G26-3
N: 2195111
E: 6860209

2 11
3 10

YOU BET RD

POORMAN CREEK

YOU BET RD

ROYAL FLUSH CT

G26-1
N: 2187075
E: 6862703

YOU WIN CT

MATCH LINE G-27

NID

BUREAU OF LAND MANAGEMENT

NID

BUREAU OF LAND MANAGEMENT

YOU BET RD

BUREAU OF LAND MANAGEMENT

11 14
10 15

MARIE LN

FREDERICK WAY

ROLLINS RESERVOIR
NORMAL MAXIMUM WATER
SURFACE ELEVATION 2,171 FT

FROLIC MDWS

MARIKUJA DR

FROLIC MDWS

SONTAG RD

HEAD RANCH RD

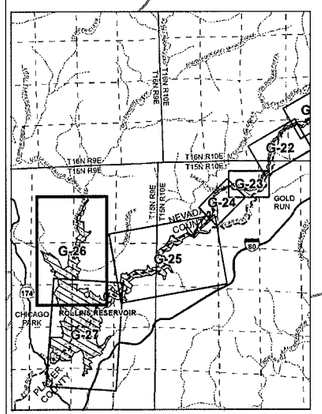
G26-2
N: 2191104
E: 6857487

GREENHORN
CAMPGROUND
STORE

GREENHORN
CAMPGROUND

GREENHORN ACCESS RD

SHEBLEY RD



REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT
CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
ROADS: ESRI 9.3 (TELE ATLAS), RESERVOIR: DIGITIZED FROM USDA NAIP AERIAL IMAGERY,
RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT 2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

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- ⊕ REFERENCE POINT
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- BUREAU OF LAND MANAGEMENT

EXHIBIT G- 26

PROJECT BOUNDARY MAP
ROLLINS RESERVOIR, SHEET 2 OF 3

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:
03-11-2011	1 INCH = 400 FEET

FERC NO. 2266

0 200 400 800 Feet

MAGNETIC DECLINATION = 14.33° E (8-30-2010)

REFERENCE COORDINATE METADATA
PROJECTION - STATE PLANE, DATUM - NAD83
ZONE - CA 2, UNITS - U.S. SURVEY FEET
RESERVOIR ELEVATION - NGVD 29

GEOREFERENCE SOURCE DATA
PUBLIC LAND SURVEY SYSTEM FROM THE BUREAU OF LAND MANAGEMENT CA STATE OFFICE (SEPTEMBER, 2010)
ALL SECTIONS SHOWN ARE IN THE MOUNT DIABLO B&M

BASE MAP DATA SOURCE
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RIVER: USGS NHD (MODIFIED TO MATCH USDA NAIP AERIAL IMAGERY),
PROJECT FEATURES: DIGITIZED FROM USDA NAIP AERIAL IMAGERY

STATE OF MAINE
STEPHEN W. EVERETT
2161
PROFESSIONAL LAND SURVEYOR

SURVEYORS STATEMENT

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MATCH LINE G-25

T15N R9E

G27-1
N: 2181708
E: 6865259

BUREAU OF LAND MANAGEMENT

NID

NORTON GRADE RD

YOU BET RD

ROLLINS RESERVOIR
NORMAL MAXIMUM WATER
SURFACE ELEVATION 2,171 FT.

PLACER COUNTY
NEVADA COUNTY

LONG
RAVINE CAMPGROUND

GLEN ELDER RD

ROLLINS LAKE RD

G27-2
N: 2175266
E: 6861209

BARB WIRE RD

TRESTLE POINT LN

ROLLINS DAM SPILLWAY ACCESS RD (YBRDS_001)

PENINSULA
CAMPGROUND

CONNROY PL
(YBRMS_001)

ROLLINS PH
ACCESS RD
(YBRPA_001)

MICROWAVE
STATION

ORCHARD
SPRINGS
CAMPGROUND

SWITCHYARD

PG&E

ROLLINS
POWERHOUSE

SPILLWAY CHANNEL

BEAR RIVER

OLD BRIDGE RD

G27-3
N: 2181851
E: 6858648

COUNTRY PL

CONNROY PL

COUNTRY LN

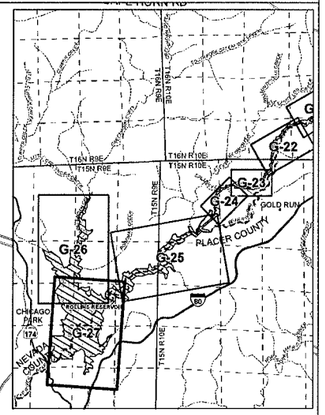
LAKEVIEW DR

MARINA DR

BEAR MEADOW RD

MATCH LINE G-26

ROLLINS VIEW DR



- REFERENCE POINT
- ROAD
- PRIMARY PROJECT ACCESS ROAD
- RIVER
- SECTION LINE
- FERC BOUNDARY
- RESERVOIR
- COUNTY LINE

LAND OWNERSHIP
- NEVADA IRRIGATION DISTRICT
- BUREAU OF LAND MANAGEMENT

EXHIBIT G- 27

PROJECT BOUNDARY MAP
ROLLINS RESERVOIR, SHEET 3 OF 3

YUBA-BEAR HYDROELECTRIC PROJECT (FERC NO. 2266)
NEVADA IRRIGATION DISTRICT, GRASS VALLEY, CALIFORNIA

DATE:	SCALE:	
03-11-2011	1 INCH = 400 FEET	

FERC NO. 2266

Application for a New License
Major Project – Existing Dam

Exhibit H
Miscellaneous Material

Yuba-Bear Hydroelectric Project
FERC Project No. 2266-096

Prepared by:
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April 2011

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EXHIBIT H

Miscellaneous Material

1.0 Introduction

The Nevada Irrigation District (NID or Licensee) has prepared this Exhibit H, Miscellaneous Material, as part of its Application for a License for a Major Project – Existing Dam - (Application) from the Federal Energy Regulatory Commission (FERC) for the Yuba-Bear Hydroelectric Project (Project), FERC Project No. 2266. This exhibit is prepared in conformance with Title 18 of the Code of Federal Regulations (CFR), Subchapter B (Regulations under the Federal Power Act), Part 5 (Integrated Licensing Process). In particular, this report conforms to the regulations in 18 CFR § 5.18(c), which requires that the application include an Exhibit H that provides miscellaneous filing information. As a reference, this section states:

(c) *Exhibit H*. The information required to be provided by this paragraph (c) must be included in the application as a separate exhibit labeled "Exhibit H."

(1) *Information to be supplied by an applicant for a new license: Filing requirements.*
- *(i) Information to be supplied by all applicants.* All applicants for a new license under this part must file the following information with the Commission:
  - (A) A discussion of the plans and ability of the applicant to operate and maintain the project in a manner most likely to provide efficient and reliable electric service, including efforts and plans to:
    - (1) Increase capacity or generation at the project:
    - (2) Coordinate the operation of the project with any upstream or downstream water resource projects; and
    - (3i) Coordinate the operation of the project with the applicant's or other electrical systems to minimize the cost of production.
  - (B) A discussion of the need of the applicant over the short and long term for the electricity generated by the project, including:
    - (1) The reasonable costs and reasonable availability of alternative sources of power that would be needed by the applicant or its customers, including wholesale customers, if the applicant is not granted a license for the project;
    - (2) A discussion of the increase in fuel, capital, and any other costs that would be incurred by the applicant or its customers to purchase or generate power necessary to replace the output of the licensed project, if the applicant is not granted a license for the project;
    - (3) The effect of each alternative source of power on:
      - (i) The applicant's customers, including wholesale customers;
      - (ii) The applicant's operating and load characteristics; and
      - (iii) The communities served or to be served, including any reallocation of costs associated with the transfer of a license from the existing licensee.
  - (C) The following data showing need and the reasonable cost and availability of alternative sources of power:
    - (1) The average annual cost of the power produced by the project, including the basis for that calculation;
    - (2) The projected resources required by the applicant to meet the applicant's capacity and energy requirements over the short and long term including:

(i) Energy and capacity resources, including the contributions from the applicant's generation, purchases, and load modification measures (such as conservation, if considered as a resource), as separate components of the total resources required;
(ii) A resource analysis, including a statement of system reserve margins to be maintained for energy and capacity; and
(iii) If load management measures are not viewed as resources, the effects of such measures on the projected capacity and energy requirements indicated separately;
(iv) For alternative sources of power, including generation of additional power at existing facilities, restarting deactivated units, the purchase of power off-system, the construction or purchase and operation of a new power plant, and load management measures such as conservation: The total annual cost of each alternative source of power to replace project power; the basis for the determination of projected annual cost; and a discussion of the relative merits of each alternative, including the issues of the period of availability and dependability of purchased power, average life of alternatives, relative equivalent availability of generating alternatives, and relative impacts on the applicant's power system reliability and other system operating characteristics; and the effect on the direct providers (and their immediate customers) of alternate sources of power.

