SWEETWATER DAM OUTLET TOWER & CONDUIT SEISMIC EVALUATION

KPFF Consulting Engineers | Sweetwater Authority | 2025

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INTRODUCTORY LETTER

Describe Respondent's basic understanding of the Project objective and the proposed approach. The letter should also contain a statement regarding the qualifications of the firm and any summary information that may be useful or informative to the Authority.

DIABLO DAM -POWERHOUSE INTAKE TRASH RACKS

KPFF provided Structural Evaluation & Mechanical Engineering

January 15, 2025

Attention
Erick Del Bosque, PE

Director of Engineering & Operations

Sweetwater Authority

505 Garrett Avenue
Chula Vista, CA 91910

Subject
Seismic Evaluation for Sweetwater Dam Outlet Tower & Conduit Study

Qualifications for Structural Engineering Services

Contacts
Project Manager
Bob Riley, PE, SE

Principal-in-Charge
Geoff Warcholik, PE, SE

KPFF Consulting Engineers

3131 Camino Del Rio North, Suite 1080
San Diego, CA 92108

619.521.8500

Sweetwater Authority Selection Committee

In this package you will find the KPFF Team qualifications demonstrating our unique abilities to assist the Authority with this project. This is a unique and challenging project, and we believe we have assembled a team of specialists who are in the best position to help the Authority come up with cost effective solutions to preserve the Sweetwater Dam Outlet Tower and Conduit.

Our team will be led by Principal in Charge **Geoff Warcholik, PE, SE** and Project Manager **Bob Riley, PE, SE.** Being located in San Diego for his entire 20+ year career, Geoff brings his seismic evaluation of existing structures expertise to this project. Having spent over 20 years in the design of marine and waterfront structures, Bob brings a deep understanding of evaluating, analyzing and retrofitting underwater and near shore structures.

To accomplish the first task of updating the 2003 Seismic Evaluation of the Tower and Conduit, we have a panel of seismic specialists to assist with this effort. With the support of Geoff and Bob, **Maikol Del Carpio, PE, SE, PhD**, will be leading the seismic evaluation for KPFF. He will also be supported by our geotechnical engineering consultants, **GeoEngineers**, and **Lettis ConsultantsInternational, Inc**. GeoEngineers has years of experience related to dam safety and evaluation of hydraulic structures, as can be seen by their qualifications listed in this package. Lettis Consultants also has years of experience helping to evaluate the seismic stability of dam facilities. In fact, last summer they assisted in a seismic evaluation of the Sweetwater Dam.

To accomplish the next task of completing a conceptual level design for a seismic retrofit of the Tower and Conduit, we have included on our team unreinforced masonry specialists and underwater construction specialists. **Farid Mohseni, PE, SE** and **Jospeh Carpenter, PE**, both from KPFF, will assist in evaluating and developing solutions to preserve the unreinforced masonry tower and conduit. Also on the team is **Steve Spencer, PE** from GeoEngineers, who has over 20 years of construction experience in waterfront and underwater construction. Steve will be supporting Bob in helping the team to develop constructable retrofit solutions. Bob recently helped Seattle City Light replace a steel underwater intake trash rack at the Lake Diablo Dam that extends underwater to a depth of 140 feet. KPFF completed this project with the support of GeoEngineers, who was on the team for geotechnical engineering and constructability support. This was a very unique and challenging project, as the original trash rack was almost 100 years old and was damaged due to debris build up. Careful planning and collaboration with the Owner and the Contractor led to successful replacement of the trash rack in the Fall of 2024.

In summary, we believe we have an experienced and innovative team that is ready to help the Sweetwater Authority accomplish this unique and challenging project.

We look forward to working with you.

Sincerely,

Bob Riley, PE, SE
Project Manager
bob.riley@kpff.com

Geoff Warcholik, PE, SE
Principal-in-Charge
geoff.warcholik@kpff.com

IDENTIFICATION OF RESPONDENT

a. Provide legal name and address of company.
b. Provide legal form of company (partnership, corporation, joint venture, etc.) and state of incorporation.
c. Identify any parent companies.
d. Provide addresses of office(s) and number of employees.
e. Addresses of office(s) containing key proposed Project personnel.
f. Provide name, title, address, phone number(s), and email of a person to contact concerning the proposal.

WILLAMETE FALLS LOCKS
KPFF provided conditional assessment

Identification of Respondent

A. LEGAL NAME & COMPANY ADDRESS

KPFF, Inc.
dba KPFF Consulting Engineers

Legal Address
1601 Fifth Avenue, Suite 1600
Seattle, WA 98101

B. LEGAL FORM OF COMPANY & STATE OF INCORPORATION

KPFF Consulting Engineers is a corporation based in Washington.

C. PARENT COMPANIES

none

D. ADDRESSES OF OFFICES & NUMBER OF EMPLOYEES

1,400 (approximately) employees nationwide.

27 locations nationwide.

San Diego, CA – 85 Employees
3131 Camino Del Rio North, Suite 1080
San Diego, CA 92108

Long Beach, CA – 22 Employees
444 West Ocean Boulevard, Suite 1530
Long Beach, CA 90802

Seattle, WA – 86 Employees
1601 Fifth Avenue, Suite 1300
Seattle, WA 98101

Tacoma, WA – 35 Employees
2407 North 31st Street, Suite 100
Tacoma, WA 98407

St. Louis, MO – 35 Employees
1630 Des Peres Road, Suite 100
St. Louis, MO 63131

E. KEY PROPOSED PROJECT PERSONNEL OFFICE ADDRESSES

San Diego
3131 Camino Del Rio North, Suite 1080
San Diego, CA 92108

Seattle, WA
1601 Fifth Avenue, Suite 1300
Seattle, WA 98101

St. Louis, MO
1630 Des Peres Road, Suite 100
St. Louis, MO 63131

F. CONTACT

Geoff Warcholik, S.E.
Principal, Structural Engineer

3131 Camino Del Rio North, Suite 1080
San Diego, CA 92108

Office: 619.521.8500x225
Mobile: 619.920.6485
Direct: 858.742.8005

geoff.warcholik@kpff.com

Bob Riley, PE, SE
Principal, Structural Engineer

1601 Fifth Avenue, Suite 1300
Seattle, WA 98101

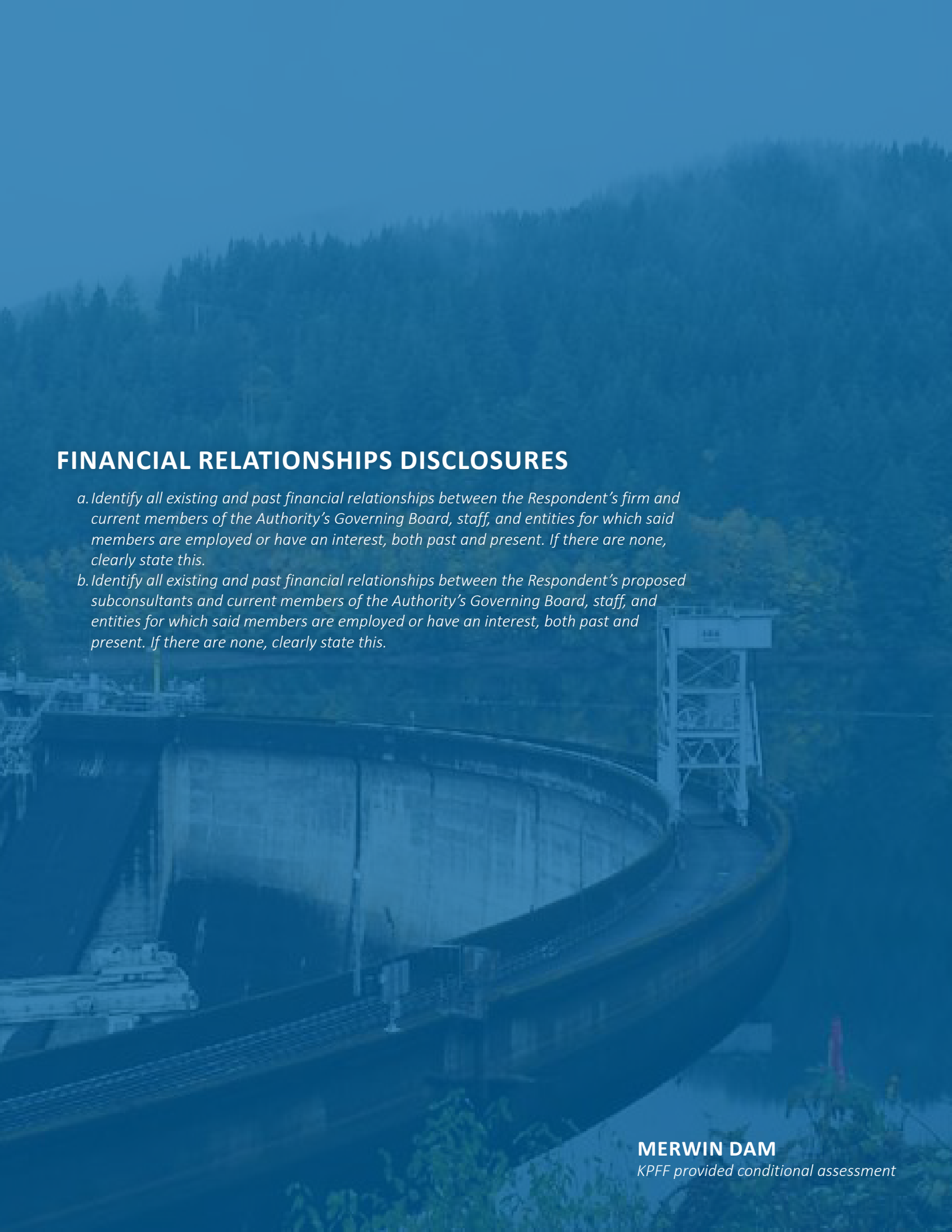
Office: 206.382.0600
Mobile: 206.330.6946
Direct: 206.388.1577

bob.riley@kpff.com

FINANCIAL RELATIONSHIPS DISCLOSURES

a. Identify all existing and past financial relationships between the Respondent's firm and current members of the Authority's Governing Board, staff, and entities for which said members are employed or have an interest, both past and present. If there are none, clearly state this.

b. Identify all existing and past financial relationships between the Respondent's proposed subconsultants and current members of the Authority's Governing Board, staff, and entities for which said members are employed or have an interest, both past and present. If there are none, clearly state this.



MERWIN DAM
KPFF provided conditional assessment

Financial Relationships Disclosures

A. OUR FIRM & CURRENT MEMBERS OF THE AUTHORITY

KPFF does not have existing or past financial relationships between with current members of the Authority's Governing Board, staff, and entities for which said members are employed or have an interest, both past and present.

