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July 19, 2024

SENT VIA EMAIL¹

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Santa Clara Valley Water District
Attention: Todd Sexauer
5750 Almaden Expressway
San Jose, CA 95118

RE: Comments on the Draft Initial Study and Mitigated Negative Declaration for Design Level Geotechnical Investigations for the Pacheco Dam Project

Dear Mr. Sexauer:

These comments are submitted on behalf of Stop Pacheco Dam Coalition and Pacheco Land & Cattle Co., LLC (“Coalition”) on the Draft Initial Study and Mitigated Negative Declaration (“MND”) prepared by the Santa Clara Valley Water District (“Valley Water”) for the Design Level Geotechnical Investigations for the Pacheco Reservoir Expansion Project (“project”). This investigation project would result in significant impacts on the environment that are not mitigated to less than significant levels. As a result, Valley Water may not approve the project as proposed based on the MND circulated for public review, and a full environmental impact report (“EIR”) is required. With these comments, two reports prepared by experts in their respective fields are also being submitted that address flaws and omissions in the MND analysis. (See Exhibit A, Scott Cashen, M.S. (Biological Resources) and Exhibit B, Dr. Christopher D. Dore (Cultural Resources and Tribal Cultural Resources)).

The Coalition does not support the Pacheco Dam project that the investigations are intended to support. This controversial new dam project would be environmentally damaging and is also not affordable for Valley Water ratepayers. Instead, Valley Water should be working to secure water supplies by doing more groundwater recharge, recycling and reusing wastewater, capturing and treating stormwater, and undertaking other water conservation measures. In addition, Valley Water’s existing reservoirs need to be maintained and improved to meet current standards. To the extent additional water

¹ This letter is also being submitted via U.S. Mail on a thumb drive that includes the references cited in Mr. Cashen’s Report.

storage is needed, reservoir expansion projects already underway at San Luis Reservoir and Los Vaqueros Reservoir are more likely to occur and are a better investment and would be more likely to provide a measure of climate resilience for Valley Water.

A. BACKGROUND

The need for a third round of geotechnical investigations² indicates that Pacheco Pass is an unsuitable location for the new dam the investigations are intended to support. This area is geotechnically unstable and subject to slope failure. The existing small dam operated by the Pacheco Pass Water District (“PPWD”) was declared unsafe by the Division of Safety of Dams (“DSOD”) in 2017, and PPWD has been directed to keep the downstream outlet controls fully open to maximize releases and maintain the lowest possible water surface elevation.³ Building a new larger dam in this same area would be terribly expensive and risky, along with having unacceptable impacts on the environment.

In 2017, Valley Water applied and received \$484.5 million in funding from California’s Water Quality, Supply, and Infrastructure Improvement Act of 2014 (“Proposition 1”). At that time, the Dam project was estimated to cost \$800 million. Today, the project is estimated to cost almost \$3 billion, with the Proposition 1 funding comprising less than 1/6 of the project cost. Seven years into the planning process, there are no other participants in the Dam project besides the local PPWD and San Benito County Water District, neither of whom has agreed to fund a specific amount of project costs.

The currently proposed investigation project is the third of three phases of geotechnical and other investigations that Valley Water has undertaken in furtherance of the Dam project attempting to address the geologic and other safety issues associated with construction of a new dam at Pacheco Pass. While the prior two phases of investigations were exempted from review under the California Environmental Quality Act (Pub. Resources Code, § 21000, et seq. [“CEQA”]),⁴ an MND was prepared for this

² See Environmental Protection Agency, Categorical Exclusion and Extraordinary Circumstances Review Form, page 5, dated October 27, 2023, attached as Exhibit C.

³ See 2017-2021 DSOD letters regarding significant structural issues on the spillway at the North Fork Dam, attached as Exhibit D.

⁴ Stop the Pacheco Dam Project Coalition, in collaboration with environmental groups including Sierra Club Loma Prieta Chapter and the Amah Mutson Tribal Band, challenged Valley Water’s decision to approve the 2022 investigations project as an exemption to CEQA. The Santa Clara County Superior Court determined that Valley Water abused its discretion in asserting that the 2022 project was exempt from CEQA. As

phase. In November 2021, Valley Water circulated a Draft EIR for the Dam project. Numerous public comments, including comments of federal and state responsible agencies, demonstrated that the environmental analysis was woefully inadequate.⁵ As a result, Valley Water has stated that it (ostensibly along with the federal lead agency, the U.S. Army Corps of Engineers), plans to release a Revised Draft EIR/Draft Environmental Impact Statement⁶ (“RDEIR/DEIS”) for public review in the summer of 2025.

B. THE PROJECT DESCRIPTION IN THE MND IS FLAWED

1. The MND Fails to Disclose the Relationship of the New Investigations to Already Completed Investigations

The MND fails to disclose that this is the third round of investigatory activities conducted in furtherance of a new dam on the North Fork of Pacheco Creek. For instance, the MND fails to describe what was accomplished in the first round of investigations (104 borings and 3 test pits) and the partially completed 2022 investigations (41 borings, 2 potholes and 16 test pits), and how this new round of investigations relates with the prior geotechnical investigations.⁷ The MND also provides insufficient explanation as to the selection of drilling and how other locations are selected.

a result, the geotechnical investigations approved by Valley Water 2022 were not completed.