(D) If an applicant uses power for its own industrial facility and related operations, the effect of obtaining or losing electricity from the project on the operation and efficiency of such facility or related operations, its workers, and the related community.

(E) If an applicant is an Indian tribe applying for a license for a project located on the tribal reservation, a statement of the need of such tribe for electricity generated by the project to foster the purposes of the reservation.

(F) A comparison of the impact on the operations and planning of the applicant's transmission system of receiving or not receiving the project license, including:
(1) An analysis of the effects of any resulting redistribution of power flows on line loading (with respect to applicable thermal, voltage, or stability limits), line losses, and necessary new construction of transmission facilities or upgrading of existing facilities, together with the cost impact of these effects;
(2) An analysis of the advantages that the applicant's transmission system would provide in the distribution power; and
(3) Detailed single-line diagrams, including existing system facilities identified by name and circuit number, that show system transmission elements in relation to the project and other principal interconnected system elements. Power flow and loss data that represent system operating conditions may be appended if applicants believe such data would be useful to show that the operating impacts described would be beneficial.

(G) If the applicant has plans to modify existing project facilities or operations, a statement of the need for, or usefulness of, the modifications, including at least a reconnaissance-level study of the effect and projected costs of the proposed plans and any alternate plans, which in conjunction with other developments in the area would conform with a comprehensive plan for improving or developing the waterway and for other beneficial public uses as defined in section 10(a)(1) of the Federal Power Act.

(H) If the applicant has no plans to modify existing project facilities or operations, at least a reconnaissance-level study to show that the project facilities or operations in conjunction with other developments in the area would conform with a comprehensive plan for improving or developing the waterway and for other beneficial public uses as defined in section 10(a)(1) of the Federal Power Act.

(I) A statement describing the applicant's financial and personnel resources to meet its obligations under a new license, including specific information to demonstrate that the applicant's personnel are adequate in number and training to operate and maintain the project in accordance with the provisions of the license.

(J) If an applicant proposes to expand the project to encompass additional lands, a statement that the applicant has notified, by certified mail, property owners on the additional lands to be encompassed by the project and governmental agencies and subdivisions likely to be interested in or affected by the proposed expansion.

(K) The applicant's electricity consumption efficiency improvement program, as defined under section 10(a)(2)(C) of the Federal Power Act, including:
  (1) A statement of the applicant's record of encouraging or assisting its customers to conserve electricity and a description of its plans and capabilities for promoting electricity conservation by its customers; and
  (2) A statement describing the compliance of the applicant's energy conservation programs with any applicable regulatory requirements.
(L) The names and mailing addresses of every Indian tribe with land on which any part of the proposed project would be located or which the applicant reasonably believes would otherwise be affected by the proposed project.

(ii) Information to be provided by an applicant licensee. An existing licensee that applies for a new license must provide:
(A) The information specified in paragraph (a).
(B) A statement of measures taken or planned by the licensee to ensure safe management, operation, and maintenance of the project, including:
  (1) A description of existing and planned operation of the project during flood conditions;
  (2) A discussion of any warning devices used to ensure downstream public safety;
  (3) A discussion of any proposed changes to the operation of the project or downstream development that might affect the existing Emergency Action Plan, as described in Subpart C of Part 12 of this chapter, on file with the Commission;
  (4) A description of existing and planned monitoring devices to detect structural movement or stress, seepage, uplift, equipment failure, or water conduit failure, including a description of the maintenance and monitoring programs used or planned in conjunction with the devices; and
  (5) A discussion of the project's employee safety and public safety record, including the number of lost-time accidents involving employees and the record of injury or death to the public within the project boundary.
(C) A description of the current operation of the project, including any constraints that might affect the manner in which the project is operated.
(D) A discussion of the history of the project and record of programs to upgrade the operation and maintenance of the project.
(E) A summary of any generation lost at the project over the last five years because of unscheduled outages, including the cause, duration, and corrective action taken.
(F) A discussion of the licensee's record of compliance with the terms and conditions of the existing license, including a list of all incidents of noncompliance, their disposition, and any documentation relating to each incident.
(G) A discussion of any actions taken by the existing licensee related to the project which affects the public.
(H) A summary of the ownership and operating expenses that would be reduced if the project license were transferred from the existing licensee.
(I) A statement of annual fees paid under Part I of the Federal Power Act for the use of any Federal or Indian lands included within the project boundary.

Besides this introductory material, this exhibit includes 20 sections. Section 2.0 provides NID's plans to maintain and operate the Project in an efficient and reliable fashion. Section 3.0 describes NID's need for the power generated by the Project. Section 4.0 describes alternatives to generate the power and cost for such alternatives. Sections 5.0, 6.0 and 7.0 relate to industrial facilities, the need for Project power by Indian Tribes and effects of the Project on the transmission system, respectively. Section 8.0 addresses the comprehensive development of the waterway. NID's financial and personnel resources to operate the Project are described in Section 9.0. Section 10.0 documents NID's notification to land owners potentially-affected by NID's plan to expand the existing FERC Project Boundary. Section 11.0 describes NID's existing and proposed electricity consumption efficiency programs. The names and mailing

addresses of potentially-affected Indian tribes are included in Section 12.0. Section 13.0 describes NID's plans to manage, operate and maintain the Project in a safe manner. Section 14.0 describes NID's current operation of the Project including any constraints. Section 15.0 presents the Project's history. Section 16.0 lists lost Project power instances over the past five years due to unscheduled outages. NID's compliance record is described in Section 17.0. Section 18.0 describes operations of the Project that may affect the public. Section 19.0 describes the effects on NID's ownership and expenses of transferring the license to a third party. Section 20.0 presents the annual fees paid by NID for use of federal and Indian lands. Section 21.0 includes a list of references cited in this Exhibit H.

See Exhibit A for a description of Project facilities and features, Exhibit B for a description of proposed Project operations and resource utilization, Exhibit C for a construction history and a proposed construction schedule, Exhibit D for costs and financing information, and Exhibit E for a discussion of potential environmental effects and Licensee's proposed resource management measures. Project general design drawings and maps are included in Exhibits F and G, respectively.

All elevation data in this exhibit are in National Geodetic Vertical Datum of 1929 (NGVD 29) unless otherwise specified.

2.0 Efficient and Reliable Electric Service

NID has consistently demonstrated its capability to manage, operate and maintain the Project in a manner that delivers efficient, reliable electricity at low cost and in an environmentally sensitive manner. Since 1984, the first full year in which the Project's Bowman Powerhouse operated in coordination with the rest of the Project, average annual net generation has been 328.6 gigawatt-hours (GWh). The Project has consistently been operated to generate power when energy demands are highest, consistent with reservoir operation restrictions for recreational purposes and consumptive water supply.

NID has looked for ways to increase efficiency and output of the existing units, and has performed stator rewinds on Dutch Flat No. 2 in 1982, Chicago Park in 1991, and Rollins in 2004. The Rollins Unit turbine runner was replaced in 1987.