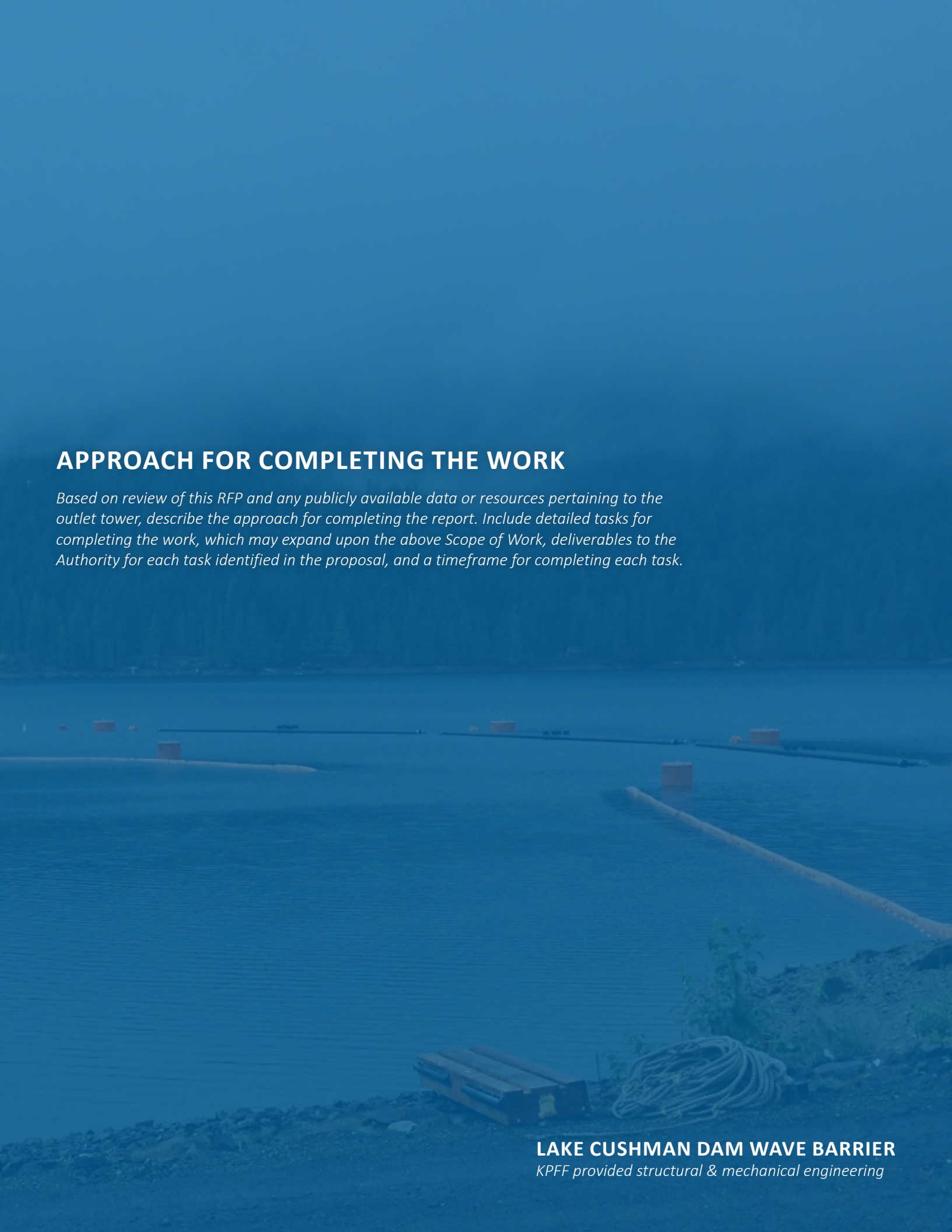
B. SUB CONSULTANTS & CURRENT MEMBERS OF THE AUTHORITY

With regards to item 3.b,Lettis has no existing or past financial relationships with any of the identified entities

Based on information available at this time, GeoEngineers, Inc. currently has no existing or past financial relationships with any current members of the Authority's Governing Board, staff, and entities for which said members are employed or have an interest.

APPROACH FOR COMPLETING THE WORK

Based on review of this RFP and any publicly available data or resources pertaining to the outlet tower, describe the approach for completing the report. Include detailed tasks for completing the work, which may expand upon the above Scope of Work, deliverables to the Authority for each task identified in the proposal, and a timeframe for completing each task.



LAKE CUSHMAN DAM WAVE BARRIER
KPFF provided structural & mechanical engineering

Approach for Completing the Work

PROJECT UNDERSTANDING

The Sweetwater Authority operates the Sweetwater Dam and Reservoir that provides water supply to the Robert A. Perdue Water Treatment Plant in Chula Vista, California. The water intake structure is a 100 foot tall unreinforced masonry tower with 8 inlet valves, spaced at roughly 10 foot intervals along the vertical length of the structure. The tower feeds a masonry conduit that extends through the base of the Dam to feed the water treatment plant downstream. The original tower and conduit were built around 1888, with a 20 foot tall extension placed onto the top of the tower in 1911. The roughly 13' diameter tower is topped with a round concrete platform cantilevered off the edge of the tower. The tower is connected back to the crest of the Dam by a 51 foot long steel trussed footbridge that is supported below the concrete platform.

In 2003, the Authority completed a Seismic Evaluation of the Outlet Tower and Conduit. The outcome of this study found that an earthquake with a ground acceleration of 0.11g could cause failure of the Tower, leaving the Authority vulnerable to disruption in service to its customers. At the time the report was written, this magnitude of earthquake represented a 50% probability of occurrence within a 100 year period, which is equivalent to a 29% probability within a 50 year period.

We understand that the Authority would like to update this Seismic Evaluation, with the goal of understanding how much it would cost to retrofit the Tower and Conduit to withstand an earthquake with a return period of 144 years, which equates to a 10% probability of occurrence within a 50 year period.

The specific tasks that will be undertaken will be to update the Seismic Hazard Risk evaluation, analyze the Tower and Conduit for these updated seismic input parameters, and update the 2003 report with this current information. The outcome of this analysis will inform the next task, which will be to produce a Conceptual Design and associated Rough Order of Magnitude Construction Cost for seismically retrofitting the Tower and Conduit.

SCOPE OF WORK

In order to complete the goals of this project, the KPFF Team will undertake the following tasks.

Task 1: Kick Off Meeting

Shortly after getting under contract, the KPFF Team will meet with the Authority in person at the Authority's office for a Project Kick Off meeting. We anticipate the following KPFF Team Members to be at this meeting:

- Geoff Warcholik – Principal in Charge (KPFF)
- Bob Riley – Project Manager (KPFF)
- Maikol Del Carpio – Lead Structural Engineer (KPFF)
- Arash Pirouzi – Lead Geotechnical Engineer (GeoEngineers)
- Lyle Stone- Sr. Geotechnical Engineer (GeoEngineers)
- Ivan Wong – Lead Seismologist (Lettis Consultants)

The purpose of the meeting will be to discuss the following:

- Review the Project Goals and Desired Outcomes
- Review the Scope of Work
- Review the Design Budget
- Review Team Member Roles and Responsibilities
- Review the Project Schedule
- Review Available Data and determine Data Needs
- Discuss Project Risks

Task 2: Background Document Review & Basis of Design

The KPFF Team will prepare a list of data needs and present this to the Authority. KPFF will work with the Authority to identify any data needs that are not readily available from the Authority, and come up with a plan for either procuring this data or finding ways to complete the scope of work without this data, should this situation arise.

Once KPFF has the data in hand from the Authority, our team will spend time reviewing this information and preparing a Basis of Design document that will lay the foundation for our approach to the seismic evaluation and analysis.

The seismic evaluation will be based on the methodologies outlined in the US Army Corps of Engineers Engineering Manual EM 1110-2-6053, Earthquake Design and Evaluation of Concrete Hydraulic Structures, dated May 1, 2007. It will also be based on evaluating two seismic scenarios – deterministic response spectra ground motions representing the mean level of ground motion produced by nearby credible faults, generated by our team's seismologist specialists from Lettis Consultants; and probabilistic response spectra ground motions representing ground motions with 10% or

Approach for Completing the Work

50% probabilities of occurrence in a 50 year period, corresponding to return periods of 144 and 72 years, as available from USGS.

Task 3: Develop Schedule Development

KPFF's Project Manager will create a project schedule that is intended to be a living document for the life of the project. KPFF will create an initial baseline schedule and review this schedule with the Authority. The schedule will identify key tasks, milestones and deliverable dates. The schedule will be updated regularly as the project continues and will be reviewed in monthly check in meetings with the Authority.

Task 4: Completion of the Update to the Authority

Task 4 is being divided into two components:

Task 4A – Update to 2003 Seismic Evaluation Report

Task 4B – Develop Conceptual Tower & Conduit Retrofit Design

Task 4A: Comprehensive Update to 2003 Seismic Evaluation Report

The first step to accomplishing this task is for our geotechnical partners, GeoEngineers and Lettis Consultants, to complete a Seismic Hazard evaluation study. This study will account for the two seismic scenarios described under Task 2 and produce a set of deterministic and probabilistic ground motions for KPFF's engineers to use in their modeling and analysis. GeoEngineers will be the lead author of a Seismic Hazard study that will provide the necessary seismic input data to the team for evaluation of the Tower and Conduit.

While the Seismic Hazard Study is underway, we will be developing a Finite Element Model of the Tower and Conduit using SAP 2000 (a powerful 3D FEM modeling and analysis tool). Our lead seismic analysis specialist will be working with our Unreinforced Masonry specialists to determine the appropriate material properties for the existing structures that are being modeled. Our team has the good fortune of having access to the 2003 report, as that report has a lot of good data that can be used for this analysis. Much of the legwork that is typically required for structures of this era has already been done and that information is contained in this report. This includes basic geometric layout, material properties and foundation geologic assumptions.

Once the Seismic Hazard Study is complete, the various ground motions to be evaluated can be added to the SAP 2000 FEM model. The program can then be used to analyze the existing structure and determine the level of ground motion that will start to cause failure of the structures. The structure will be evaluated both globally for overturning stability as well as locally for material stress failures and cracking.

Once the analysis results are compiled and fully understood, our team will prepare a Draft Seismic Evaluation Report. The report will include an executive summary and will document our assumptions, input parameters, output of the analysis, as well as an interpretation of controlling components of the structure and level of earthquake that is likely to cause structural failure. This report will be reviewed by both the Principal in Charge and the Project Manager prior to delivery to the Authority.

The team will then review this Draft report with the Authority and document any comments or concerns.

The team will then prepare and review a Final report and deliver the report to the Authority.

Task 4B: Develop Conceptual Tower & Conduit Retrofit Design

The goal of Task 4B is to produce a constructable conceptual design for retrofitting the Tower and Conduit (if needed), with associated Rough Order of Magnitude Construction Costing.

Since our team is comprised of several very experienced and innovative specialists, we are proposing to hold a one-half day design charette to kick off this task. Getting several experienced people in a room to brainstorm ideas is a great way to come up lots of creative ways to solving a problem. We would propose to have all of our key staff attend this meeting in person at the Authority's office. This meeting would take place shortly after delivery of the Final Seismic Evaluation Report. The advantage of waiting until this report is complete is that our team would know the vulnerabilities of the structure and be able to target those vulnerabilities as part of this design charette.

Ideally, several credible ideas would be developed as a result of this meeting. We would propose to develop up to 3 of those ideas to a 5% level of design. The team would perform very high level analysis for each concept and develop 5% level drawings for each. We would then work

Approach for Completing the Work

collaboratively with the Authority to narrow down the ideas to one preferred option.

The team would then develop the Preferred Option to a 10% level of design. The team would also then develop a Rough Order of Magnitude Construction Cost estimate for this design. We typically perform these cost estimates in house. Bob and his team regularly develop cost estimates for their projects and have a good database for marine construction costs. The last few years have been challenging to estimate construction costs as labor and material prices have been very unpredictable. However, the last year has shown more predictability in pricing and we have had good success in recent months in our Engineer's Estimates aligning well with Contractor bid pricing.

The process of getting to the preferred option will be documented in a Draft Conceptual Seismic Retrofit Design Report, along with the key components of the concept and estimated costs. Key risks will be identified and a constructability analysis will be included in the report.

The report will be reviewed by both the Principal in Charge and the Project manager prior to delivery to the Authority.

The team will then review this Draft report with the Authority and document any comments or concerns.

The team will then prepare and review a Final Conceptual Seismic Retrofit Design Report and deliver the report to the Authority.

Task 5: Project Management

In addition to the Kick Off meeting, identified in Task 1, we are assuming there will be monthly virtual meetings with the Authority. We are assuming that these will be attended by the Principal in Charge, the Project Manager, our Lead Structural Engineer and Lead Geotechnical Engineer, and a Project Coordinator to assist with note taking and updating project documents.

This task will also involve regular coordination with the Authority and our internal team. We will also produce monthly invoices and budget reporting.

We understand that this task may also include a final presentation to the Authority, summarizing the findings of our work for this project.