⁵ See <https://stoppachecodam.org/public-concerns/draft-environmental-impact-report-deir-comments-2022/>.

⁶ The EIS is being prepared pursuant to the National Environmental Policy Act (42 U.S.C., § 4332 et seq.).

⁷ See Environmental Protection Agency, Categorical Exclusion and Extraordinary Circumstances Review Form, page 5, dated October 27, 2023, attached as Exhibit C.

Comparison of 2022 and 2024 Geotechnical Investigations

	2022 Project	2024 Project
No. of borings	226 separate holes 20’ to 375’ deep; no larger than 6” in diameter	149 separate holes; no larger than 6” in diameter
No. of Pits	57 test pits 10’ to 20’ long, 3’ wide, about 20’ deep	32 test pits 10’ to 20’ long, 3’ wide, about 5-20’ deep; if deeper than 4.5’ than it will be logged from surface consistent with federal and state safety requirements
No. of trees taken out	Removing 32 trees; trimming 44 trees	Removing up to 30 trees; trimming up to 17 trees
Surface Geophysical Surveys MND, pp. 2-4 and 2-12		Electrical Resistivity Imaging (1520 feet) Seismic Refraction Investigations (19, totaling 16,890 feet)

2. Unlawful Piecemealing/Segmentation of Soil Investigations from the Larger Dam Project and Other Planned Investigations

A “project” under CEQA includes “the whole of an action” that may impact the environment. (CEQA Guidelines, § 15378.) “[I]f projects are various steps which taken together obtain an object, they are a single project for the purposes of CEQA.” (*Aptos Council v. County of Santa Cruz* (2017) 10 Cal.App.5th 266, 283.) Here, the MND analyzes the proposed drilling and investigatory activities outside of the larger context of the overall Dam project. (MND, p. 2-1 [“Valley Water is planning to undertake the proposed project to provide geotechnical and geological data for the design of the upstream dam site”].)

Future actions related to the proposed project must be considered if those actions are a “reasonably foreseeable consequence of the initial project” and “the action will be significant in that it will likely change the scope or nature of the initial project or its environmental effects.” (*Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 395.) “Related projects currently under environmental

review unequivocally qualify as probable future projects to be considered in a cumulative analysis.” (*Citizens Assn. for Sensible Development Bishop Area v. County of Inyo* (1985) 172 Cal.App.3d 151, 168.) The failure to consider such future actions renders a CEQA document inadequate. (See *City of Santee v. County of San Diego* (1989) 214 Cal.App.3d 1438, 1455.)

As the court explains in *Orinda Association v. Board of Supervisors* (1986) 182 Cal.App.3d 1145, at page 1171:

A public agency is not permitted to subdivide a single project into smaller individual sub-projects in order to avoid the responsibility of considering the environmental impact of the project as a whole. “The requirements of CEQA, “cannot be avoided by chopping up proposed projects into bite-size pieces which, individually considered, might be found to have no significant effect on the environment or to be only ministerial.””

The MND unlawfully piecemeals the proposed geotechnical soil investigations from the project that will be analyzed in the forthcoming RDEIR/DEIS.⁸ Under CEQA, these geotechnical investigations should be analyzed together with the Dam project analyzed in the RDEIR/DEIS. There is no purpose for the investigations other than provide information for the Dam project proposed by Valley Water on lands it currently does not own. Thus, the investigation project lacks independent utility and must be considered in the Dam project’s forthcoming EIR. (*Cf. Planning & Conservation League v. Castaic Lake Water Agency* (2009) 180 Cal.App.4th 210, 237 [water transfer would have significant independent or local utility from the overarching water supply agreement, and would be implemented regardless of the agreement].)

In addition, even if the Dam project can be separated from the investigations, all the necessary geotechnical and related investigations should be analyzed together. The Dam project is currently at or above 30% design, but not yet at 60% design, according to Valley Water’s updates to the California Water Commission (“CWC”).⁹ Design plans will eventually need to be at 100%. It is reasonably foreseeable that additional geotechnical investigations would be needed to reach these other design milestones. Valley Water has already completed two phases of geotechnical explorations with *no*

⁸ MND, page 2-1, footnote 2; see also <https://s3.us-west-1.amazonaws.com/valleywater.org.us-west-1/s3fs-public/Pacheco%20powerpoint%20presentation%20208-22-2023.pdf>

⁹ See https://water.ca.gov/-/media/CWC-Website/Files/Documents/2024/04_April/April2024_Item_10_Attach_1_PachecoUpdate_PowerPoint_Final.pdf, slides 3, 15.

environmental review, and now with this phase proposing to rely on short-form of environmental review. Dividing up these reasonably foreseeable activities in furtherance of the project violates CEQA’s prohibition on piecemealing. (*Orinda Assn v. Board of Supervisors, supra*, 182 Cal.App.3d at 1171 [“subdivid[ing] a single project into smaller individual sub-projects” and “chopping up proposed projects into bite-size pieces” prohibited by CEQA].) As a result, the MND is also deficient for failing to include all of the reasonably foreseeable geotechnical and investigations that may be required to complete the new dam design.