Additionally, NID's preventative maintenance and inspection program is designed to pinpoint potential trouble spots so that repairs can be made before the equipment fails. As new test equipment becomes available and monitoring technologies improve, NID will look for applications that will continue to improve efficiency and reliability.

2.1 Increase in Capacity or Generation

As part of its relicensing process, NID evaluated various capacity and generation improvements to the Project, and ultimately concluded that one improvement was economically attractive. As described in Exhibits A and B, NID proposes to include one new generating facility in the new

license: a Rollins Powerhouse Upgrade. The new facility would more effectively capture releases from Rollins Reservoir that currently spill over the dam or are passed through the existing powerhouse bypass without generating electricity. NID anticipates that the upgrade would add to the overall Project about 11.4 megawatts (MW) of capacity. The new powerhouse would be located entirely within the existing FERC Project Boundary and on land owned by NID adjacent to the existing powerhouse, and be connected to the existing Rollins Powerhouse switchyard with minor modifications to the switchyard. The existing Rollins Powerhouse would be unaltered.

2.2 Project Coordination with Other Water Resources Projects

As described in Exhibit A, Section 2.0, 11 water projects occur in the Yuba and Bear watersheds. NID actively coordinates Project operations with two of these projects – NID's Water Supply Project and Pacific Gas and Electric Company's (PG&E) Drum-Spaulding Project (FERC Project No.2310). Coordination with each of these water projects is described below.

2.2.1 NID's Water Supply Project

NID operates the Project to meet the water demands of the region, though there are no direct diversions from Project facilities for water supply: the diversions occur well downstream from the Project. NID has a service territory of 287,000 acres, and provides domestic water to homes and businesses, municipal water to cities, and irrigation water to farms in Nevada, western Placer and a portion of Yuba counties. Currently, NID delivers 150,300 ac-ft of water to serve 6,000 agricultural and 18,900 domestic customers, and provides raw water to the cities of Grass Valley and Nevada City and to a portion of the city of Lincoln. NID serves a population of approximately 80,600 people and the irrigation customers have about 29,800 acres under production. NID also sells about 16,000 ac-ft of water to the South Sutter Water District (SSWD) when supplemental water is made available to NID for purchase from PG&E.

There are no alternative surface water supplies to the customers in NID's service area, nor is groundwater pumping a reliable alternative. Recently, some of the wells relied on in the area have failed, and NID has expanded its services to provide water to those people.

Based on NID's 2009 updated Raw Water Mater Plan, NID's total deliveries are projected to be 212,500 ac-ft by the year 2032. In 2008, 117,500 ac-ft of the total deliveries came from water stored[1] and diverted through the Yuba-Bear Hydroelectric Project facilities. As demand increase over time, a greater withdrawal from storage will occur to help meet this need. It is estimated that 166,600 ac-ft of the total projected 2032 demand will need to come from the Project.[2]

[1] The reservoirs in the Yuba-Bear Hydroelectric Project make up 81 percent of NID's total storage.

[2] Four of NID's delivery points are served from PG&E's Drum-Spaulding Project facilities, and are represented in the HEC-ResSim Operations model for the Yuba-Bear Hydroelectric Project and Drum-Spaulding Project. For the purpose of the model, anticipated demands at these four points are considered through the year 2062, for the full term of a 50-year license. By 2062, it is anticipated that approximately 202,300 ac-ft of water will be delivered from the projects to these four delivery points.

2.2.2 PG&E's Drum-Spaulding Project

NID's Yuba-Bear Hydroelectric Project is hydraulically interconnected with PG&E's Drum-Spaulding Project (FERC Project 2310), and both projects have license termination dates of April 30, 2013. Both projects are operated for power generation and consumptive water supply purposes, and NID has a power purchase agreement, which expires contemporary with the respective FERC licenses. No new agreement or operating agreement has been executed to date. However, it is anticipated that NID and PG&E will coordinate their project operations in order to make best use of the resource, in compliance with water supply contracts.

2.3 Project Coordination with Other Electrical Systems to Minimize Cost of Production

NID does not own or operate an independent electrical transmission system. NID's powerhouses are connected to the Power Grid via one existing Project transmission line and three existing PG&E transmission lines. Each of these is described below.

- Bowman Powerhouse. The Project's Bowman Powerhouse is connected to the Grid by the Project's existing Bowman-Spaulding Transmission Line. This above-ground, 9.0-mile-long, 60 kilovolt (kV) connects the Bowman Powerhouse Switchyard to PG&E's Drum-Spaulding 60 kV line approximately 1.5 miles west of PG&E's Spaulding No. 1 Powerhouse, which is part of PG&E's Drum-Spaulding Project. The Bowman-Spaulding Transmission Line is included as a Project facility in the existing Yuba-Bear Hydroelectric Project FERC license.
- Dutch Flat No. 2 Powerhouse. The Dutch Flat No. 2 Powerhouse is connected to the Grid by PG&E's existing Drum-Rio Oso 115 kV Line.
- Chicago Park Powerhouse. The Project's Chicago Park Powerhouse is connected to the Grid by PG&E's existing Drum-Higgins 115 kV line.
- Rollins Powerhouse – The Project's Rollins Powerhouse is connected to the Grid by PG&E's existing 0.72-mile-long, 60 kV Rollins Transmission Line (FERC Project No. 2784), which extends from the Rollins Powerhouse Switchyard to PG&E's Drum-Grass Valley-Weimar Junction. The line consists of conductors suspended from 50-foot-high wood poles within a 40-foot wide right-of-way corridor. The conductors are in a T-Post design (8 foot cross-arm with two horizontal insulators at each end, plus a vertical insulator extending from the top of the pole).

NID intends to continue interconnection to the Grid via these lines. Since the existing lines connecting the Bowman, Dutch Flat No. 2 and Chicago Park powerhouses are currently capable of handling the Project load and NID does not propose any capacity or generation enhancements at these facilities, NID does not foresee the need for any modifications to the transmission Grid related to these powerhouses.

Similarly, if FERC does not include NID's proposed Rollins Upgrade into the new license, the existing line connecting the Rollins Powerhouse to the Grid is currently capable of handling the

load, and NID would not see any need for modification to the transmission Grid for the existing Rollins Powerhouse.

If FERC includes NID's proposed Rollins Upgrade into the new license, NID will negotiate with PG&E an interconnection agreement for the new load for the term of the new license. NID has not entered into negotiations with PG&E at this time because: 1) it is unknown whether FERC will approve NID's proposed Rollins Upgrade; and 2) the negotiations will depend on the final configuration and design of the powerhouse, which NID will not begin until FERC issues a new license with the upgrade. At this time, NID is unaware of any constraints for wheeling the load from the potential Upgrade to the Grid.

3.0 Licensee's Need for the Project

3.1 The Real Value of the Project to the Licensee

NID does not maintain its own electricity service area or sell electricity to retail customers.

The primary benefit to NID of the power generated by the Project, and that will be developed by the proposed Project, is control of its water supply and as a reliable revenue stream to offset the costs of water supply through selling the Project power to a wholesale customer. NID does not directly use any of the Project power to meet its own needs.

To appreciate this perspective, one needs to understand that NID was formed in 1921 by Nevada County voters led by the Nevada County farm adviser and local agriculturalists who were convinced that reliable, year-around water supply was a key issue related to building a better community in the Sierra Nevada foothills. At its formation, 202,000 acres were included in NID boundaries. Five years later, residents of Placer County chose to join NID and 66,500 acres were added to NID's service territory. Today, NID has a service territory of 287,000 acres, and provides domestic water to homes and businesses, municipal water to cities, and irrigation water to farms in Nevada, Placer and Yuba counties. NID's water supply facilities include eight water treatment plants.

In the 1950s, NID recognized lack of storage as a considerable problem with providing a dependable water supply to increasing agricultural interests and began an initiative to harness the Yuba and Bear rivers. In an attempt to maintain local control over water, NID partnered with PG&E to develop the Yuba-Bear Hydroelectric Project. Under the July 12, 1963, Consolidated Contract, as amended, that expires in 2013 when the FERC license for the Project expires, NID is the existing licensee, owner and operator of the Project including the reservoirs and PG&E receives the Project power and pays for all operation and maintenance of the Project. Through this relationship, NID retained control over its water supply, enhanced its ability to provide water to its customers, and added to its services power generation, a critical resource for the future health of California.