We are assuming this project will last approximately 14 months. A high level schedule of activities is included on the next page for reference:

Fee Schedule

Seismic Evaluation of Sweetwater Dam Outlet Tower and Conduit Study

Proposed Design Schedule

Task	Duration	Dates	2025 Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2026 Jan	Feb
Kick Off Meeting	0	3/5/25												
Gather & Review Documents	14	3/6/25-3/19/25												
Prepare Basis of Design	14	3/20/25-4/2/25												
Prepare Geotechnical Seismic Hazard Study	28	3/6/25-4/30/25												
Task 4A - Conduct Structural Evaluation and Analysis	90	5/1/25-7/31/25												
Task 4A - Prepare Draft Report	28	8/1/2025-8/28/25												
Task 4A - Meeting to present Draft Report	0	9/3/25												
Task 4A - Prepare Final Report	21	9/4/25-9/25/25												
Task 4B - Design Charette for Seismic Retrofit	0	10/1/25												
Task 4B - Develop up to 3 Retrofit Alternatives	28	10/2/25-10/30/25												
Task 4B - Meeting to present 3 Retrofit Alternatives	0	11/4/25												
Task 4B - Devleop Preferred Option to 10% Design	49	11/5/25-12/24/25												
Task 4B - Prepare ROM Cost Estimate	14	12/26/25-1/8/26												
Task 4B - Prepare Draft Concept Design Report	28	1/9/26-2/6/26												
Task 4B - Meeting to present Draft Concept Design Report	0	2/6/26												
Task 4B - Prepare & Deliver Final Concept Design Report	21	2/27/26												

Task 4A Activities

Task 4B Activities

REQUIRED QUALIFICATIONS

a. *The Respondent's primary business or the primary business of a department within the Respondent's firm shall be engineering consulting services for largescale dam evaluations, and shall have been in the business of providing such services for at least five (5) years.*

b. *The Respondent shall provide a single project manager as the primary point of contact with the Authority. This project manager must have at least five (5) years total experience with current firm or other employers in projects related to large scale dam evaluations, and shall be registered as a professional engineer in the state of California.*

c. *Provide a list of past and ongoing qualifying projects for which the Respondent's services were or are similar to those described in this RFP. Limit the list to no more than ten projects the Respondent believes are most relevant to the RFP. For each project, include the following:*

   - *A brief description of the project, date initiated, date completed (if applicable).*
   - *Name of owner and owner's project manager with contact information (email and/or phone number).*

d. *Present the experience of any proposed subconsultants in the same manner.*

e. *Provide evidence of the experience and competence of the Respondent's team proposed to work on the Project, with specific emphasis on experience in working on large-scale dam evaluation.*

GRAND COULEE DAM SEISMIC EVALUATION
KPFF provided structural evaluation.

Required Qualifications

A. YEARS OF EXPERIENCE

KPFF has been providing engineering services for large scale dams for over 5 years, including:

- *Grand Coulee Dam, Coulee City, WA – Bureau of Reclamation (2017)*
- *Lake Diablo Dam, Whatcom County, WA – Seattle City Light (2022 - 2024)*
- *Oakdale Dam, Monticello, IN – Thompson Metal Fab (2022)*
- *Mud Mountain Dam, Enumclaw, WA – USACE (2022 - 2023)*
- *Zosel Dam, Oroville, WA – WA State Department of Enterprise Services (2023 - Current)*
- *Lake Cushman Dam, Shelton, WA – Tacoma Power (2014)*
- *PacificCorp Dam Surveys – Various location, Western US*

B. PROJECT MANAGER

Bob Riley, PE, SE

Structural Engineer: WA(#33839), CA (#5335), TX (#135805)

Endorsed for Civil & Structural, AK (AELC11844), CA (#74386), OR (#88442), MA (#50615), FL (#83709)

Structural Qualifications, PEng, BC (#194168)

Bob Riley's position as leader of the heavy civil structural group within KPFF's Special Projects Division reflects his breadth of engineering experience. During his 32-year career (27 at KPFF), he has served as a civil engineer, structural engineer, and project manager on a wide range of projects small and large, for public and private clients as well as contractors. Bob has worked on many projects that require daily out-of-the-box thinking, and he is especially skilled at developing creative solutions to obstacles. These strengths have served him well in his extensive work designing heavy civil structures including marine and mooring structures; piers; floating structures; bulkheads and fendering systems; RORO Bridges; work on hydraulic structures, including locks and dams; Intake Trash Racks; and Gates.

Relevant Projects:

- *Grand Coulee Dam (2017)*
- *Lake Diablo Dam (2022 - 2024)*
- *Lake Cushman Dam (2014)*
- *Willamette Falls Locks (2018 - 2020)*
- *Pontoon Construction Facility (2010 - 2015)*
- *Zosel Dam (2023 - Current)*

C. PAST & ONGOING PROJECTS

KPFF's past and ongoing qualifying projects will be highlighted on the following pages.

D. SUBCONSULTANTS

The qualifications of our two subconsultants, GeoEngineers and Lettis, will be highlighted on the following pages..

E. KEY PERSONNEL

The KPFF Team's key personnel will be highlighted on the following pages.

Required Qualifications: Past & Ongoing Projects

C. PAST & ONGOING PROJECTS - KPFF

LAKE DIABLO DAM INTAKE SCREEN REPLACEMENT

WHATCOM COUNTY, WA

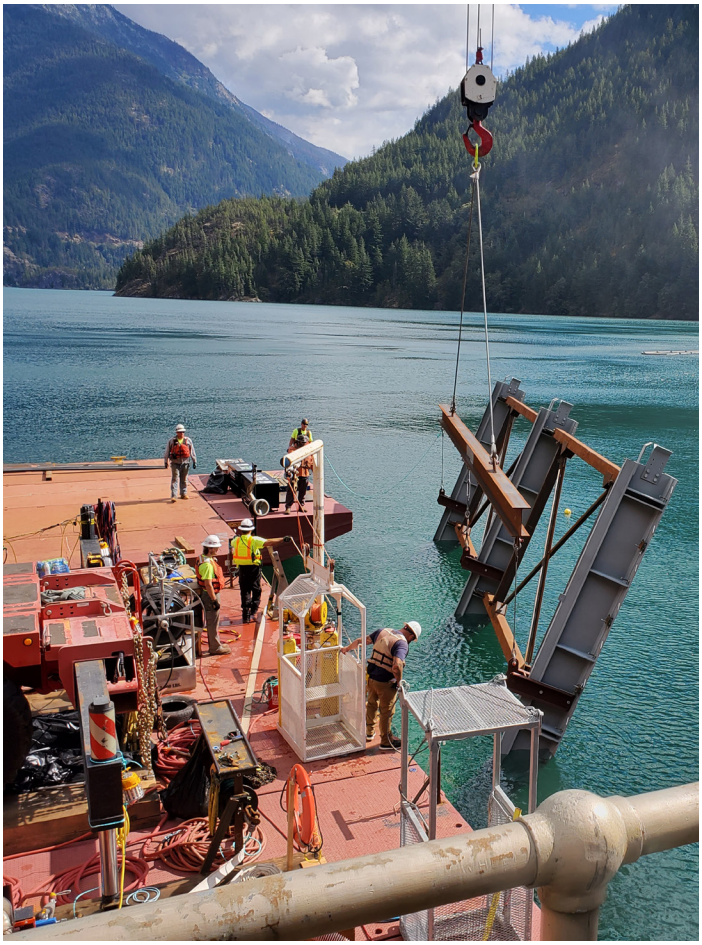
Early in 2022 Seattle City Light (SCL) discovered significant structural damage to the original powerhouse intake trashracks on Diablo Lake. Subsequent investigations determined the cause of the failure to be adverse flow conditions caused by accumulation of debris on the lower portion of the trashrack. KPFF was tasked with designing a new trashrack system with provisions for automatic raking to remove debris, and with adequate vertical flow area to prevent future failures should the rack become clogged. KPFF was able to develop a design that could be installed cost effectively by divers in 140 feet of water depth.

Date Initiated: 2022
Date Completed: 2024

Owner: Seattle City Light
Joshua Jackson, Project Manager
P: 206.684.3828
E: joshua.jackson@seattle.gov

Key Personnel: Bob Riley, PE, SE | Structural Engineer of Record; Lyle Stone, PE, GE | GeoEngineers

Relevance: Challenging retrofit of large scale dam components located below water at an operating dam



Required Qualifications: Past & Ongoing Projects

C. PAST & ONGOING PROJECTS - KPFF

WILLAMETTE FALLS CANAL & LOCKS CONDITION ASSESSEMENT

CLACKAMAS, OR

Willamette Falls Locks is owned and operated by the United States Army Corps of Engineers (USACE). The lock is not currently available for use to the public due to safety concerns. Willamette Falls Locks Commission (WFLC) was charged with determining the feasibility for acquiring ownership of the historic lock and envisions reopening the site to the public to support industrial, tourism and recreational users. KPFF completed an independent condition assessment of facility in support of the WFLC. This assessment looked at all aspects of the lock system including the seven miter gates, miter gate gudgeon anchors, and the gate operating machinery.

Date Initiated: 2018
Date Completed: 2020

Owner: Willamette Falls Locks Commission (WFLC)
Michelle Giguere – Summit Strategies (Rep for WFLC)
(503) 341.1435

Key Personnel: Bob Riley, PE, SE | Structural Engineer

Relevance: Conditions assessment and engineering evaluation of historic system of locks and dams constructed with unreinforced masonry walls

Required Qualifications

C. PAST & ONGOING PROJECTS - KPFF

SEISMIC EVALUATION AND RETROFIT - HARBOR DRIVE FACILITIES, SOLAR TURBINES

SAN DIEGO, CA

KPFF provided structural engineering services for a seismic evaluation and retrofit study of 16 buildings on this Harbor Drive campus. Many of these buildings are Unreinforced Masonry (URM) shear wall structures. As Prime, KPFF engaged an architect to evaluate historic aspects of the buildings and to assist with aesthetic impacts of retrofit options. KPFF also assisted in developing a post-earthquake response plan to assess seismic distress of critical structural members. Retrofit designs were developed for four of the buildings. Retrofit designs were developed for four of the buildings and to date the retrofit was implemented on one of the more vulnerable structures.

Date Initiated: 2011
Date Completed: 2012

Owner: Solar Turbines
Jim Garegnani/Manager, Industrial/Facility Engineering & Maintenance Operations
P: 619-520-3856
E: Garegnani_Jim_X@solarturbines.com

Key Personnel: Geoff Warcholik, SE | Structural Engineer and Farid Mohseni SE | Structural Engineer

Relevance: Seismic evaluation of several Unreinforced Masonry structures in San Diego area

New Steel Frame To Brace Existing Masonry Wall

GRAND COULEE DAM SEISMIC EVALUATION OF POWER PLANT 3

COULEE CITY, WA

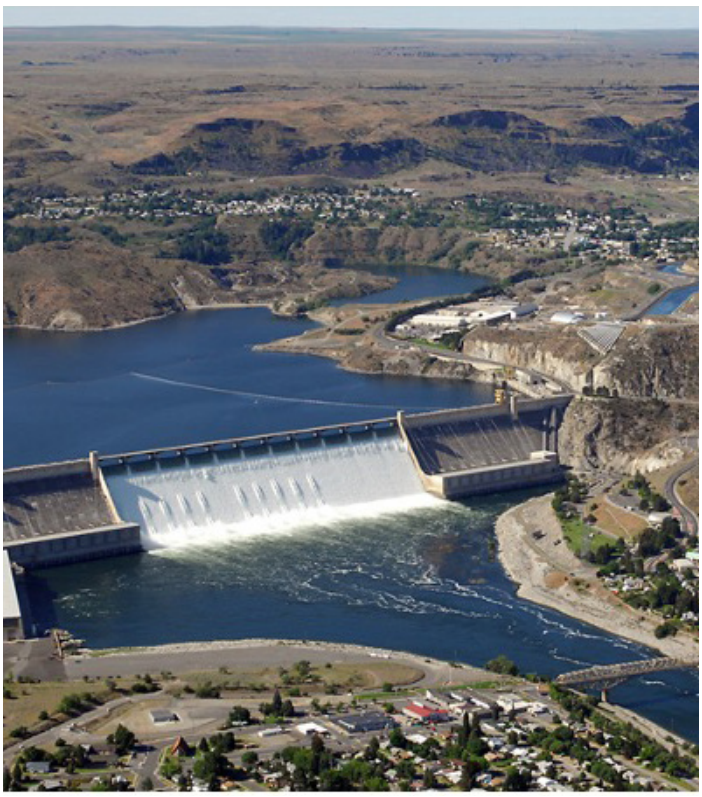
KPFF Consulting Engineers provided Title I seismic evaluation services for the four operating powerplants at Grand Coulee Dam; designed a seismic retrofit for the third powerplant; and completed a concept study of alternatives for enlarging the primary service door on the north end of the third powerplant. The seismic evaluations and retrofit designs included both structural and non-structural components.