3. The MND Fails to Disclose Related Processes

Relevant regulatory schemes must be disclosed in the MND. The California Supreme Court held in *Banning Ranch Conservancy v. City of Newport Beach* (2017) 2 Cal.5th 918, 936-937 (*Banning Ranch*) that:

The Guidelines [§ 15126.6, subdivision (f)(1)] specifically call for consideration of related regulatory regimes, like the Coastal Act, when discussing project alternatives... Thus, the regulatory limitations imposed by the Coastal Act’s ESHA provisions should have been central to the Banning Ranch EIR’s analysis of feasible alternatives. Here, the MND fails to disclose closely related regulatory processes that pertain to the investigation project.

For instance, the MND fails to explain the related federal processes, including the provision of federal funding for the Project by EPA under the Water Infrastructure Finance and Innovation Act (“WIFIA”) loan program. Valley Water has made several requests for WIFIA loans for the Dam project. The proposed new Dam cost in these loan requests has grown from \$1,346,348,000 in 2020. By 2022, cost estimates provided to EPA of the Dam project had grown to \$2,957,771,954. In 2023, a WIFIA loan of \$92 million was provided to Valley Water to support planning and design work for the Dam.¹⁰ EPA prepared and approved a Categorical Exemption under NEPA pursuant to 40 CFR 6.204, subdivision (a)(1)(ii) (Categorical exclusions and extraordinary circumstances). (See Exhibit C.) The MND fails to disclose the EPA’s review authority over the project under NEPA and how reliance of a Categorical exclusion under NEPA is relates to Valley Water’s decision to prepare a MND under CEQA.

¹⁰ <https://www.epa.gov/newsreleases/epa-announces-92-million-wifia-loan-santa-clara-valley-water-district>

The MND also fails to disclose the relationship of the project to the grant funds received under Proposition 1 in 2018 to Valley Water’s continued quest to try a new Dam. In addition to explaining the purposes of the various rounds of geotechnical exploration, the MND should describe the funding sources for the project. For instance, the first and second rounds of geotechnical explorations was funded by Proposition 1, which requires a public benefit ratio above 1. Due to the cost increases described above, the Dam no longer meets the required benefit cost ratio for projects funded by Proposition 1.¹¹ This and other available information indicates that the Dam has become infeasible and should not receive any additional public funding under Proposition 1. (See Cal. Code Regs., tit 23, § 6013, subd. (f).)

C. THE MND’S MITIGATION APPROACH IS DEFECTIVE

The mitigation provided for project impacts is inadequate. An MND is appropriate only when all potentially significant impacts of a project are mitigated to less than significant levels. (CEQA Guidelines, § 15070, subd. (d); Pub. Resources Code, § 21064.5.) A MND is not appropriate when the success of mitigation is uncertain, as that creates a fair argument that an impact will not be mitigated to less-than-significant levels. (See *San Bernardino Valley Audubon Society v. Metropolitan Water District* (1999) 71 Cal.App.4th 382, 392.)

1. Confusing Reliance on BMPs, AMMs, “Project Features” and SCVHP Conditions to Reduce Project Impacts Deprives the Public of a Meaningful Opportunity to Comment on the MND

CEQA’s purpose, among others, is to reduce the significant environmental effects when feasible. (Pub. Resources Code, §§ 21002, 21002.1, subdivision (a)-(b).) To meet this goal, lead agencies are required to adopt fully enforceable mitigation measures and a monitoring program to ensure these measures are adopted. Mitigated negative declarations require that “the reporting or monitoring program shall be designed to ensure compliance during project implementation. (Pub. Resources Code, § 21081.6, subd. (a)(1).)

The MND contains five different approaches to reducing impacts to the environment, garbling the approach to mitigation required by CEQA. Out of the twenty categories in the MND that are subject to environmental evaluation, there are actual mitigation measures for only five of those categories. The MND lists what are called best

¹¹ See Stop Pacheco Dam Coalition letter to California Water Commission dated April 17, 2023, pp. 3-4, attached as Exhibit E.

management practices (“BMPs”) and avoidance and minimization measures (“AMMs”). (MND, pp. 2-39 to 2-49.)¹² Additionally, there are “Project features” in a bulleted list that supposedly will be implemented as part of the proposed project. (MND, pp. 2-13 [subsurface investigations], 2-14 [test pits].) Last, the MND also relies on “Conditions” from the Santa Clara Valley Habitat Plan (“SCVHP”). (MND, p. 2-49 to 2-51.) The MND’s reliance on a potpourri of BMPs, AMMs, project features and SCVHP Conditions further confuses the public as to which specific measures will be taken to reduce project impacts.