NID firmly believes continued ownership of the Project is integral to NID's future. In addition to assuring continued control over its water supply and creating revenue to offset water supply costs, the Project generates clean, hydroelectric power for Northern California.

3.2 Power to Northern California

NID plans to develop a reliable revenue stream by selling the Project electricity output wholesale, which will then be used to serve the electric loads primarily in the State of California. As described above, historically, NID's electric output has been delivered to PG&E for use in its service area. Since the advent of industry restructuring and creation of the California Independent System Operator (ISO), NID, through PG&E, is required to sell its generation to the ISO.

The ISO assumed computerized command of the long-distance, high-voltage power lines that deliver electricity throughout California and between neighboring states and Mexico. The mission of the ISO is to ensure that the power grid is safe and reliable, ensure equal access to the power grid and ensure that there is a competitive market for electricity in California. The ISO controls 75 percent of California's power-grid transmission systems formerly operated by the three investor-owned utilities in the state. The ISO-controlled portion of the Grid covers 124,000 square miles, or three-quarters of the State of California. The California Power Grid delivers 164 billion kilowatt hours (kWh) of electricity each year, or enough power to serve the annual energy needs of 27 million current customers of investor-owned utilities. In addition, the Grid transports significant amounts of power for others in the region. Power plants meeting up to 45,000 MW of peak demand are connected to the ISO grid, making the control area the second largest in the United States (the Pennsylvania-New Jersey-Maryland Interconnection is the largest) and the fifth largest in the world.

In addition to operating the Power Grid, the ISO conducts three open-competition markets that not only help lower the cost of providing electricity, but most importantly, assist the ISO in maintaining reliability of the transmission grid. These markets also provide the ISO with electrical services such as regulation and voltage support that it needs to maintain the reliability of the power grid. The Ancillary Services Market takes place a day ahead and an hour ahead of when customers actually use the electricity. The Ancillary Services Auction includes:

- Regulation - Generation that is already up and running (synchronized with the power grid) and can be increased or decreased instantly to keep energy supply and energy use in balance.
- Spinning Reserve - Generation that is running, with additional capacity that can be dispatched within minutes.
- Non-Spinning Reserves - Generation that is not running, but can be brought up to speed, within ten minutes.
- Replacement Reserves - Generation that can begin contributing to the grid within an hour.

As the California electricity industry evolves and upon expiration of NID's power purchase contract with PG&E in 2013, NID may have additional options such as selling Project power to third parties through bilateral contracts, or other means. In summary, if a new license is issued to the Project, it will continue to provide clean, renewable electricity to Northern California.

3.3 Cost and Availability of Alternative Sources of Power

From NID's perspective, to truly be considered an alternative to the Project's energy supply, any alternative must meet two criteria: 1) it must be able to be developed by NID so that it could create a revenue stream to offset costs for irrigation and consumptive water supply; and 2) it must deliver equivalent power benefits in terms of flexibility, reliability, cost-security and operating characteristics, including ancillary benefits. NID is aware of no other non-hydro large-scale generating source that can meet both these criteria.

Purely with regards to power and from a Northern California perspective, if a new license for the Project is not issued, the Yuba-Bear Hydroelectric Project's contribution to the Northern California Power Grid would need to be replaced with an alternative source. These alternative sources might include importing power from sources outside the region and/or siting a new generation facility in Northern California. NID believes importing power is likely unreasonable given the physical limits of the current transmission grid. A new generation source inside California is discussed below.

3.3.1 Simple Cycle Natural Gas-Fired Generating Plant

In the Western Electricity Coordinating Council (WECC) Power Region where the Project is located, it is likely that replacement power would be produced by a simple cycle, natural gas-fired generating facility. The California Public Utilities Commission (CPUC) Market Price Ruling dated February 11, 2005 includes capital and operation and maintenance (O&M) assumptions to estimate long-term market price of electricity for a variety of power plant types, including simple cycle, natural gas-fired facilities. CPUC estimates the capital costs for such a plant would be $556/kW amortized over its assumed useful life of 20 years using a weighted return on capital of 8.2 percent. This results in $57.3/kW-yr annualized capital cost with a fixed O&M cost at $12.1/kW-yr, resulting in a total cost of $79.4/kW-yr. In addition, capital and O&M costs for a new gas pipeline and electric transmission, both of which are unknown at this time since they depend on the location of the new facility, would need to be added to the overall cost of the alternative. However, siting a simple cycle natural gas-fired plant in Northern California would be challenging given the limited availability of emission offsets in the region.

3.4 Effects of Alternative Source of Power

If NID is not granted a new license for the Project and a simple cycle, natural gas-fired generating facility is built to replace the Project power, there would be no effect on NID's customers because NID's customers do not purchase power directly from the Project but through the Grid. The Project power is sold wholesale into the Grid, and then purchased by NID's

customers from the Grid. There would be no effect on NID's operating and load characteristics because NID is not a service area, and does have a load to support. It is unlikely that NID would develop a new power project to replace the Project power, though the power would need to be replaced by a third party to continue to meet Northern California's power needs.

3.5 Effects on Licensee to Purchase or Generate Replacement Power

If NID is not granted a new license for the Project, NID would continue to operate the Project facilities, excluding the power generating facilities, outside of FERC jurisdiction as water supply facilities only (i.e. no electricity generation facilities). NID would not enjoy the revenue from power sales to offset water supply delivery, so NID's water customers would be affected.

If a new license is not issued, it is unlikely that NID would develop a new power project to replace the Project power, so NID would not incur any increase in fuel, capital or other costs.

With regards to power, NID does not sell Project power to retail customers and does not support its own electricity service territory (i.e., does not need to support such a territory's operation or meet load). Therefore, these services would be unaffected if a new license was not granted. The Project power is sold into the Grid to serve communities in Northern California.

NID anticipates, though, that a third party would likely develop a power source replace the power lost to Northern California. That party would incur new costs related to development and operations of a new source of power and fuel costs related to operations of the new source. Since that third party would pass these costs onto retail customers and given that the Project power is very inexpensive, it is possible that electricity costs for the communities served would increase.

4.0 Cost of Production and Alternative Sources of Power

4.1 Average Annual Cost of Project Power

Exhibit D of this Application includes a detailed estimate, including the basis for the calculations of NID's cost of electricity production. Estimated annual costs for the Project are provided in Table 4.1-1, which is identical to Table 5.0-1 in Exhibit D.

Table 4.1-1. NID's estimated average annual costs in 2010 US dollars for continued operation of the Yuba-Bear Hydroelectric Project.

Item	Annual Cost
Capital Cost including Cost of Capital[1]	$1,000,000
Local, State and Federal Taxes and Fees[2]	$500,000
Annual Depreciation Expense[3]	$2,500,000
Operation and Maintenance Expenses[4]	$2,487,000
Transmission Costs[5]	$300,000
Operating Reserve[6]	$600,000
Power Purchase Contract Management[7]	$40,000

Table 4.1-1. (continued)

Item	Annual Cost
Cost to Prepare Application for a New License[8]	$367,000
Subtotal – No Action Alternative Project Cost	*$7,794,000*
Capital and Annual Operation and Maintenance Costs Associated with Licensee's Proposed Project[9]	$1,648,000
Total	**$9,442,000**

Table 5.6-1 in Exhibit D includes a detail list of costs associated with Licensee's proposed resource management measures.

4.2 Projected Resources to Meet Licensee's Capacity and Energy Requirements

As stated above, NID does not support an electricity service territory, and therefore does not have any electricity capacity or energy requirements. Therefore, this item is not applicable.

5.0 Effect on Industrial Facility

NID does not use the Project power for its own industrial facility. Therefore, this item is not applicable.