Date Initiated: 2017
Date Completed: 2017

Owner: US Department of the Interior, Bureau of Reclamation
Tim Brown/Project Manager
P: (303) 445-3709

Key Personnel: Bob Riley, PE, SE | Sr. Structural Engineer, Joseph Carpenter, PE | Sr. Structural Engineer

Relevance: Seismic evaluation at large dam facility



Required Qualifications

C. PAST & ONGOING PROJECTS - KPFF

UCSD SEISMIC SAFETY REVIEWS OF EXISTING BUILDINGS

LA JOLLA, CA

KPFF provided structural engineering services to conduct Seismic Safety Reviews and Summary Reports for UCSD owned or occupied existing University Facilities in accordance with the University of California Office of the President (UCOP) Seismic Safety Policy Guidelines. The scope of work consists of Tier 1 Seismic Evaluations of approximately 220 existing buildings in accordance with ASCE 41-17 protocol, approximately 12 Tier 2 and/or Tier 3 Seismic Evaluations, and a peer review of the York Hall and Mayer Hall seismic retrofits.

Date Initiated: 2018
Date Completed: 2023

Owner: UCSD
Eric Wolff/Director of Engineering Services
P:619-757-8304
E: ewolff@ucsd.edu

Key Personnel: Geoff Warcholik, SE | Structural Engineer and Farid Mohseni SE | Structural Engineer

Relevance: Seismic evaluation of over 200 structures in the San Diego area

ZOSEL DAM

OROVILLE, WA

Zosel dam is in need of upgrades to various systems within the control structure, all while needing to remain operational throughout construction to uphold the obligations of the IJC order. KPFF is designing upgrades to support replacement of the vertical lift gates, replacement of operating machinery with modernized equipment and controls systems, and replacement of heating systems within the gate structure and gate embeds. Refurbishment of the stoplog systems as well as refurbishment of gate and stoplog embeds will be performed. Improvements to lighting systems and replacement of the standby generator are also needed.

Date Initiated: 2023
Date Completed: Ongoing

Owner: Washington State Department of Ecology
Craig Jordan
360-688-8743
craig.jordan@ecy.wa.gov

Key Personnel: Bob Riley, PE, SE | Structural QA/QC Manager

Relevance: Retrofit of large scale dam components at an operating dam

Required Qualifications

C. PAST & ONGOING PROJECTS - KPFF

CANDY FACTORY RENOVATIONS

SAN DIEGO, CA

The historic Showley Brothers Candy Factory in downtown San Diego was built in 1924 and produced candy until 1951. The 3-story, 30,000-sf un-reinforced brick building was relocated 280 feet, and it is now situated beyond right field of Petco Park. KPFF provided structural engineering services to renovate the building including the addition of skylights, a roof deck, a new elevator, two new stairs, a second floor opening, new interior stud walls, and relocating existing shear walls. The construction cost was $15 million.

Date Initiated: 2005
Date Completed: 2008

Owner: JMI Realty
James Chatfield/Senior VP Construction
P: 858- 945-4835
E: jchatfield@jmirealty.com

Key Personnel: Farid Mohseni SE | Structural Engineer

Relevance: Seismic evaluation and retrofit of an existing unreinforced masonry structure in San Diego

SR 520 PONTOON CONSTRUCTION FACILITY

GRAYS HARBOR, WA

KPFF provided structural, mechanical and dredging design for the 55-acre casting facility used to construct the pontoons for the new SR 520 Floating Bridge. This work included grading and drainage for the entire 55-acre facility, mass excavation in excess of 250,000 CY, dredge excavation and development of a 600’ long launch channel, shoreline embankments, hydraulic control structures, bulkhead walls, a 110’ removable gate, more than 2,000 lineal feet of crane support trestles and access bridges, and the pile supported structural floor of the casting basin.

Date Initiated: 2010
Date Completed: 2015

Owner: Washington State Department of Transportation
Dave Ziegler, Pontoon Casting Basin Manager
(360) 500-4421
ziegled@wsdot.wa.gov

Key Personnel: Bob Riley, PE, SE | Structural Engineer

Relevance: Seismic design of water retaining structure; construction of below water components

Required Qualifications

C. PAST & ONGOING PROJECTS - KPFF

CITY HALL SEISMIC EVALUATION AND CITY BUILDING ASSESSMENTS

NATIONAL CITY, CA

KPFF provided structural engineering services for the seismic evaluation of the City Hall building, built in 1965. Due to growing knowledge of seismicity in the area and updates to the building code, the building was evaluated again by KPFF. The scope of work included ASCE-41 Tier 1 and Tier 2 seismic analyses with conceptual retrofit sketches for cost estimating. The project also included a brief review of the existing drawings of 18 City of National City buildings to determine the building size, building type, and lateral system for an initial assessment based on ASCE-41.

Date Initiated: 2021
Date Completed: 2023

Owner: City of National City
Roberto Yano/Assistant General Manager at Sweetwater Authority (formerly with the City of National City)
P:619-420-1413
E: ryano@sweetwater.org

Key Personnel: Geoff Warcholik, SE | Structural Engineer

Relevance: Seismic evaluation of structure of importance in San Diego area

SCHIEFER AND SONS BUILDING RENOVATIONS

SAN DIEGO, CA

KPFF provided structural engineering services to renovate the Schiefer and Sons building, a historic 3-story structure in downtown San Diego. Services included the addition of two new stairs, a new elevator, a roof deck, new interior stud walls; a lateral analysis; and a retrofit consisting of wall and roof ties and parapet bracing. The construction cost was $13 million.

Date Initiated: 2005
Date Completed: 2008

Owner: JMI Realty
James Chatfield/Senior VP Construction
P: 858- 945-4835
E: jchatfield@jmirealty.com

Key Personnel: Farid Mohseni SE | Structural Engineer

Relevance: Seismic retrofit of unreinforced masonry structure in San Diego

Required Qualifications

C. PAST & ONGOING PROJECTS - GEOENGINEERS

SKAGIT PROJECT SEISMIC HAZARD ASSESSMENT REPORTING,
DIABLO, WA

GeoEngineers, Inc., (GeoEngineers) conducted a site-specific seismic hazard analysis for the Seattle City Light Skagit River Hydroelectric Project, which includes the Ross, Diablo, and Gorge Dams and associated facilities. The study involved performing both probabilistic seismic hazard analysis (PSHA) and deterministic seismic hazard analysis (DSHA) to evaluate ground motions for the dams and powerhouses. GeoEngineers developed an updated seismic source characterization model, incorporating recent seismic data and advancements in ground motion models. The analysis was designed to meet the Federal Energy Regulatory Commission (FERC) guidelines and American Society of Civil Engineers (ASCE) 7-16 standards. The final report was submitted to FERC in 2020. The findings will inform engineering design and safety evaluations for the Skagit Dams, ensuring the project's resilience to seismic events.

Date Completed: 2019

Owner: Seattle City Light
Kim Pate, Chief Dam Safety Engineer, Generation
(206) 684-3705
kim.pate@seattle.gov

Key Personnel: GeoEngineers


Ross Lake Dam, WA

NBSD B-3291 SEISMIC EVALUATION
SAN DIEGO, CA

GeoEngineers performed a geotechnical seismic evaluation for Building 3291 at Naval Base San Diego. The work involved assessing subsurface conditions and identifying potential geologic and seismic hazards that could affect the site. Based on this assessment, GeoEngineers provided recommendations in accordance with ASCE/Structural Engineering Institute (SEI) 41-17 and Unified Facilities Criteria (UFC) 1-200-01 standards to guide retrofitting efforts. The evaluation results will support the design-build process and help ensure the site's seismic resilience.

Date Initiated: 2023
Date Completed: 2024

Owner: U.S. Navy
Michael Fraser, NAVFAC SW
(619) 705-4758
michael.s.fraser.civ@us.navy.mil

Key Personnel: Arash Pirouzi, Geotechnical Project Manager; Lyle Stone, Geotechnical Associate-in-Charge; GeoEngineers

Required Qualifications

C. PAST & ONGOING PROJECTS - GEOENGINEERS

FLOW CONTROL FACILITY SEISMIC UPGRADES

SAN DIEGO, CA

GeoEngineers provided geotechnical engineering services in support of the proposed seismic upgrades for eight flow control facilities located in San Diego County, California. The project sites are spread across San Diego County from Otay Ranch area in the south to Hidden Meadows in the north. Services included the evaluation of existing structures and design of structural improvements to mitigate seismic risk complying with California Building Code (CBC) 2019 and ASCE 41-17, Evaluation and Retrofit of Existing Buildings. Due to familiarity with site conditions, GeoEngineers utilized non-invasive geophysical survey techniques to investigate site conditions which are faster and more cost-effective than conventional geotechnical investigation methods. Our team provided site-specific geotechnical seismic design parameters to inform a more realistic design of structural improvements for each building.

Date Initiated: 2022
Date Completed: Present

Owner: San Diego County Water Authority
Darin Aveyard
(858) 668-0707

Key Personnel: Arash Pirouzi, Geotechnical Project Manager, GeoEngineers

IDAHO WATER RESOURCES BOARD (IDWR), PRIEST LAKE DAM

PRIEST LAKE, ID

The IDWR is implementing a project to increase the water levels in Priest Lake. This project includes both upgrading the existing outlet dam to accommodate the increased water levels and making additional safety improvements to the dam and spillway. GeoEngineers is providing geotechnical engineering analysis and environmental permitting services. The project is currently in construction. The project has a limited design and construction budget. As with many retrofit projects, it was not feasible to achieve current seismic design standards for all components of the structure. GeoEngineers began the project by evaluating the seismic vulnerability of different components at different design levels and by performing a detailed parametric analysis. By analyzing a wide range of probable soil parameters, we determined what data and components were critical to design. This allowed the design team, IDWR and Idaho Dam Safety to establish and agree on reasonable seismic design levels, overall risk levels and performance expectations.

Date Initiated: 2019
Date Completed: 2020

Owner: Idaho Water Resources Board
Shane Phillips
(206) 838-2886

Key Personnel: Lyle Stone, Geotechnical Associate-in-Charge, GeoEngineers

Required Qualifications

C. PAST & ONGOING PROJECTS - LETTIS

SWEETWATER DAM
SAN DIEGO COUNTY, CA

A site-specific seismic hazard analysis was performed for the dam. Probabilistic and deterministic seismic hazard analyses, and site response analysis were performed and time histories were developed.

Date Initiated/Completed: 2024

Owner: Sweetwater Authority

Lettis Key Personnel: Ivan Wong, Reviewer, LCI

OROVILLE DAM
OROVILLE, CA

Site-specific seismic hazard analysis of the dam including probabilistic and deterministic seismic hazard analyses. Evaluation of reservoir triggered seismicity.