Agencies are required to clearly describe mitigation measures used to avoid or reduce impacts to the environment. (*Lotus v. Department of Transportation* (2014) 223 Cal.App.4th 645, 653 [*Lotus*].) A CEQA lead agency must report its findings in a clear manner so that others, such as courts or constituents are able to “intelligently analyze the logic of the [agency’s] decision.” (*Ibid.*, quoting *Village Laguna of Laguna Beach, Inc. v. Board of Supervisor* (1982) 134 Cal.App.3d 1022.) An agency cannot separately identify and analyze the significance of impacts before proposing mitigation measures. (*Lotus, supra*, 223 Cal.App.4th at 658.) Doing so shortcuts the purposes of CEQA and “omits material necessary to informed decision making and informed public participation. (*Ibid.*)

In addition, while some of the checklists in the MND’s conclude that there is a “less than significant” or “no impact”, BMPs or AMMs are referenced for those resource areas in any case. For instance, for Cultural Resources, the checklist is marked “less than significant impact” (MND, p. 4-64), yet two AMMs are referenced that allegedly address cultural impacts (MND, p. 4-74). Similarly, for Hydrology and Water Quality, the checklist states these impacts would be “less than significant” or “no impact”, yet several BMPs and AMMs are referenced to reduce these allegedly nonexistent impacts (MND, pp. 4-151 to 4-155.) This approach fails to clearly describe how impacts to the environment are avoided or reduced. (*Lotus, supra*, 224 Cal.App.4th at 653, 657-658.)

The MND’s reliance on BMPs, AMMs, Project features, and SCVHP Conditions to reduce project impacts is confusing and deprives other public agencies and individuals of an opportunity to meaningfully comment. (*Lotus, supra*, 224 Cal.App.4th at 658.) The

¹² The MND describes BMPs as “additional environmental measures developed to mitigate specific impacts” from the project. (MND, p. 2-39.) The MND also states that AMMs are modifications to BMPs and that additional mitigation measures will be used when the projects impacts are not avoidable. (MND, p. 2-45.) BMPs appear to be a more general practice that “prevent, avoid, or minimize potentially adverse effects” caused by construction and other activities (MND, pp. 2-39), while AMMs are more specific form of the BMP applied to the project (MND, pp. 2-45).

MND fails to “discuss other possible mitigation measures and whether they would be more effective.” (*Lotus, supra*, 224 Cal.App.4th at 657.) The MND also lacks a discussion as to why or how the BMPs and AMMs, Project features, and SCVHP Conditions are a better alternative to or would be as effective as mitigation measures.

The MND’s reliance on BMPs, AMMs, Project features, and SCVHP Conditions as part of the project fails to ensure that each of the practices identified will have ongoing compliance throughout the project as statutorily required. (CEQA Guidelines, § 15097 subd. (c)(3); see MND, pp. 2-39 to 2-49.) Complex projects require long term oversight since mitigation measures are expected to be implemented over a period of time. (CEQA Guidelines, § 15097 subd. (c)(2).) The failure to identify these actions as mitigation measures in the MND impedes holding public officials accountable and ensuring that the agency is complying with the mitigation measures.

2. Reliance on Project Features for Greenhouse Gas Reductions Is Unsupported

The MND’s project description section for “Subsurface Geotechnical Investigations” includes statements regarding so-called “Project features” that would reduce greenhouse gas emissions. (MND, p. 2-13.) CEQA Guideline section 15126.4 requires concrete performance standards for mitigation measures. While the MND implies that these “features” are mitigation, yet they fail to include necessary performance standards, nor are they enforceable. For example, “Project features will be implemented as part of the proposed Project” as follows:

All vehicles and heavy equipment (e.g., excavators, drill rigs) will meet all federal and state requirements for emissions.

Comment: The project must define that it uses a particular Tier-4 standard, in this case Tier-4, the 2024 CARB standards. The fleet size, composition, date of unit use all must be identified and defined. Without this definition, there is no basis to claim that the project does not have a significant impact on air quality. TACs? Receptors?

As applicable, idling time for vehicles and heavy equipment will be minimized and Project tailgate meetings will be used to inform Project personnel of this requirement.

Comment: There is no standard for idling time in any period, such as minutes...back to PM 10/N0x.

Diesel-powered vehicles and equipment will use California Air Resources Board approved renewable diesel fuel, as available.

Comment: Is approved renewable diesel available? How will it be secured? Why is there no standard biodegradable oil and grease defined for the overwater work? California fleets subject to the In-Use Off-Road Diesel-Fueled Fleets Regulation must use R99 or R100 renewable diesel fuel in all vehicles. This regulation applies to self-propelled off-road diesel vehicles with 25 horsepower or more, including loaders, backhoes, cranes, forklifts, oil-drilling rigs, and aircraft towing tugs.

Field personnel will be encouraged by Valley Water and/or its contractor(s) to use carpools and/or shuttles to minimize the number of vehicles necessary to transport personnel and equipment to the proposed Project study area.

Comment: Carpooling is not required nor are alternatives provided. This measure will not be effective.

In the following section, drilling and excavation procedures are identified and appear to be relied upon for some form of mitigation. For example:

Backfill test pits in moisture conditioned lifts compacting replaced materials with the excavator's bucket or excavator-mounted sheep's foot roller to ensure that all excavated materials are replaced in the hole.