6.0 Indian Tribe Need for Electricity

NID is not an Indian tribe. Therefore, this item is not applicable.

7.0 Effect on Transmission System

NID does not own or operate an electric transmission system. Therefore, this item is not applicable, except with regards to a single-line diagram. A single-line diagram is included as Exhibit F-17 in Exhibit F, General Design Drawings, of NID's Application.

8.0 Comprehensive Development of the Waterway

At the outset of relicensing process, NID undertook a reconnaissance-level study to identify potential Project modifications that would enhance the Project's contribution to the comprehensive improvement and development of the waterway and for other beneficial public uses. This study and the resulting proposed modification are described below.

8.1 Modifications Considered

Upon review of the existing Project, NID identified eight potential generation enhancements: two reservoir enlargements; two potential pumped storage sites; two canal conveyance improvements; and two new powerhouse opportunities.

Five of the potential enhancements failed a pre-screening analysis, primarily due to unfavorable benefit-cost ratios due to high construction costs clearly overshadowed potential revenue from increased generation. The enhancements interconnection to the Grid posed a problem in several cases, where a proposed enhancement was limited without supportive enhancements in adjacent facilities. These five potential enhancements were eliminated from further investigation.

The three remaining potential enhancements were located at Rollins and Jackson Meadows reservoirs. A 20 foot dam raise at Rollins Reservoir, a new second powerhouse downstream of Rollins Dam, and a new powerhouse downstream of Jackson Meadows Dam were evaluated.

The Rollins Dam raise was evaluated in terms of improved delivery reliability of the Bear River Canal. The improvement resulted in increased flow, but not necessarily increased delivery reliability except in critically dry years. Overall the cost was not justified by the enhanced reliability.

The second powerhouse at Rollins Dam and the new powerhouse at Jackson Meadows were evaluated in terms of increased generation. Both options provided very favorable benefit-cost ratios, though the Rollins Powerhouse upgrade was clearly superior and had few environmental potential flaws.

NID performed an additional feasibility study of the two new powerhouses. The favorable benefit-cost ratio for the Jackson Meadows Dam Powerhouse was confirmed, but there were still concerns about potential creep in construction costs and environmental effects. The feasibility study of the additional Rollins Powerhouse exceeded the earlier reconnaissance study by a significant margin, and the environmental consequences were deemed low.

Based on these analyses, NID advised FERC and Relicensing Participants in its September 25, 2008, Proposed Study Plan and reiterated in its January 23, 2009, Revised Study Plan that NID planned to include the Rollins Upgrade (development of the Rollins No. 2 Powerhouse) in its Application. NID believes that all studies to support the development of necessary NEPA and CEQA documents for the construction and operation of the Rollins Upgrade have been performed.

8.2 Proposed Modification

The proposed Rollins Upgrade would conform to the comprehensive plan for improving and developing the waterway for numerous reasons.

First, as described above the upgrade has a modest cost and is economically attractive.

Second, the upgrade will generate electricity with no air emissions, and important consideration in the waterway.

Third, the upgrade requires no new dams or impoundments or changes in release schedules, which could have environmental impacts. The new facility would simply generate electricity with water that currently spills over Rollins Dam.

Fourth, construction of the upgrade requires minimal environmental disturbance, and once constructed the Upgrade has a very small footprint. Construction would require disturbance to less than an acre of land, and the new powerhouse would be located entirely within the existing FERC Project Boundary and on land owned by NID.

Fifth, pursuant to California Senate Bill 1078 passed in September 2002, the Rollins Upgrade generation additions would be classified as an "eligible renewable energy resource," and can be used to help meet California's Renewable Portfolio Standard (RPS).

Last, the Upgrade is consistent with comprehensive plans developed to support beneficial uses in the waterway. Refer to Section 9 of Exhibit E of the Application for a detailed discussion regarding comprehensive plans.

9.0 Financial and Personnel Resources

9.1 Financial Resources

NID's sources of financing and revenue are sufficient to meet the continuing operation and maintenance needs of the Project. Historically, NID's O&M, capital and debt service costs were paid by PG&E in exchange for the power produced by the Project. That contract will expire in 2013 and NID will seek a new contract with PG&E, another California electric utility, contracts through the California ISO, State of California, or through others. The California energy markets are strong and robust. NID anticipates that the sale of power from the Project will be adequate to offset Project expenses. Refer to Exhibit D for a detailed discussion of Project cost and revenue.

9.2 Personnel Resources

NID has extensive experience operating and maintaining the Project in an efficient and reliable manner. NID has been operating and maintaining the Project for 45 years. NID has had responsibility for generating wholesale electricity that historically has been delivered to PG&E. NID is confident that its hydro resources will continue to be critical to providing efficient and reliable electric service to consumers in California. NID has staff of about 16, with 14 of those staff dedicated to the safe and efficient operation of the Project. The following is a listing of the personnel who are headquartered near the Project and are responsible for maintenance and operation of this Project:

- 4 administrative and supervisory personnel
- 2 electrical and communication maintenance personnel
- 4 mechanical maintenance personnel
- 6 operating personnel

In addition, accounting, engineering, environmental and safety, and management information systems staff located in Grass Valley, California, support the Project, and personnel assigned to NID's water supply project assist with construction and maintenance work for the Project.

10.0 Project Boundary Modification Notification

NID does not propose any changes to existing Yuba-Bear Hydroelectric Project FERC Project Boundary except for the following:

- The use of contours derived from the USGS National Elevation Dataset 1/3 arc second digital elevation model as a partial replacement to survey metes and bounds that are used in the existing license to define the FERC Project Boundary around Jackson Meadows Reservoir, Bowman Reservoir, French Lake, Jackson Lake, Sawmill Lake, Faucherie Lake, Dutch Flat Forebay, and Dutch Flat Afterbay. Where the derived contour lines exceeded 200 horizontal feet from the Project Reservoir normal maximum water surface, 200 foot horizontal buffers of the aforementioned reservoir's maximum water surface were used to define the Project Boundary.
- The removal of the area that incorporates the mineral survey area south of Dutch Flat Afterbay
- The modification of the boundary to more accurately contain and encompass several recreation sites (East Meadow Campground, Fir Top Campground, Bowman Lake Campground and Canyon Creek Area Campground)
- The addition of the area which incorporates the Primary Project portion of French Lake Dam Road (Forest Service Road 843-20), including a right-of-way of 20 feet on road centerline
- The addition of the area which incorporates the Primary Project portion of Milton Pipeline Access Road, including a right-of-way of 20 feet on road centerline
- The addition of the area which incorporates the Primary Project portion of Wilson Creek Diversion Access Road, including a right-of-way of 20 feet on road centerline
- The addition of the area which incorporates the Primary Project portion of Bunkhouse Road, including a right-of-way of 20 feet on road centerline
- The addition of the area which incorporates the Primary Project portion of Texas Creek Diversion Access Road, including a right-of-way of 20 feet on road centerline
- The addition of the area which incorporates the Primary Project portion of Bowman-Spaulding Canal Berm Road, including a right-of-way of 20 feet on road centerline

- The addition of the area which incorporates the Primary Project portion of Bowman-Spaulding Canal Access Road, including a right-of-way of 20 feet on road centerline
- The addition of the area which incorporates the Primary Project portion of Stump Canyon Siphon Intake Access Road, including a right-of-way of 20 feet on road centerline
- The addition of the area which incorporates the Primary Project portion of Canyon Siphon Low Level Valve Access Road, including a right-of-way of 20 feet on road centerline
- The addition of the area which incorporates the Primary Project portion of "B" Alarm Road, including a right-of-way of 20 feet on road centerline
- The addition of the area which incorporates the Primary Project portion of Chicago Park Forebay Road, including a right-of-way of 20 feet on road centerline
- The addition of the area which incorporates the Primary Project portion of Chicago Park Powerhouse Access Road, including a right-of-way of 20 feet on road centerline

For a discussion of the overall changes in area between the existing Project Boundary and the Proposed Project Boundary, please refer to Section 6.0 of Exhibit A. NID has or will notify potentially-affected land owners of the proposed expansion of the FERC Project Boundary in accordance with 18 CFR § 5.18(c)(1)(i)(J).