Date Initiated: 2019
Date Completed: 2023

Owner: California Department of Water Resources
Don Hoirup
916.882.2739
Don.Hoirup@water.ca

Lettis Key Personnel: Ivan Wong, Seismicity Analyst and Reviewer, LCI

WHITTIER NARROWS DAM
MONTEBELLO, CA

Peer review of seismic hazards and deformation analysis

Date Initiated/Completed: 2021

Owner: U.S. Army Corps of Engineers
Khaled Chowdhury
916.557.5309
Khaled.Chowdhury@usace.army.mil

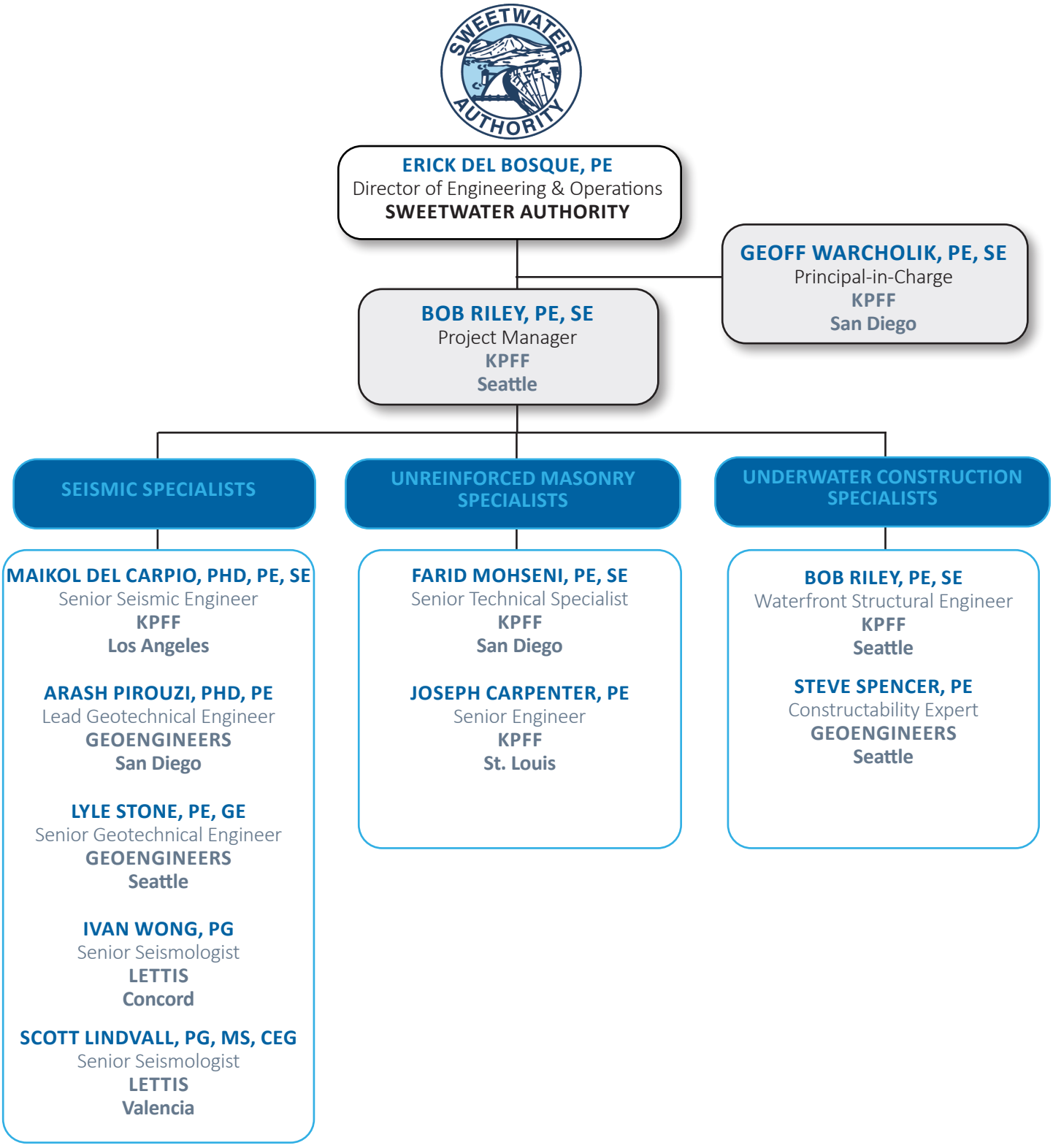
Lettis Key Personnel: Ivan Wong, Reviewer, LCI

RESPONDENT'S FIRM AND KEY PERSONNEL

Provide an organizational chart showing the relationship and titles of key personnel. Describe Respondent's firm, including identification and responsibilities of key personnel and subconsultants. For each of the key personnel, identify their main work location. Identify the project manager who will be responsible for the direct supervision and coordination of all work activities.

SR 520 PONTOON CONSTRUCTION FACILITY
KPFF provided civil, structural, and mechanical design.

Organizational Chart for Key Personnel



Responsibilities of key personnel will be provided on the following pages.

Key Personnel

GEOFF WARCHOLIK, SE, LEED AP
PRINCIPAL-IN-CHARGE

As a Principal with KPFF, Geoff leads the conceptual design. He provides technical and managerial guidance to the Project Manager and follows the progress and direction of the work. He provides an internal peer review of the documents at critical milestones and checks and seals the final documents. Geoff has 25 years of structural engineering experience and has managed several large, complex projects, including many existing structure evaluations, upgrades, and retrofits.

FIRM
KPFF Consulting Engineers

EDUCATION
B.S. Structural Engineering
University of California, San Diego

REGISTRATION
Structural Engineer in CA (#S4951)
Civil Engineer in CA (#C63301)
LEED Accredited Professional

PROFESSIONAL AFFILIATIONS
Structural Engineering Association of California
International Code Council
Cold Formed Steel Engineers Institute
American Institute of Steel Construction

UCSD Seismic Safety Reviews of Existing Buildings, La Jolla, CA
Seismic Safety Reviews and Summary Reports for approximately 220 UCSD owned or occupied existing facilities in accordance with the University of California Office of the President Seismic Safety Policy Guidelines. The scope of work consisted of 220 Tier 1 Seismic Evaluations, 12 Tier 2 and/or Tier 3 Seismic Evaluations, and a peer review of two seismic retrofits.

Solar Turbines – Seismic Evaluation and Retrofit – Harbor Drive Facilities, San Diego, CA
Seismic evaluation and retrofit study of 16 buildings. Many of these buildings are Unreinforced Masonry (URM) shear wall structures. As Prime, KPFF engaged an architect to evaluate historic aspects of the buildings and to assist with aesthetic impacts of retrofit options. KPFF also assisted in developing a post-earthquake response plan to assess seismic distress of critical structural members. Retrofit designs were developed for four of the buildings.

City Hall Seismic Evaluation and City Building Assessments, City of National City, National City, CA
Seismic evaluation of a building built in 1965, previously evaluated in 1999. The scope of work included ASCE-41 Tier 1 and Tier 2 seismic analyses with conceptual retrofit sketches for cost estimating. The project also included a brief review of the existing drawings of 18 City of National City buildings to determine the building size, type, and lateral system for an initial assessment.

Balboa Elementary School Modernization, San Diego, CA
Structural engineering services for the modernization of Balboa Elementary School, including student health, safety, and security improvements; school accessibility and code compliance upgrades; and major building system repairs. Prior to the renovation work, we provided a Pre-Schematic Assessment Report which included seismic evaluations of two buildings.

Additional Relevant Projects

- Born and Raised Restaurant Tenant Improvement and Seismic Retrofit, San Diego, CA
- Mission Valley Mall – Building Conversion Feasibility Study, San Diego, CA
- Sharp Memorial Hospital, SB1953 Seismic Evaluation, San Diego, CA
- Tizon Apartments (Radisson Rancho Bernardo Seismic Retrofit/Conversion), San Diego, CA

Key Personnel

BOB RILEY, PE, SE
PROJECT MANAGER

Bob Riley's position as leader of the heavy civil structural group within KPFF's Special Projects Division reflects his breadth of engineering experience. During his 32-year career, he has served as a civil engineer, structural engineer, and project manager on a wide range of projects small and large, for public and private clients as well as contractors. Bob has worked on many projects that require daily out-of-the-box thinking, and he is especially skilled at developing creative solutions to obstacles.

FIRM
KPFF Consulting Engineers

EDUCATION
BS, Architectural Engineering, University of Colorado at Boulder

REGISTRATION
Structural CA (#5335), TX (#135805), WA (#33839)

Endorsed for Civil & Structural, AK - (AELC11844), CA- (#74386), OR- (#88442), MA "(#50615), FL- (#83709)

Structural Qualifications, PEng, BC- (#194168)

PROFESSIONAL AFFILIATIONS
American Institute of Steel Construction (AISC) American Society of Civil Engineers (ASCE)

Coasts, Oceans, Ports, and Rivers Institute (COPRI)

Association of Professional Engineers and Geoscientists of BC (APEGBC)

Lake Diablo Dam Intake Screen Replacement, Whatcom County, WA
Structural Engineer of Record for the design of a new trashrack system with provisions for automatic raking to remove debris, and with adequate vertical flow area to prevent future failures should the rack become clogged. KPFF was able to develop a design that could be installed cost effectively by divers in 140 feet deepwater . Design was completed late in 2023 and construction wrapped up late in 2024.

SR 520 Pontoon Construction Casting Basin, Grays Harbor, WA
Structural Engineer of Record for the four-acre pile supported casting basin concrete slab structure, retaining walls and elevated mobile crane supported trestle structures that provide support for the tracked mobile cranes used to construct the 33 pontoons ranging in size to 360' long by 75' wide by 28' tall. Specific elements of work include development of a 55-acre casting facility and 20-acre basin; a moveable gate structure; structural walls along the shoreline; elevated mobile crane structures; additional crane access piers; hydraulic control structures to flood and drain the basin; channel excavation and structures to support pontoon launching. The pontoons were used to build the new SR 520 floating bridge.

Lower Baker Dam Peer Review of Temporary Structure, Concrete, WA
Structural Engineer of Record and Principal-in-Charge for the peer review of a temporary scaffolding structure that was mounted to the upstream side of the Lower Baker Dam in Concrete, WA. This temporary structure provides access for the Contractor to install a below grade grout curtain below the dam that is required in order to mitigate the amount of seepage currently occurring below the dam structure.

Third Power Plant Grand Coulee Dam, Grand Coulee, WA
Structural Engineer supporting KPFF's study to investigate the feasibility of modifying the historic third powerplant building by increasing the door size to accomodate a large generator unit uprate program.

Additional Relevant Projects
- Willamette Falls Locks, Clackamas, OR
- Lake Cushman Dam Floating Wave Barrier, Shelton, WA
- UCSD Seawall Evaluation & Repair, La Jolla, CA
- Alta Sea Concrete Wharf Renovations, Port of Los Angeles, CA

Key Personnel

FARID MOHSENI, SE
SENIOR TECHNICAL SPECIALIST

As a Principal with KPFF, Farid provides technical and managerial guidance to the Project Manager and follows the progress and direction of the work. He provides internal peer review of the documents at critical milestones. Farid has over 45 years of structural engineering experience and has worked on large, complex projects as well as performed many seismic evaluations and upgrades.

EDUCATION

M.S. Civil Engineering
University of Kentucky

B.S. Civil Engineering
Tehran Polytechnic

REGISTRATION

Structural Engineer in CA (#S4775) and NV

Civil Engineer in CA (#C60508) and NV

Professional Engineer in FL, MD, PA, TX, and WA

PROFESSIONAL AFFILIATIONS

American Institute of Architecture

Structural Engineers Association of California

Lean Construction Institute

American Institute of Steel Construction

San Diego Architectural Foundation

** Designed while employed at previous firm*

Candy Factory Renovations, San Diego, CA
$15M renovation and relocation of the historic Showley Brothers Candy Factory built in 1924. The 3-story, 30,000-sf un-reinforced brick building was relocated beyond right field of Petco Park. The renovation included the addition of skylights, a roof deck, a new elevator, two new stairs, a second floor opening, new interior stud walls, and relocating existing shear walls.