(MND, p. 2-14.) This language implies that there is some sort of geotechnical standard for the moisture content and compaction without providing that standard. The MND fails to indicate details critical to the effectiveness of the proposed compaction method, by not:

- Disclosing how the stockpile site would be restored and how the compacted soil would be suitable for native plant reseeding;
- Stating how the excavated topsoil will be staged so that it available for topdressing to allow for plant regrowth; or
- Explain what will be done with the excess fill material since the volume of material expands when removed from the exploratory hole.

In addition, while the MND includes several references to BMP regarding refueling, there is no description in the MND of exactly how helicopter and truck refueling will occur and how will resources be protected.

In sum, the MND fails to provide an adequate explanation for its arbitrary decision to employ BMPs, AMMs, Project features or SCVHP Conditions over enforceable mitigation measures. Transparency as to why the agency chose to employ these five different mitigation approaches is necessary for the public to “intelligently analyze the logic of the [agency’s] decision.” (*Lotus, supra*, 223 Cal.App.4th at 654.) The MND’s failure to clearly explain the mitigation approach fails to meet CEQA’s informational purposes and deprives the public of informed decision making and public participation. (*Id.* at 658.)

3. The MND Unlawfully Relies on the HCP and Conditions within It to Reduce Project Impacts

The MND proposes to rely on the SCVHP to obtain necessary incidental take permits and to mitigate impacts of the project under CEQA. (See, e.g., MND, pp. 1-4, 2-46 to 2-51, 4-44.) The “Pacheco Dam reconstruction and reservoir enlargement” is specifically not covered under the SCVHP.¹³ Yet, the MND claims that a personal conversation authorizes reliance on the SCVHP:

Although the proposed PREP is not covered by the Valley Habitat Plan, the SCVHA has confirmed that, the proposed Project, which consists of preliminary site investigations (i.e., geotechnical investigations) and is a separate project from the PREP with independent utility, is a covered activity in the Valley Habitat Plan (Gerry Haas, SCVHA, Pers Comm 2024).

(MND, pp. 4-44, 4-59.) However, there is no category of projects in the SCVHP that encompasses the current geotechnical investigation activities.¹⁴ While the operations and activities of Valley Water are explained in detail in the SCVHP, there is no mention of geotechnical or other exploratory activities being a covered action under the SCVHP. As documented in the MND and elsewhere, these investigations are specifically in furtherance of the new Dam; there is no other purpose of the project. The Dam is

¹³ August 2012 SCVHP, pp. 6-4, 2-117. Available at: <https://www.scv-habitatagency.org/DocumentCenter/View/128/Chapter-6-Conditions-on-Covered-Activities-and-Application-Process>.

¹⁴ See SCVHP, pages 2-14 to 2-18 [describing Valley Water operations]; see also page 2-39 to 2-117 [describing seven general categories of covered activities: Urban Development; In-stream Capital Projects; In-stream Operations and Maintenance; Rural Capital Projects; Rural Operation and Maintenance; Rural Development; Conservation Strategy Implementation].

specifically not included as a covered action and no category of actions that is described in the SCVHP fits the description of this project. As a result, the project may not rely on the SCVHP for take authority of listed species, and Valley Water must separately seek such authority from the relevant wildlife agencies.

D. THE PROJECT WOULD RESULT IN POTENTIALLY SIGNIFICANT IMPACTS, WHICH THE MND OVERLOOKS

CEQA requires the preparation of a mitigated negative declaration for a project when “the initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment. . . .” (CEQA Guidelines, § 15070.) CEQA “requires the preparation of an EIR whenever it can be fairly argued on the basis of substantial evidence that the project may have significant environmental impact.” (*No Oil, Inc. v. Los Angeles* (1974) 13 Cal.3d 68, 75.) Here, there is substantial evidence of a fair argument that the Project has the potential to result in several potentially significant impacts, including, but not limited to, impacts on: biological resources, cultural resources, agricultural resources, and hydrology, transportation, and water quality.

1. Biological Resources (Section 4.4)

The MND checklist recognizes that the project may have potentially significant impacts to biological resources (MND, p. 4-32) and the MND proposes mitigation measures for the impacts to biological resources (see MND, pp. 4-60 to 4-63). The MND checklist claims that the project will have either a less than significant or no impact on biological resources and that any potentially significant impacts are mitigated through either BMPs or mitigation measures. (MND, pp. 4-32.) These conclusions are unsupported.

The Cashen Report provides a detailed assessment of the MND’s inadequate analysis and mitigation provided in the MND for project impacts to biological resources. (Attached as Exhibit A.)

A few examples of the MND’s inadequate analysis of the project’s biological impacts include:

- A failure to credibly assess the presence of plant and animal communities in the project area with accepted survey techniques.