11.0 Electricity Consumption Efficiency Improvement Program

NID does not serve a retail load. Therefore, this item is not applicable.

12.0 Indian Tribes Names and Mailing Addresses

The names and mailing addresses of local Indian Tribes who would likely be interested in this Project Relicensing are included in the Initial Statement of this Application.

13.0 Safe Management, Operation and Maintenance of the Project

All facilities are maintained to ensure safe and reliable operation. Daily inspections by Project personnel help identify potential problems, and these are corrected as they are discovered. Project operations personnel are on duty seven days a week, between 7:30 AM and 4:00 PM, and maintenance personnel are on duty Monday through Friday between 7:30 AM and 4:00 PM.

In addition, remote operation and monitoring of the different Project facilities, with the exception of Bowman Powerhouse, is automatically controlled by a Supervisory Control and Data Acquisition (SCADA) from PG&E's Drum Switching Center. Drum is staffed 24 hours a day. The Bowman Powerhouse is manually operated by an NID Water System Operator. Reservoir levels, stream gages and power facilities are continuously monitored and any parameters out of the normal operating range are brought to the operator's attention with an alarm. If a hazardous

situation develops at one of the Project dams, NID's Operator follows the Emergency Action Plan (EAP) guidelines and notification flowcharts to provide maximum early warning of an emergency condition to emergency management agencies. Standard Operating Procedures (SOP) include requirements for dam monitoring in the event of an emergency.

NID has implemented other public safety measures at project facilities. Potentially hazardous areas are secured, to the extent practicable, against public entry. Multiple warning devices (signs, fences, barriers) have been installed to warn the public. Both FERC and the California Department of Water Resources – Division of Safety of Dams (DSOD) inspect the Project dams annually. Project facilities are visited daily by NID personnel who are experienced and familiar with the Project.

13.1 Operation During Flood Conditions

Operation during emergency conditions is detailed in NID's Project EAP. The existing Project is not a designated flood control project and is not utilized directly in regional flood control procedures. However, during severe storms or high runoff periods, NID will try to utilize Bowman Lake and Rollins Reservoir to store water, attenuating releases downstream to the South Yuba River and Bear River, respectively.

DSOD issues Certificates of Approval as appropriate for each dam within the Project specifying when spillway gates and flashboards may be put in place for the purposes of impounding water. These requirements are implemented to assure that the dams are ready and capable to safely pass potential winter flood flows without restriction or risk of overtopping the dams; thereby minimizing potential dam safety concerns.

13.2 Warning Devices for Downstream Public Safety

Public safety warning signs are provided at locations where changes in Project operations have the potential to quickly alter water levels.

13.3 Emergency Action Plan

NID completed a comprehensive revision of its Project EAP in 2009. NID conducts Tabletop and Functional exercises on a 5-year cycle. The last Tabletop and Functional exercises conducted by NID were in 2007.[3] The EAP will be reviewed and tested annually to ensure that all information is up to date. The proposed Rollins Upgrade and operations of the Project as described in these exhibits would not affect the existing Project EAP.

[3] In 2006, NID held Probable Maximum Flood Analyses (PFMA) on the Project. FERC's inspector informed NID that since NID had performed PFMAs in 2006, FERC would count Tabletop and Functional exercises performed by NID for its Lake Combie and Scotts Flat exempt projects in 2007 as having met the requirement for Tabletop and Functional exercises for NID as a whole.

13.4 Monitoring Devices

The civil structures are outfitted with a variety of monitoring devices to detect settlement or displacement movement and leakage in dams, and to protect from conduit failure. Devices installed and maintained include: leakage weirs, piezometers, monuments, high and low water alarms, rate of change monitors and alarms, and penstock excess flow devices.

NID monitors civil structures by conducting regular, periodic visual observations and by reviewing and analyzing data collected from various instruments throughout the Project. This monitoring measures critical indicators of structural behavior. Data are collected, observations are made, and qualified personnel evaluate and make recommendations based on the collected data. Results are presented in easily understood reports and distributed to FERC and the DSOD.

Observations are made at all facilities weekly. Periodic scheduled inspections are made less frequently (monthly or annually) for collection of monitoring data. The results of these inspections are recorded and placed into databases used for tracking history of the measurements.

Annual inspections are conducted with a Field Engineering Inspector from FERC and a DSOD engineer.

An integral part of the maintenance and monitoring program includes the Part 12D Independent Consultant's Inspection and reports completed every five years. This inspection and report provides an independent third party assessment of the instrumentation and performance-monitoring program. This report will also include recommendations for any additional instrumentation that would improve monitoring.

The devices use for monitoring civil structures and water conduits are described below.

13.4.1 Leakage Weirs

Leakage weirs are located below the following Project dams: Jackson Meadows, Sawmill, Bowman Main, Bowman South Arch, and Dutch Flat No. 2 Forebay. A V-notch weir is located downstream of the toe of Jackson Meadows Dam. Sawmill Dam has also has a v-notch weir located below the left abutment. Bowman Main has a 12 foot, rectangular weir located below the toe of the dam. Bowman South Arch has two V-notch weirs, one below the spill gates to measure leakage past the gates and one about 100 yards below the toe of the Arch Dam which primarily measures leakage of the Arch Dam.

Dutch Flat No. 2 Forebay has four V-notch weirs below the toe of the dam. Weir #1 monitors groin leakage. Weir #2 monitors Upper Blanket Drain leakage. Weir #3 monitors Core leakage. Weir #4 monitors left embankment and penstock thrust block drain leakage. The elevations are visually read off of the staff gauges on the weirs weekly. The readings are logged on the appropriate data sheets and then manually entered into a spreadsheet where the discharge flows are calculated. Charts of the historical data are plotted for evaluation and reporting.

13.4.2 Piezometers

NID uses a standpipe piezometer to measure the phreatic surface in the downstream shells of Rollins dam. The standpipe piezometer consists of a vertical pipe with a perforated section in the zone of interest. Changing water levels in the standpipe reflect changing pore pressure. The standpipe piezometer is read by lowering a probe into the standpipe that can detect the water surface. The depth to the water surface is recorded in a spreadsheet where the water surface elevation is calculated from a surveyed elevation of the top of the standpipe. Charts of the historical data are plotted for evaluation and reporting.

13.4.3 Monuments

Monuments along the crest of Project dams are surveyed on a regular basis to detect settlement and movement of the following Project dams: Jackson Meadows, French, Faucherie, Sawmill, Bowman Main, Bowman South, Dutch Flat #2 Forebay, Dutch Flat Afterbay and Rollins. Charts of the historical data are plotted for evaluation and reporting.

13.4.4 High and Low Water Alarms

Water level indicator alarms are installed at Dutch Flat No. 2 Forebay, Dutch Flat Afterbay, and Chicago Park Forebay and at four points along the Dutch Flat No. 2 Conduit and three points along the Chicago Park Conduit. These indicators are linked to NID's SCADA system and will generate alarms when certain parameters are reached. Once conditions return to "normal" the alarms will automatically reset. The SCADA printers at NID's Headquarters and three powerhouses (Dutch Flat No. 2, Chicago Park, and Rollins) maintain a record of the alarms, but these are not typically reported to any outside agency unless they trigger activation of the EAP.

13.4.5 Rate of Change Monitors and Alarms

Rate of change monitoring equipment is installed at Jackson Meadows, Jackson Lake, French, Faucherie, Sawmill, Bowman, and Rollins dams, and is part of the EAP notification system. These instruments compare stream gauge readings over three collection cycles and will initiate an alarm if the rate of change exceeds a set parameter. The rate of change instrumentation is linked to the SCADA system, which generates alarms at NID's facilities and at PG&E's Drum Switching Center.