Schiefer and Sons Building Renovations, San Diego, CA
$13M renovation of historic 3-story building. The project included the addition of two new stairs, a new elevator, a roof deck, new interior stud walls; a lateral analysis; and a retrofit consisting of wall and roof ties and parapet bracing.

Pack Lofts Historic Building Renovation, San Diego, CA
Renovation of historic structure to serve as a 20,000-sf, 4-story mixed use building. The existing building had exterior concrete frames and infill clay tiles. The project included a voluntary seismic retrofit in addition to the renovations associated with a warm shell office space on the upper three floors and retail space on the first floor.

Seismic Evaluation and Retrofit – Harbor Drive Facilities, San Diego, CA
Seismic evaluation and retrofit study of 16 buildings as Prime on the project. Many of these buildings are Unreinforced Masonry (URM) shear wall structures. An architect was engaged to evaluate historic aspects of the buildings and assist with access and aesthetic impacts of retrofit options.

Patton U.S. Army Reserve Center Seismic Evaluations, Bell, CA
Seismic evaluations for four buildings with steel, masonry, and concrete, constructed from 1970 to 1989, including office, classroom, warehouse, and maintenance facilities.

Previous Dam Experience

- Franklin Dam Upgrade Study, Louisville, KY*
- Guist Creek Dam Upgrade, spillway, sheet piles, pile structures, and concrete retaining structures, Shelbyville, KY*
- Pipeline Installation, including sheet piling, retaining walls, and excavation shoring, Dry Run Levee, OH*
- Winchester Raw Water Intake, Winchester, KY*

Key Personnel

JOSEPH CARPENTER, PE, LEED AP
SENIOR ENGINEER

Joe, who joined KPFF in 2014, has more than 20 years of experience in structural design for a wide range of project types, including historic renovation, residential, public amenities, healthcare, laboratories, commercial facilities, and parking garages. He is skilled at managing projects, and is responsible for client contact, development of structural framing systems, management of a project's budget and schedule, supervision of the overall structural design, and production of construction documents.

FIRM
KPFF Consulting Engineers

EDUCATION
M.S. Civil Engineering /Structural Emphasis
Southern Illinois University Edwardsville

B.S. Civil Engineering /Structural Emphasis
Southern Illinois University Carbondale

REGISTRATION
Professional Engineer in MO, OH, and TX

LEED Accredited Professional

PROFESSIONAL AFFILIATIONS
ASCE Member

ACE Mentorship – St. Louis Affiliate Board Member

Grand Coulee, Bureau of Reclamation, Columbia River Basin, WA
Seismic evaluation and retrofit of Power Plant 3 included development of SAP computer models of the building structures and a Tier 3 analysis in accordance with ASCE 31-03. The seismic evaluation of non-structural items included discrete equipment components, and distributed systems. Discrete components are evaluated in ASCE 31-03 Tier 1 mode using Reclamation's Equipment Database.

St. Louis Post-Dispatch Building Renovation, St. Louis, MO
$70M renovation of historic newspaper building including a seismic evaluation and upgrading, new rooftop amenity structure, various new monumental stairs, alterations of existing floor/ roof structures for new interior atrium/skylights, and various MEP support work.

Armory Renovation, St. Louis, MO
Renovation of historic 250,000-sf, 3-story armory building built in 1938 with a large drill hall that is topped by a clear-span roof. Building alteration measures include new interior egress, elevator tower, monumental stairs, and MEP system support evaluation/strengthening.

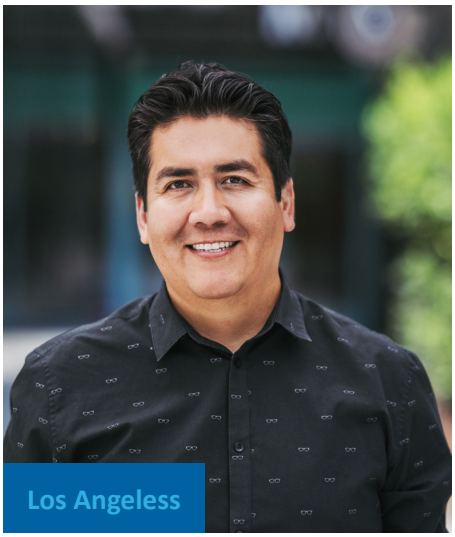
Kings Hill Renovation, St. Louis, MO
Renovation and adaptive reuse of historic factory warehouse that suffered heavy deterioration into a Law Firm Headquarters. The project included new monumental stair, new elevator, and localized shear walls. Structural documentation, raising, and preservation of the existing structural roof framing while maintaining the original historic truss elements was required.

St. Louis CITY SC Union Square Headquarters, St. Louis, MO
Renovation of historic 5-story brick, steel, and concrete building to provide a world-class headquarters with kitchen and banquet facilities, exhibit space, broadcast studios, and office space.

Additional Relevant Projects

- 4565 McRee, St. Louis, MO
- Last Hotel in the International Shoe Building, St. Louis, MO
- Angad Arts Hotel/Missouri Theatre Building Renovation, St. Louis, MO
- Alton Downtown Redevelopment Renovations, Alton, IL
- Tower Grove Park Historic Pavilion Assessments and Renovations, St. Louis, MO

Key Personnel



MAIKOL DEL CARPIO, PE, PhD
SENIOR SEISMIC ENGINEER

Dr. Del Carpio is currently an Associate focusing on award winning work in complex seismic retrofit and renovation projects. He leads projects under several jurisdictions including HCAI/OSHPD and DSA and various municipalities. He has published several technical papers in peer-reviewed journals and conferences on the topic of seismic performance and advanced analysis methodologies. Dr. Del Carpio also participated as an analysis consultant in the development of guidelines for the Seismic Evaluation and Retrofit of Multi-Unit Wood-Frame Buildings with Weak First Stories (FEMA P-807 Report). Dr. Del Carpio is currently an associate member of the ASCE 41 committee on Seismic Evaluation and Retrofit of Existing Buildings.

FIRM
KPFF Consulting Engineers

EDUCATION
Ph.D. Structural and Earthquake Engineering, State University of New York at Buffalo, 2014

M.S. Structural and Earthquake Engineering, State University of New York at Buffalo, 2009

B.E. Civil Engineering, National University of San Agustin, Peru, 2006

REGISTRATION
Professional Engineer in CA (#C85381)

PROFESSIONAL AFFILIATIONS
American Society of Civil Engineers

ASCE 41 Committee on Seismic Evaluation and Retrofit of Existing Buildings, Technical Committee Associate Member

City of Inglewood Civic Center Seismic Review, Inglewood, CA
Seismic upgrades were performed on three buildings at the City of Inglewood Civic Center, using advanced analysis procedures in accordance with ASCE 41. The upgrades included installing fluid viscous dampers, wrapping concrete beams and columns with FRP, adding new concrete walls, and thickening existing walls.

Department of Veterans Affairs, VA Medical Center Bldg 1 Tier 3 Seismic Evaluation, Fresno, CA
Seismic evaluation of Building 1, a 250,000 GSF acute care hospital configured as 7 stories above grade plus a 2-story mechanical penthouse and 2 stories below grade (basement and sub-basement levels). The scope of work included Material Testing/ Condition Assessment Program (MTCAP), ASCE 41 Tier 3 Seismic Evaluation, and Conceptual Retrofit Drawings.

UCLA Pritzker Hall Seismic Renovation, Los Angeles, CA
KPFF used advanced nonlinear dynamic analysis techniques per ASCE 41, combined with physical specimen testing, to confirm a UCOP SSP Level III rating. This was achieved by strategically installing viscous dampers in select locations of the building. KPFF's approach preserved the architectural integrity of this historic campus landmark.

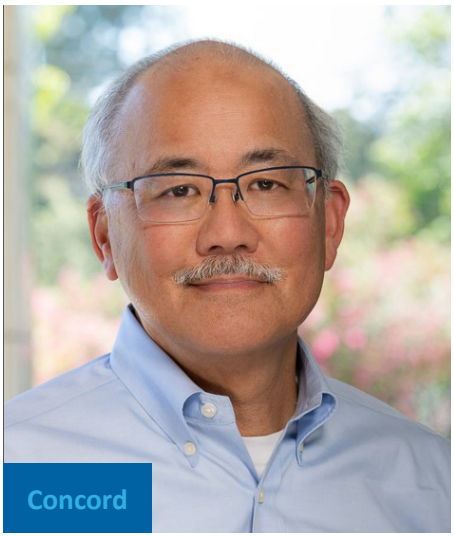
Community Hospital of the Monterey Peninsula SPC-4D Retrofit, Monterey, CA
Seismic retrofit of the 1960 and 1968 buildings using advanced analysis procedures per ASCE 41.

MSJCCD Mt. San Jacinto College Temecula Valley Campus Seismic Evaluation, Retrofit & Renovation, Temecula, CA
Seismic evaluation, retrofit, rehabilitation, and adaptive reuse of an existing office building to transform it into a new satellite community college campus.

Additional Relevant Projects

- Children's Hospital Los Angeles SPC-4D Reclassification of Duque and McAllister Buildings, Los Angeles, CA
- UCLA Rosenfeld Renovation and Expansion, Los Angeles, CA
- UCLA Wooden Center Complex Seismic Improvements, Los Angeles, CA
- UCLA Kerchkhoff Hall Tier 3 Seismic Evaluation, Los Angeles, CA

Key Personnel



Concord

IVAN WONG, PG
SENIOR SEISMOLOGIST

Ivan Wong is a Senior Principal Seismologist with Lettis Consultants International. He is an internationally recognized expert in seismic hazard evaluations with nearly 50 years of experience in the fields of seismology, earthquake engineering, and seismic geology. Ivan has directed the seismic hazard evaluations of more than 700 critical and important facilities worldwide including more than 300 dams. These dams include more than 120 dams owned by the U.S. Bureau of Reclamation and others owned by the California Department of Water Resources (DWR), U.S. Army Corps of Engineers, Fish & Wildlife Service, Bureau of Indian Affairs, Tennessee Valley Authority, and numerous state, regional and local water agencies.

FIRM
Lettis Consultants International, INC. l

EDUCATION
BS, Physics, 1970; BS, Geology, 1972 MS, Geophysics, 1976

Graduate Studies, Geophysics, 1975-1976; Earthquake Engineering, 2002-2003; Geophysics 2002-2007

REGISTRATION
Professional Geologist, UT and ID

Altus and Fort Cobb Dams and Lugert and East Dikes, OK – U.S. Bureau of Reclamation
Principal Seismologist. Responsible for the site-specific seismic hazard analyses. Seismic hazard analyses includes development of probabilistic and deterministic response spectra and time histories for use in the dynamic analyses of the dams.

Sweetwater Dam, San Diego County, CA
Principal Seismologist. A site-specific seismic hazard analysis was performed for the dam. Probabilistic and deterministic seismic hazard analyses, and site response analysis were performed and time histories were developed.

Oroville Dam, Oroville, CA
Principal Seismologist. Site-specific seismic hazard analysis of the dam including probabilistic and deterministic seismic hazard analyses. Evaluation of reservoir triggered seismicity.

Whittier Narrows Dam, Montebello, CA
Peer review of seismic hazards and deformation analysis

Trail Bridge, Smith, and Carmen Diversion Dams, OR – Eugene Water and Electricity Board
Principal Seismologist. Responsible for the site-specific seismic hazard analyses. Seismic hazard analyses includes development of probabilistic and deterministic response spectra and time histories for use in dynamic analyses of the dams.

The Dalles, Bonneville, and John Day Dams, OR/WA – U.S. Army Corps of
Principal Seismologist. Responsible for the site-specific seismic hazard analyses. Seismic hazard analyses included development of probabilistic and deterministic response spectra and time histories for use in the dynamic analyses of the dams.