- An underestimation of the footprint of the project on sensitive natural communities and special status plants and wildlife by ignoring or undercounting impacts from access routes.
- Incomplete disclosure of wildlife and plant impacts from extensive helicopter, track or truck mounted drill rigs on land and barge mounted drilling on water, test pit digging, and other activities in largely undisturbed Pacheco Pass rangeland are severely undercounted.
- A failure to consider the negative impacts of placing the helicopter staging area away from Highway 152, in an even more remote part of the project area, which will increase vehicle trips/miles traveled through an essential wildlife corridor.
- Lack of disclosure of project noise impacts, which will include multiple pieces of heavy equipment at once, on wildlife.
- Overlooks impacts to waters and wetlands from project activities, with a failure to disclose direct and indirect damage to wetland and other features protected by state and federal law.
- A failure to reference wildlife movement corridor and connectivity datasets produced and relied upon by local and state resource agencies.
- An underestimation of impacts to trees from project activities and access routes and a failure to commit to necessary buffers and other protection needed to protect the trees.
- Inadequate and unenforceable mitigation that will not ensure mitigation to less than significant levels.
- A failure to address the substantial amount of disturbance (e.g., trucks, helicopters and drill rigs) to an area with multiple eagle territories, which requires an eagle take permit.
- A failure to address the ground disturbance in aquatic habitats potentially occupied by the California red-legged frog and California tiger salamander, which likely requires take permits.

As mentioned above, the MND also fails to assess the impacts on biological resources of conducting operations within a well-documented wildlife movement corridor, only mentioning corridors in passing. (MND, p. 4-58.) The essential wildlife corridor at Pacheco Pass is so important that the High Speed Rail Authority planned to underground the train for 15 miles to avoid interfering with wildlife movement in Pacheco Pass.¹⁵ The High Speed Rail Authority is also required to construct a wildlife overcrossing in the immediate vicinity of Pacheco Pass to mitigate impacts of the High

¹⁵ See https://www.meethsrnorcal.com/uploads/1/8/9/8/18984305/wildlife_movement_factsheet_1-19-22_2_all.pdf.

Speed Rail Project.¹⁶ Additional detail regarding the readily available information regarding wildlife corridors and the potential of project activities to interfere with these corridors is included in the Cashen Report.

As explained in the Cashen Report, the MND fails to include adequate mitigation for the project impacts to biological resources. The MND's failure to provide adequate mitigation measures for potential biological impacts misleads the public about the extent of the environmental degradation that may occur. The inconsistencies in the MND's assessments, the insufficient data, and the lack of clear mitigation measures thwart proper evaluation of the project's potential impacts. (*Lotus, supra*, 223 Cal.App.4th at 657.) Furthermore, the MND's incomplete assessments make it impossible for the public to be knowledgeable about whether certain mitigation measures are needed or whether there are other more effective mitigation measures available for impacts to biological resources. (*Id.* at p. 656.) The MND's treatment of biological impacts is incomplete and insufficient.

2. Cultural Resources (Section 4.5 and 4.18)

The MND states that the project will not have a significant impact on any historical resources, archeological resources, or on any human remains including those found outside of a formal cemetery. (MND, p. 4-64) No mitigation measures are identified for impacts to cultural resources. As explained in Dr. Christopher D. Dore's comments, the MND is inadequate with respect to both disclosure and mitigation of potentially significant cultural resources. (See Exhibit B.)

The MND does not clearly identify historical or cultural sites in the project area. A lead agency is first required to determine whether a site is a historical resource when its project will impact an archeological site. (See CEQA Guidelines, § 15064.5, subd. (c)(1).) The MND provides a poor job of properly verifying cultural sites and properly identifying impacts to cultural resources. (Dore Report, Exhibit B.) Valley Water's resource consultants also failed to submit scientific records to the California Historical

¹⁶ See California High-Speed Rail Authority San Jose to Merced Project Final EIR/EIS (February 2022), p. 3.7-199, available at: https://hsr.ca.gov/wp-content/uploads/2022/02/Final_EIRS_JM_V1-15_CH_3.7_Biological_Aquatic_Wetlands.pdf; see also SCVHA HSRA comment letter, Vol. 4, pp. 24-558, 24-560 and 561 (data on wildlife movement and description of corridors), available at: https://hsr.ca.gov/wp-content/uploads/2022/02/Final_EIRS_JM_V4-09_CH_24_Local_Agency_Comments_Part_b.pdf; see also <https://www.scv-habitatagency.org/DocumentCenter/View/1214/03>.

Resources Information Systems (“CHRIS”) as required. The MND also fails to provide the survey reports it relied on to determine whether cultural resources meet the eligibility criteria of CHRIS (and/or potential Tribal Cultural Resources). Valley Water also terminated its consultation with tribes to determine the presence of tribal cultural resources, and it is unclear in the MND what tribal resources were identified and if impacts to them would be significant. These examples illustrate an inadequate and incomplete effort to determine historical, archeological, and cultural resources. Consequently, the public does not have the proper information it needs to assess the impacts on archeological, cultural, and tribal resources. The public cannot rely on proposed measures to mitigate potential impacts in the MND that have not been properly evaluated nor adopted. (*Lotus, supra*, 224 Cal.App.4th at 652.)

Ultimately, the MND is ambiguous about which resources are historical resources (CEQA Guidelines § 15064.5), which resources are unique archeological resources (Pub. Resource Code, § 21083.2), or which resources are cultural resources (Pub. Resources Code, § 21074). Therefore, the MND’s conclusions cannot be properly assessed thus depriving the public of information necessary in order to provide meaningful comments regarding cultural resources. (*Lotus, supra*, 224 Cal.App.4th at 657.)