13.4.6 Penstock Excess Flow Devices

Dutch Flat No. 2, Chicago Park, and Rollins powerhouses are protected from the impacts of catastrophic failure of their respective penstocks by excess flow devices. The protective devices are located downstream of the intake gate or shut-off valve at the reservoir.

Excess flow devices are typically triggered by the differential pressure measured across the gate. The trip devices are calibrated to close the valve or gate when a high differential pressure occurs, thus providing protection from the effects of free flowing water through a ruptured penstock.

The devices are tested at least annually in conjunction with the annual outage.

13.5 Employee Safety and Public Safety Record Within Past 5 Years

Since the year 2005, there have been no recorded lost-time accidents involving NID's Project operations employees.

There have been no fatalities at the Project since 2005.

No injury incidents at or below Project facilities that required emergency medical responses have been reported to NID since 2005.

14.0 Current Operations

Current Project operations and constraints are described in Exhibit B.

In general, the Yuba-Bear Hydroelectric Project is characterized by high elevation storage and lower elevation power generation via a network of natural and man-made conveyances. Water is stored and released from the upper reservoirs (also known as the "Mountain Division") based on NID's consumptive needs and combined reservoir storage targets developed as part of a Consolidated Contract with PG&E. Discretionary releases are made from Jackson Meadows Reservoir and Jackson, French, Faucherie and Sawmill lakes during the spring runoff season through late fall. These releases are conveyed to Bowman Lake via the Milton-Bowman Tunnel (releases from Jackson Meadows Reservoir), Jackson Creek (releases from Jackson Lake) and Canyon Creek (releases from French, Faucherie and Sawmill lakes). This water is then stored and released by Bowman Dam through Bowman Powerhouse into the Bowman-Spaulding Conduit Diversion Impoundment.

While the majority of the Bowman-Spaulding Conduit flow is provided by releases at Bowman Lake, five small diversion structures (known as "feeders") on creeks that run perpendicular to the alignment of the Bowman-Spaulding Conduit also provide water to the Conduit. These feeders augment flows in the conduit up to its capacity, and spill the remainder into their respective natural drainages downstream of the conduit. Two types of feeders occur on the Bowman-Spaulding Conduit: diversion dams on Texas Creek and Fall Creek; and side water inflows from Clear, Trap, and Rucker creeks.

Bowman-Spaulding Conduit discharges into PG&E's Fuller Lake, where it then is diverted to a second section of the Bowman-Spaulding Conduit before it is utilized by PG&E for power generation at Spaulding No. 3 Powerhouse (part of PG&E's Drum-Spaulding Project No. 2310). PG&E then passes the water through PG&E's Lake Spaulding into PG&E's Drum and South

Yuba canals. Water transported by PG&E into the Drum Canal is passed through PG&E's Drum Forebay and then diverted from PG&E's Drum Afterbay, located on the Bear River, into the Dutch Flat No. 2 Flume, Forebay and Powerhouse. Water transported by PG&E into the South Yuba Canal is passed through PG&E's Deer Creek Forebay and Deer Creek Powerhouse prior to being released into South Fork Deer Creek, where NID may divert a portion of it to meet downstream consumptive demand. Daily volumes into each canal are scheduled by NID and PG&E for downstream consumptive demand and discretionary hydropower generation.

Water from the Project's Dutch Flat No. 2 and PG&E's Dutch Flat No. 1 powerhouses discharge into the Project's Dutch Flat Afterbay located on the Bear River, where the water is then delivered via the Chicago Park Flume to the Project's Chicago Park Powerhouse by way of the Project's Chicago Park Forebay. Daily volumes are scheduled for downstream consumptive demand and discretionary hydroelectric power generation. These waters are discharged into the Bear River roughly 1.5 miles upstream of the high water line of the Project's Rollins Reservoir.

With a gross storage capacity of roughly 59,000 ac-ft, Rollins Reservoir is the Project's major low-elevation storage reservoir[4]. Located near Interstate 80 and State Highway 174, Rollins Reservoir is a multipurpose facility that meets municipal, irrigation, domestic water supply, recreation and power generation needs.

15.0 History of the Project

Mining ditch companies began forming by the early 1850s to transport water by ditch from higher elevations in the Yuba and Bear River basins to mining districts. The Blue Tent Ditch Company and North Bloomfield Ditch Company were two of the largest mining ditch companies in the region and were largely used for hydraulic mining. Others included the Milton Company Ditch and the Sierra Nevada Lake Company-Truckee (or English) Ditch, both of which derived their water from English Reservoir. This reservoir was created by the English (or Rudyard) Dam built in 1858. This 400-foot-long dry-laid stone and timber facing structure, located at the headwaters of the Middle Yuba River, was the largest dam in the state as late as 1868. This dam broke in 1883, sending a surge of 650 million cubic feet of water and debris down the Middle Yuba River and curtailing hydraulic mining at Milton Company's French Corral operations until the reservoir could be restored.

French Lake Dam was constructed in 1859 on the headwaters of Canyon Creek. The Eureka Lake Ditch Company took water from its reservoir at Lake Faucherie beginning in 1858. This company built the Eureka Lake Ditch and two high flumes --the National Flume and the Magenta Flume --both used for hydraulic mining. By 1875, the Eureka Lake Ditch Company had absorbed numerous smaller companies and had 300 miles of main canal and lateral ditches running 65 miles from Faucherie to North San Juan. The North Bloomfield Ditch Company took its water from a timber dam reservoir constructed in 1868-1870 at Bowman Ranch (old Bowman Station). After this dam burned, it was rebuilt in 1872 as a dressed granite dam.

[4] Gross storage estimate based on NID's 2007 reservoir bathymetry study.

NID was formed by forward-thinking local farmers who recognized that the mining water system created during the 1800s could provide them with an ample supply of year-round irrigation water. The first founders met in 1917 and decided that if they did not secure the water rights to those mountain sources, someone else would and they would be paying them for their supplies. The San Juan Ridge area was dependant on water from the Bowman System on Canyon Creek for continuing irrigation service. At that time, farmers in the area were buying some water from the South Yuba Canal system owned by PG&E and knew the company was a growing concern.

The farmers organized the Nevada County Farm Bureau Irrigation Committee to investigate the possibilities and conducted a survey of the watersheds of the South and Middle Yuba Rivers, along with a variety of tributaries in 1918. Soon thereafter, the committee filed a claim for water rights with the State of California. After gathering the signatures of 797 persons in favor of forming the irrigation district, they presented their petitions to the Nevada County Board of Supervisors on March 15, 1921. When an election to form the district came before the voters, they approved it 638 to 168 and, on August 15, 1921, the NID was officially formed.

NID soon raised $7.25 million through a bond to purchase the needed storage and transmission facilities for their system. They negotiated for years with owners of old mining and water companies to secure the water and other rights they needed to ensure a future water supply and future development of the region. They also developed an agreement with PG&E, formalized in 1924, to utilize water from their new system for power generation by PG&E.
In 1927, the NID bought parts of the South Yuba Canal system, as well as those of the Northern Water and Power Company, North Bloomfield Water and Power Company, the Empire Mine Company, the Excelsior Water and Power Company, the New Blue Point Mine's Tarr Ditch and water rights to the Jackson Meadows, Bowman and Canyon Creek areas. In fact, their most important purchase was of Bowman Lake, which became the storage core of their system. As negotiations continued, major construction began at Bowman Lake as NID's contractor, the Bechtel Corporation, tore down the 1876 stone Bowman Lake Dam and began creating a modern replacement. At the same time, NID hired the Jasper Stacy Company, which built the Bowman-Spaulding conduit. Both features were completed in 1926.

The main water supplies for NID's system were from the headwaters of the Middle and Canyon Creek a tributary to the South Yuba Rivers. NID's system, as conceived in the 1920s, started with Milton Diversion Dam, which diverts high mountain water through a 4.1-mile-long tunnel to Bowman Lake. Bowman is located on Canyon Creek, which is a tributary to the South Yuba River. Canyon Creek also includes other smaller reservoirs, including French Lake. The discharge from Bowman Lake is conveyed by the 10-mile-long Bowman-Spaulding Conduit to Jordan Creek, about 1.5 miles above Lake Spaulding, and is then passed to PG&E's Spaulding powerhouses. NID's main source of revenue came from supplying PG&E with water from the conduit between July 1 and March 31 each season, allowing them to operate their powerhouses after the summer snow packs of their own drainages had begun to dry up.