Additional Relevant Projects

- Soda Springs, Toketee, Fish Creek, Lemolo, and Clearwater Dams, OR
- Clear Branch Dam, OR – Middle Fork Irrigation District
- Cushman Dams 1 and 2 and Wynochee Dam, WA – Tacoma Power
- Long Lake Dam, Washington, Post Falls and Cabinet Gorge Dams, Idaho, and, Noxon Rapids Dam, Montana
- Wells Dam, WA – Douglas County Public Utilities District

Key Personnel

Valencia

SCOTT LINDVALL, MS, PG, CEG

SENIOR SEISMOLOGIST

Mr. Lindvall is a Certified Engineering Geologist in California with over 31 years of experience performing seismic and geologic hazard analyses, fault investigations, ground motion studies, and engineering geology investigations for both existing and proposed critical facilities. Mr. Lindvall is experienced in a variety of investigative techniques, such as detailed geologic mapping, geomorphic analyses of aerial photography and LiDAR, and subsurface exploration (trenches, borings, CPTs, and geophysical surveys), as well as the interpretation and integration of these data to develop detailed geologic models. He has performed numerous seismic source characterizations, ground motion studies, probabilistic and deterministic seismic hazard analyses (PSHA and DSHA), and probabilistic and deterministic fault displacement hazard analyses (PFDHA and DFDHA).

FIRM

Lettis Consultants International, INC. l

EDUCATION

San Diego State University, M.S., Geology 1988

Stanford University, B.S., Geology 1984

REGISTRATION

Certified Engineering Geologist

California, No. 1711

Professional Geologist, California, No. 5486

PROFESSIONAL AFFILIATIONS

American Geophysical Union

Association of Engineering Geologists

Earthquake Engineering Research Institute

Geological Society of America

Seismological Society of America

Pyramid and Castaic Dam PSHA projects, Southern CA

Mr. Lindvall helped recently develop the seismic source characterizations used to develop the probabilistic seismic hazard analyses (PSHA) and deterministic seismic hazard analyses (DSHA) for these two Department of Water Resources (DWR) dams located in the Transverse Ranges. The ground motion hazard results of these studies were used in the Level 2 Risk Assessments (L2RA) for both dams.

Fault Mapping and Evaluations for DWR, Southern CA

Mr. Lindvall is currently leading mapping and fault characterization projects on the northern San Gabriel fault near Pyramid Dam and the Waterman Canyon and Santa Ana faults located in the San Bernardino Mountains near the Devil Canyon Penstocks. The purpose of these studies is to evaluate the recency of movement (activity) and assess their potential impact to State Water Project facilities. The evaluations include analysis of lidar data, helicopter reconnaissance, field mapping, acquisition of drone imagery, age dating, and documentation of scarps and displaced Quaternary deposits.

Seismic Hazard Evaluation of San Gabriel Dam, Los Angeles County, CA

Mr. Lindvall directed the seismic hazard evaluation of the earthen and rock-fill dam constructed in 1937 and owned by the Los Angeles County Department of Public Works (LACDPW). San Gabriel Dam falls under the jurisdiction of both the California Division of Safety of Dams (DSOD) and the Federal Energy Regulatory Commission (FERC). The study included deterministic and probabilistic seismic hazard analyses (DSHA and PSHA) for the dam, which is located within 5 km of the San Gabriel, Clamshell-Sawpit, and Sierra Madre faults and within 25 km of the San Andreas fault. Mr. Lindvall also provided support to the FERC Part 12D workshop on the subject of seismic hazard and faults mapped in the crystalline foundation rock.

Seismic Hazard Evaluations of El Capitan and Lake Hodges Dams, San Diego County CA

Mr. Lindvall managed the seismic hazard studies of both dams owned by the City of San Diego. El Capitan Dam is a hydraulic fill dam with rockfill buttresses completed in 1935 and Lake Hodges Dam is a concrete, multiple-arch structure completed in 1919. These studies included seismic source characterization, development of ground motion model input parameters, performing deterministic and probabilistic seismic hazard analyses (DSHA and PSHA), deagreggation of hazard and developing uniform hazard spectra, and selection of seed time histories and spectrally matching to the controlling earthquake spectra.

Key Personnel

ARASH PIROUZI, PhD, PE
LEAD GEOTECHNICAL ENGINEER

Arash heads GeoEngineers' San Diego office and manages a wide range of geotechnical engineering projects along the West Coast including seismic retrofit of existing structures and design of waterfront structures. His expertise includes complex geotechnical and geo-structural engineering analysis, subsurface investigation, site characterization, ground improvement design, temporary support of excavation design, and deep foundation analysis.

FIRM
GeoEngineers

EDUCATION
Ph.D., Civil and Environmental Engineering

M.S., Civil and Environmental Engineering

B.S., Civil Engineering

REGISTRATION
Professional Engineer: CA (#C95580)

Ocean Beach Pier Replacement, San Diego, CA
Arash is providing ongoing geotechnical engineering services in support of development of a 30% preliminary design plan set to be included in the design-build RFP solicitation package. The project involves coordinating a geophysical/ geotechnical field investigation, including explorations to be advanced from the pier deck and upon the coastal bluff adjacent to the pier; environmental permit acquisition associated with project explorations; geologic/seismic hazard analysis; and geotechnical report preparation.

B Street Pier Interior Improvements, San Diego, CA
The Port of San Diego is embarking on a $5 million upgrade of the B Street Terminal to repair curtain walls and pavement. GeoEngineers is providing construction phase support to the Port in regard to installation of Deep Soil Mixing (DSM) columns and sheet pile walls. GeoEngineers also completed a geotechnical investigation program to facilitate DSM column installation at the site. Arash is responsible for managing the project, including client interactions, preparing technical documents, and responding to RFIs.

Flow Control Facility Seismic Upgrades, San Diego, CA
GeoEngineers provided geotechnical engineering services in support of the proposed seismic upgrades for eight flow control facilities located in San Diego County, California. The project sites are spread across San Diego County from Otay Ranch area in the south to Hidden Meadows in the north. Services included the evaluation of existing structures and design of structural improvements to mitigate seismic risk complying with California Building Code (CBC) 2019 and American Society of Civil Engineers (ASCE) 41-17, Evaluation and Retrofit of Existing Buildings. Due to familiarity with site conditions, GeoEngineers utilized non-invasive geophysical survey techniques to investigate site conditions which are faster and more cost effective than the conventional geotechnical investigation methods. As geotechnical project manager, Arash provided site-specific geotechnical seismic design parameters to inform a more realistic design of structural improvements for each building.

Additional Relevant Projects

- NBSD B-3291 Seismic Evaluation, San Diego, CA
- San Joaquin Area Flood Control Agency Smith Canal Gate Project, Stockton, CA
- Seismic Evaluation for ACU-5 Control Tower 31930, Oceanside, CA
- NBC 1457 Seismic Retrofit, Coronado, CA

Key Personnel

LYLE STONE, PE, GE
SENIOR GEOTECHNICAL ENGINEER

Lyle has 19 years of geotechnical engineering experience, including seismic work for dams and waterfront projects. He is skilled in design of retrofits and construction feasibility assessments. Lyle's expertise includes seismic evaluation for large structures, foundations, and slope stabilization. With extensive knowledge of both waterfront and dam projects, he has successfully collaborated on numerous projects, ensuring the stability and safety of dams and critical infrastructure.

FIRM
GeoEngineers

EDUCATION
M.S., Civil Engineering, Michigan Technological University

B.S., Civil Engineering, California Polytechnic State University

REGISTRATION
Professional Civil Engineer: CA (#C72065), WA (#45765), ID (#19197), OR (#100288PE), CO (#0062677); Geotechnical Engineer: CA (#GE3066), OR (#100288PE); 40-hour OSHA Hazardous Waste Site Operations & Safety Training

Ocean Beach Pier Replacement, San Diego, CA
GeoEngineers is providing ongoing geotechnical investigation and engineering services in support of development of a 30% preliminary design plan set. As part of the owner's representative team, the 30% design set will be included in a design-build RFP solicitation package. The project includes coordination of a geophysical/geotechnical field investigation, including explorations to be advanced from the pier deck and upon the coastal bluff adjacent to the pier; environmental permit acquisition associated with project explorations; geologic/seismic hazard analysis; and preliminary geotechnical design.

Diablo Dam Trash Rack Footing, Diablo, WA
The intake trash rack at the Diablo Dam Intake Structure, originally constructed in 1929, was deteriorating and required replacement. The repair conceived by KPFF Consulting Engineers included expanding the existing footing to support the new larger structure. The new footing, which was about 100 feet below water in the reservoir would be constructed entirely in the wet and would be designed without direct observation of the ground and rock conditions.

City of Spokane Part 12D Comprehensive Assessment & Report Upriver Dam Hydroelectric Project, Spokane, WA
Lyle is the Associate-in-charge for the Comprehensive Assessment (CA) and is serving as an Independent Consultant team member. Lyle prepared portions of the CA-PIPR (Pre-Inspection Preparation Report) and participated in the Part 12 site inspection and Potential Failure Mode Analysis (PFMA) and Risk Workshops.

City of Port Townsend Lords Lake East Dam, Jefferson County, WA
Lords Lake reservoir, located in the foothills of the Olympic Mountains, provides water to the City of Port Townsend. In 2020 the Washington Dam Safety Office identified the East Dam as a seismic risk due to potentially liquefiable soils in the embankment. GeoEngineers is working with the City to identify and delineate areas of seismic risk, develop alternatives for repair, and prepare concept level designs to include permitting implications. Lyle is Associate-in-charge of this ongoing project.

Additional Relevant Projects
- NBSD B-3291 Seismic Evaluation, San Diego, CA
- Camp Pendleton Repair BEQ 53450, Oceanside, CA

Key Personnel

Seattle

STEVE SPENCER, PE
CONSTRUCTABILITY EXPERT

FIRM
GeoEngineers

EDUCATION
B.S., Civil Engineering, Ohio University

M.S., Civil Engineering, University of Washington

REGISTRATION
Professional Engineer: WA (#33016), HI (#11834), ID (#13482)

Over the past three decades, Steve has served as the lead engineer for more than 200 marine, underground, and deep foundation projects, including seismic dam infrastructure. He has managed numerous heavy civil and marine projects across the Pacific Northwest, Alaska, and British Columbia. Steve brings expertise in construction execution via bid-build, design-build, and CM/GC project delivery methods. Currently, he leads the Construction Design Group where he applies his knowledge of design and foundation system construction for large-scale infrastructure projects.

Box Canyon Dam Upstream Fish Passage, Ione, WA
Engineer of Record and Construction Team Project Manager. This Design-build project included installation of a 300-foot-long sheet pile cofferdam to enable fish ladder construction in the challenging river environment at the Box Canyon Dam. The cofferdam and diversion and care of water submittals were approved by FERC.

Nelson Dam Removal Project, Yakima, WA
The Nelson Dam removal project is providing a new start on the Naches River. It features better fish passage, a sluiceway for irrigation, and changes to reduce flood risk. GeoEngineers provided stream diversion plans, river flow estimates, and diversion cofferdam designs.

San Joaquin Area Flood Control Agency Smith Canal Gate Project, Stockton, CA
Steve provided geo-structural engineering for a temporary trestle design for the San Joaquin Area Flood Control Agency Smith Canal Gate project. The temporary trestle was planned for use along the alignment of the proposed cellular cofferdam from Station 6+00 to Station. The purpose of the temporary trestle was to provide equipment access to the completed cellular cofferdam northwest of Station 6+00. The scope of work included reviewing existing Geotech Data, bridge drawings, and preliminary Geotechnical and structural design of a temporary work trestle structure.

Anderson Dam Tunnel, Morgan Hill, CA
Steve provided geo-structural engineering associated with dam stability during TBM breakout of earthen dam face and into the reservoir and safe retrieval of the TBM from the reservoir.

Skagit County Dike District #12, No Name Tide Gate and Bypass Replacement Project, Skagit County, WA
GeoEngineers provided geotechnical and geo-structural engineering services for the design of a temporary cofferdam to facilitate the construction of a new concrete tide gate though an existing dike. The use of a cofferdam was required to maintain the integrity of the dike to withstand 12’ tidal fluctuations and assure seawater separation from the irrigation canals.