The AMMs proposed in the MND also fail to adequately address the significant impacts the project will have on cultural resources. As explained in the Dore Report, the cultural resource AMMs are too vague to be effective. Specific mitigation measures must be identified rather than just making broad sweeping statements. (*Lotus, supra*, 224 Cal.App.4th at 653.) For example, the supposed training identified in the AMMs fails to explain how crew members would be able to identify an archeological, tribal, cultural resource. (Dore Report, Exhibit B.) The MND fails to provide adequate detail regarding what steps will be taken if such artifact is discovered near or on site. Again, the MND does not address thorough mitigation measures outside of its own special measures which results in an inadequate consideration of possible mitigation measures that would be more effective. (*Lotus, supra*, 224 Cal.App.4th at 657.) Therefore, the public is deprived of a full understanding as to how and to what extent cultural resources are impacted and what is the best approach to ensure project impacts are minimized.

3. Agriculture Resources (Section 4)

The MND also overlooks potentially significant impacts the project may have on agricultural resources, stating that there would be “no impact”. (MND, pp. 4-10.) The MND fails to address potential project impacts on ongoing ranching activities in the project area, for instance. Therefore, it fails to list any mitigation measures, or any other practices, to lessen the project impacts.

4. Hydrology and Water Quality (Section 4.10)

The MND overlooks potentially significant impacts the project would have on hydrology and water quality. For many of the potential impacts that the MND identifies, it states that the project would have no impact on hydrology and water quality. (MND, pp. 4-127.) As described above, despite listing BMPs for this category of impacts, the MND states that there are no mitigation measures required, which is an incorrect assessment. (MND, pp. 4-154 to 4-155.)

The MND also fails to address impacts from overwater drilling that may be conducted if lake levels remain high. The project includes the possibility of over 20 vibracore barge borings if the reservoir is not drained. (MND, p. 2-17; see also MND, Tables 2-3, 2-4 and 2-5.) There is no discussion of potential impacts to water quality from conducting overwater drilling activities.

Overwater drilling has the potential to release hazardous drilling fluid/mud in the reservoir, which could harm fish and wildlife. The MND must disclose the type and content of drillers mud that is expected to be encountered. Mitigation must also be developed to prevent sediment and drilling fluid from washing directly into the reservoir as the casing is withdrawn. In addition, cement and cement grouts used to seal borings typically have a significantly alkaline pH and are typically toxic to fish. Mitigation must be provided for this potentially significant impact.

The use of petroleum oils/fluids in equipment over water is a particular concern both for the protection of fish and wildlife and for other beneficial uses of water stored in the reservoir. A hydraulic connector failure, which is common, could lead to contamination of the water, and release of the same contaminated water into Pacheco Creek downstream of the existing dam. Use of ASTM Ultimate/OECD READILY approved equipment fluids, along with pre-placement of sediment/oil booms, should be required mitigation.¹⁷

These potentially significant impacts must be identified and properly mitigated.

¹⁷ There are two testing standards in use: *ASTM D5864 (OECD 301B)*, and *CEC L-33-T-82*. The class that we would advise is the ASTM ULTIMATE [60% in 28 days] classification (or OECD READILY), and Pw1. There is a secondary class that is often used as comparable standard of Pw2, or 60% in 84 days (12 weeks). This is an inferior product to the first class and advisable only if the more stringent class is not available or voids a particular warranty.