With the completion of Bowman Dam and the Bowman-Spaulding conduit, water sales could begin. The NID service area in 1927 encompassed 202,000 acres. Seeing the potential for their benefit, Placer County landowners asked to join, adding another 66,500 acres to the district.

After the initial construction of the NID's system in the 1920s, NID continued to maintain their facilities in conjunction with the State of California's Division of Water Resources. The state inspectors visited the dams each year for public safety purposes and then required repair work. That work varied from the installation of measuring weirs to measure leakage to actual dam reconstruction. The earliest dams required the most work. In 1932, for instance, French Lake Dam (an early 1850s rock dam) was showing its age. Its outlet works were completely rebuilt that year and, in 1937 its timber elements were replaced with masonry. In 1948 the dam itself was reconstructed. While the core remained, the downstream side was replaced with new rock fill and the upstream side was replaced with rock and gunite. In 1953, a bunkhouse and office were added at the Bowman House site.

By the 1960s, NID water use had increased 50 percent in Nevada County and 100 percent in Placer County. The value of hydroelectric use had also grown. NID's engineers began drawing up plans to enlarge their existing facilities and develop more water and power resources. They again went before the voters for approval of a bond to construct the new system. Again the voters approved, this time with a 97 percent "yes" vote.

In the early 1960s, NID began construction of its $65 million Yuba-Bear Hydroelectric Project in cooperation with PG&E. Their contract provided security for the Project's financial backing as well. PG&E agreed to pay NID $3,029,000 annually for 45 years for the added power and energy. With this completed, FERC issued a license to NID for the Yuba Bear Development. This 4-year project doubled the water storage capacity of the district to 280,280-acre feet at no cost to the district water users. The first phase included two new hydroelectric power plants and construction of the 66,000 –ac-ft Rollins Reservoir.

The new development included work up and down the entire length of the old 1920s system. At Jackson Meadows, a new dam was constructed, which remains in place today. Another new dam was built at Faucherie Lake, replacing the earlier 1850s era dam. The other dams in the high mountains were also renovated. A major alteration was the replacement of the Milton-Bowman Conduit. The old wood stave conduit constructed in 1928 was replaced with steel-reinforced concrete pipe. The original Milton-Bowman Tunnel was also significantly altered. It was enlarged and repaired in numerous locations and old transitional connections replaced with modern elements. The Fall Creek and Texas Creek diversions were also rebuilt, with older elements abandoned in place.

The company built a new powerhouse at Dutch Flat; the Dutch Flat No. 2 (since PG&E already had a Dutch Flat No. 1). Part of this work included building the Dutch Flat Afterbay Dam to store water exiting the No. 2 Powerhouse before it enters the Bear River. Its release could then be controlled to another new plant, the Chicago Park Power Plant below it. Another new dam, the Rollins Dam, was constructed on the Bear River, which created a 66,000 ac-ft reservoir.

In the 1980s, the Yuba-Bear Hydroelectric Project entered a second phase with the construction of the $8.5 million power plant at Rollins Lake, with other work planned at Chicago Park. A powerhouse was also added at Bowman Reservoir, along with a new transmission line.

With these changes in place, the Yuba-Bear Project was complete. Over the last 20 years, work has entailed routine maintenance. Today, NID continues to be a vital and essential utility for the people of Nevada County, supplying water to an ever-increasing population of primarily residential customers.

16.0 Generation Lost Over the Last Five Years

NID typically takes scheduled outages for about 1 to 2 weeks per powerhouse in mid-June and mid-September through early November each year for annual maintenance. Work includes equipment maintenance, testing and inspecting, and cleaning and patching of water conduits. NID schedules the outages in this period because consumptive demands for irrigation are minimal and there is a low probability of rain occurring.

Unscheduled outages that impact the Project's power production may be caused by a variety of factors, many of which are beyond NID's control. "Momentary" outages may be caused by transmission trouble; NID is usually able to quickly restore the Project to service shortly after these occur. Unscheduled outages may also occur so that NID may respond to emergency conditions (e.g., response to equipment failure). Table 18.0-1 lists unscheduled outages that extended for more than 24 hours and that have impacted power production from 2005.

Table 16.0-1. Dates when the Yuba-Bear Hydroelectric Project powerhouses were shut down for unscheduled outages for more than 24 hours from 2005 and the reason for each outage.

Year	Period of Shut Down	Estimated Lost Power (MWh)	Reason for Shut Down
BOWMAN POWERHOUSE			
07/13/2005	3 days, 15 hrs, 45 mins	240	Unit Bypass Malfunction
01/18/2006	1 day, 3 hrs, 19 mins	14	Transfer Trip
02/27/2006	1 day, 16 hrs, 29 mins	20	Transfer Trip
03/10/2006	7 days, 12 hrs, 25 mins	90	Transfer Trip
04/01/2006	5 days, 1 hr, 18 mins	61	Transfer Trip
04/06/2006	14 days, 21 hrs, 31 mins	179	Transfer Trip
01/22/2007	7 days, 17 hrs, 35 mins	92	Transfer Trip
02/13/2009	3 days, 2 hrs, 1 min	37	Unit Trip
12/24/2009	3 days, 21 hrs, 33 mins	140	Gov. Pump
01/19/2010	7 days,5 hrs	129	Line / Weather
03/04/2010	7 days, 22 hrs,8 min	96	86 Switcher
04/12/2010	1 day, 2 hrs,1 min	27	Line Fault / Weather
DUTCH FLAT No. 2 POWERHOUSE			
02/20/2006	11 days, 42 mins	6,691	Flume / Water Supply
05/22/2010	13 days, 1 hr, 28 mins	7,418	Gen Neutral Over-Voltage
CHICAGO PARK POWERHOUSE			
None			
ROLLINS POWERHOUSE			
None			

17.0 Licensee's Compliance Record

NID is in compliance with terms and conditions of the existing license. During the annual FERC project inspections and the 5-year environmental inspections, various remedial actions are recommended as a result of the inspections. NID initiates actions to correct any issues of safety, compliance or other issues as recommended from the inspections and provides written confirmation of the actions taken. In the event of a non-compliance action such as deviation from the required minimum flows, NID immediately notifies FERC, initiates an investigation and provides a written report to FERC regarding the incident and corrective action. There have been no violations of the existing license since 2005.

18.0 Actions Taken by Licensee Affecting the Public

The operation of Project reservoirs has the most significant direct impact on the public by providing flat-water and whitewater recreation opportunities. The operation of the reservoirs for power generation and water supply generally result in declining reservoirs levels at the end of summer and into the fall, thus reducing the convenience and opportunity for recreation.

19.0 Ownership and Operating Expenses if License Is Transferred

Estimates of the Project O&M, administration, capital improvements and proposed mitigation costs are described in Exhibit D of the Application. If the license were transferred, the costs for future operations estimated at $5.5 million per year would not be necessary, although some costs of operating the facilities for irrigation and consumptive water supply would remain. Other costs that would not be incurred include future capital improvements and the costs of proposed mitigation measures.

20.0 Annual Fees for Federal or Indian Lands

The Project occupies public land managed by the United States Department of Agriculture, Forest Service as part of the Tahoe National Forest and public land administered by the United States Department of Interior, Bureau of Land Management (BLM). No Indian lands are included within the existing or proposed FERC Project Boundary.

In 2009, Licensee paid $329,888 in Federal fees. These fees are broken down as follows:

- Use and enjoyment of federal lands: $205,190
- Federal License Administration: $124,698

21.0 References Cited

de Rubertis. 2002. 2001 Review of Safety, Bowman North Dam, FERC No. 2266, Yuba-Bear Hydroelectric Project, Nevada Irrigation District, Colfax, California.

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