Additional Relevant Projects
- Boeing Perimeter Retaining Wall, Everett, WA
- Port of Alaska Petroleum and Cement Terminal Season I, Anchorage, AK

EXCEPTIONS TO THE RFP AND/OR PROFESSIONAL SERVICES AGREEMENT

The Respondent shall certify that it takes no exceptions to this RFP, including but not limited to, the Authority's Agreement for Services (Agreement), as attached in Exhibit B. If the Respondent does take exception(s) to any portion of the RFP or Agreement, the specific portion of the RFP or Agreement to which exception(s) is taken shall be identified and proposed alternative language shall be provided and explained in the proposal.

WILLAMETTE FALLS LOCKS
KPFF provided structural and mechanical evaluation

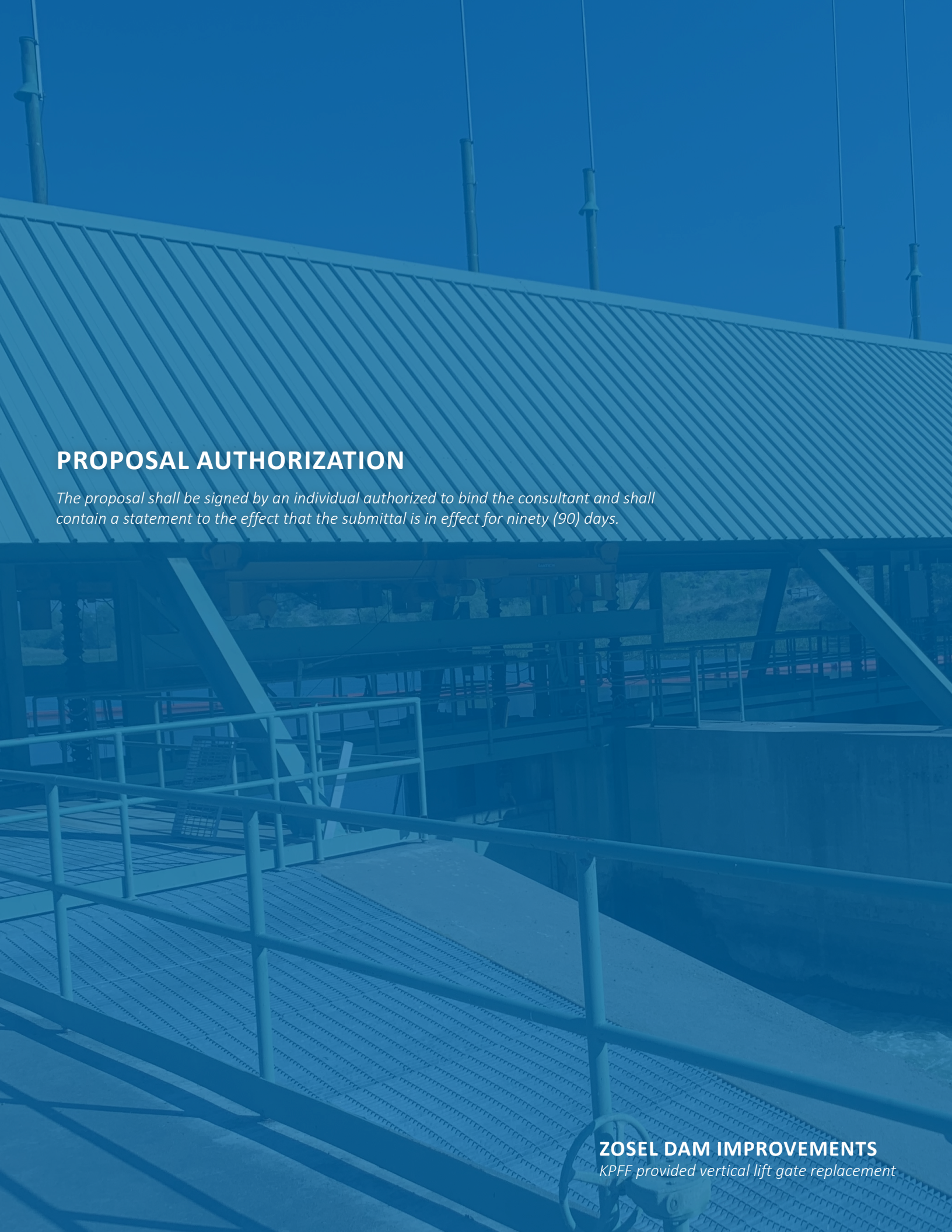
Exceptions to the RFP

KPFF would like to note the following exception to the RFP. On page 6, section 7.1 Indemnification: Line 5 we would like to add "***negligent***" to the following statement.

To the fullest extent permitted by law, Consultant shall defend (with counsel of the Authority's choosing), indemnify and hold the Authority, its officials, officers, employees, volunteers, and agents free and harmless from any and all claims, demands, causes of action, costs, expenses, liability, loss, damage or injury of any kind, in law or equity, to property or persons, including wrongful death, in any manner arising out of, pertaining to, or incident to any ***negligent*** acts, errors or omissions, or willful misconduct of Consultant, its officials, officers, employees, subcontractors, consultants or agents in connection with the performance of Consultant's Services, the Project or this Agreement, including without limitation the payment of all damages, expert witness fees and attorneys' fees and other related costs and expenses.

PROPOSAL AUTHORIZATION

The proposal shall be signed by an individual authorized to bind the consultant and shall contain a statement to the effect that the submittal is in effect for ninety (90) days.

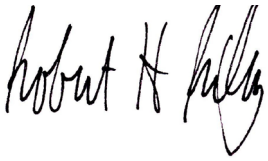


ZOSEL DAM IMPROVEMENTS
KPFF provided vertical lift gate replacement

Proposal Authorization

This proposal has been signed by an individual authorized to bind KPFF Consulting Engineers and the submittal is in effect for ninety (90) days."

Sincerely,



Bob Riley, PE, SE
Principal | Project Manager

Geoff Warcholik, PE, SE
Principal-in-Charge

kpff

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SWEETWATER DAM OUTLET TOWER & CONDUIT SEISMIC EVALUATION FEE PROPOSAL

KPFF Consulting Engineers | Sweetwater Authority | 2025

Seismic Evaluation of Sweetwater Dam Outlet Tower and Conduit Study
Sweetwater Authority
Chula Vista, CA
Engineering Fee Estimate Schedule

Project #2400260

January 16, 2025

Option 1 Approach

Task	KPFF Fee	GeoEngineers Fee	Lettis Fee	Total Task Fee
Task 1 - Kick Off Meeting	$8,200	$2,740	$5,440	$16,380
Task 2 - Background Document Review & Basis of Design	$7,660	$7,044	$0	$14,704
Task 3 - Develop Project Schedule	$5,010	$0	$0	$5,010
Task 4A - Comprehensive Update to 2003 Seismic Evaluation Report	$105,210	$20,036	$51,200	$176,446
Task 4B - Develop Conceptual Tower & Conduit Seismic Retrofit Design	$79,145	$14,380	$0	$93,525
Task 5 - Project Management (assume 12 month duration)	$34,225	$7,552	$5,440	$47,217
Subtotal	*$239,450*	*$51,752*	*$62,080*	*$353,282*
Markup on Subconsultants (8%)		$4,140	$4,966	$9,107
Total Estimated Fee - Option 1				***$362,389***

Option 2 Approach

Task	KPFF Fee	GeoEngineers Fee	Lettis Fee	Total Task Fee
Task 1 - Kick Off Meeting	$8,200	$2,740	$5,440	$16,380
Task 2 - Background Document Review & Basis of Design	$7,660	$7,044	$0	$14,704
Task 3 - Develop Project Schedule	$5,010	$0	$0	$5,010
Task 4A - Comprehensive Update to 2003 Seismic Evaluation Report	$105,210	$20,036	$25,960	$151,206
Task 4B - Develop Conceptual Tower & Conduit Seismic Retrofit Design	$79,145	$14,380	$0	$93,525
Task 5 - Project Management (assume 12 month duration)	$34,225	$7,552	$5,440	$47,217
Subtotal	*$239,450*	*$51,752*	*$36,840*	*$328,042*
Markup on Subconsultants (8%)		$4,140	$2,947	$7,087
Total Estimated Fee - Option 2				***$335,129***

The difference in approaches has to do with the starting point for Lettis' Seismic Hazard Analysis work.

In 2024, Lettis did a seismic hazard assessment for the Sweetwater Dam.

Option 1 assumes that they do not reuse any of their previous work to develop the hazard assessment data for the tower and conduit, and are effectively starting over from scratch.

Option 2 assumes that the Authority allows Lettis to reuse their previous study work as a baseline starting point to generate the data necessary for the tower and conduit assessment.

See attached for a detailed breakdown of KPFF's fee

Seismic Evaluation of Sweetwater Dam Outlet Tower and Conduit Study
Sweetwater Authority
Chula Vista, CA
Engineering Fee Estimate Schedule

Project #2400260

January 16, 2025

Work Item	*Principal*	*Sr Project Manager*	*Senior Technical Specialist*	*Senior Engineer*	*Professional Engineer*	*Design Engineer*	*Dive Technician*	*CAD Technician*	*Project Coordinator*	*Total Cost by Task*
Task 1 - Kick Off Meeting										
Meeting Preparation	1	4							4	$1,670
In Person Meeting	4	4	4						4	$3,480
Meeting Notes & Follow Up	1	8							8	$3,050
Task 2 - Background Document Review & Basis of Design										
Prepare a list of Background Documents needed		2	2							$940
Review available documentation	1	4	8							$3,110
Prepare Basis of Design Document	1	4	4		8					$3,610
Task 3 - Develop Project Schedule										
Prepare baseline project schedule	1	6							6	$2,360
Review schedule with Authority	2	2							2	$1,270
Update schedule as needed		4							4	$1,380
Task 4A - Comprehensive Update to 2003 Seismic Evaluation Report										
Coordination with GEO Engineers & Lettis to update Sesimic Hazard Study		4	8							$2,820
Prepare 3D FEM of Tower & Conduit	4	4	20		60					$17,600
Conduct Structural Evaluation of Tower & Conduit, based on updated Seismic Hazard Study	4	12	40		80					$27,780
Evaluate results of Structural Analysis & Capacity of existing structures	4	12	40		80					$27,780
QA/QC Review of Draft Report	4	4								$2,100
Prepare Draft Seismic Evaluation Report	2	4	20		40			12	8	$16,280
QA/QC Review of Final Report	2	4								$1,520
Prepare Final Seismic Evaluation Report	1	2	12		24			6	4	$9,330
Task 4B - Develop Conceptual Tower & Conduit Seismic Retrofit Design										
Design charette for Seismic Retrofit Options	4	8	8		4				4	$6,080
Develop up to 3 concepts for retrofit (to a 5% level of design)	4	16	24		40			15		$20,235
Work with the Authority to select a preferred option	1	2	2							$1,230
Develop Preferred Option to a 10% level of design	4	16	24		60			40		$27,960
Prepare ROM Cost estimate for Preferred Retrofit Option		4	4		8					$3,320
QA/QC Review of Draft Report	1	4								$1,230
Prepare Draft Conceptual Seismic Retrofit Design Report		4	20		24			4	4	$11,060
QA/QC Review of Final Report	1	4								$1,230
Prepare Final Conceptual Seismic Retrofit Design Report		4	8		16			4	4	$6,800
Task 5 - Project Management (assume 12 month duration)										
Regular Project Meetings & Meeting Notes (assume 12 meetings)	12	24	12						24	$14,580
Coordination with Subs & Authority	8	20								$7,020
Monthly Reporting/Invoicing		15							30	$6,825
Presentation to the Board or Engineering & Operations Committee	4	16							8	$5,800
Total Hours	71	221	260		444			81	114	
Fee Schedule	$290	$235	$235	$215	$180	$165	$135	$165	$110	
Sub Totals	$20,590	$51,935	$61,100		$79,920			$13,365	$12,540	$239,450

KPFF Subtotal Design Fees **$239,450**

kpff

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