5. Geology and Soils (Section 4.7)

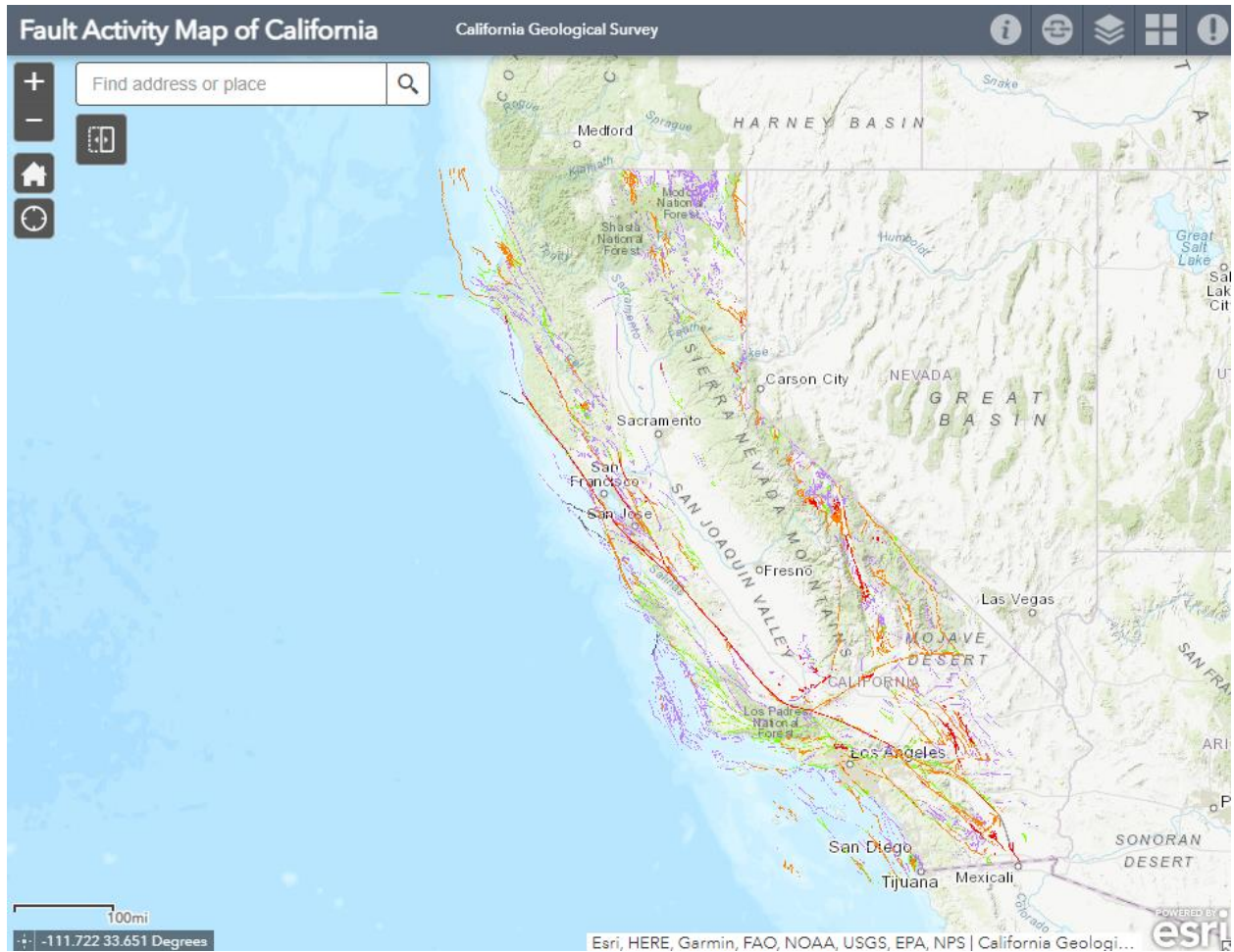
The MND acknowledges that the site poses special hazards with respect to slope instability:

Evidence of various types of mass wasting events (e.g., landslides, slumps, and earthflows) can be observed throughout the proposed Project study area dating from millions of years old to as recently as the winter of 2023/2024. One of the key objectives of the geotechnical investigations is to better identify, characterize, and define these features for use in engineering siting, analysis, and design efforts.

(MND, p. 4-86.) The MND, however, fails to put this information in context regarding the unsuitability of the site for a new Dam. The MND also appears to underplay the seismic hazards in the project area:

The proposed Project study area, like most of California, is a region of high seismic hazard zone due to strong ground shaking associated with the numerous active faults in the general area surrounding the North Fork Pacheco Creek watershed.

(MND, p. 4-86.) The MND cites no source for this statement. Looking at the Fault Activity Map available on the California Department of Conservation website,¹⁸ it is not at all clear that “most of California” is covered by a high seismic hazard zone. This apparently misleading statement in the MND should be referenced or deleted.



6. Transportation (Section 4.17)

The MND claims that the impacts to traffic will be less than significant with the implementation of mitigation. (MND, p. 4-218.) The MND fails to accurately describe current roadway conditions, the changes proposed under the project, or the impacts that would result from the project. Mitigation is also insufficient.

The only way to access the project site is through State Route 152 (“SR 152”), a major east-west corridor connecting South San Francisco Bay and Central Valley. SR 152 is an accident-prone highway with only two traffic lanes near the exit for the project site.¹⁹ Valley Water’s 2021 DEIR for the Dam project included a table showing improvement access points for SR 152, demonstrating that there is a need to address

¹⁹ CBS News: Highway 152; <https://www.cbsnews.com/sanfrancisco/tag/highway-152/>

safety issues to access the area. (DEIR, p. ES-5.) However, the MND fails to fully address detrimental impacts to traffic and fails to provide any performance standards in this section as required by CEQA Guideline section 15126.4.

Transportation mitigation measures in the MND fail to adequately address the traffic hazards, as raised by the Department of California Highway Patrol's ("CHP") comments on the MND. The project would require heavy machinery to be transported into the area along with worker trips, which ultimately will lead to an increase in traffic hazards and impact the travel of emergency vehicles. CHP explained that the project would negatively impact traffic congestion thus increasing the likelihood of crashes and delayed response to emergency accidents. SR 152 contains limited shoulder and the site entrance requires vehicles either to make a hairpin right turn onto the road or to wait in a turn lane and cross westbound traffic to make a left turn onto the road. MM TR-1 fails to address how these issues will be addressed. (MND, p. 4-219.) Furthermore, Valley Water has failed to submit the MM TR-1 plan to the CHP for review and consideration. The MND must address concerns raised by CHP, and revise mitigation measures to include enforceable performance standards to address project traffic impacts. In addition, the MND only addresses traffic volumes on Highway 152, not on the entrance road to the reservoir. (MND, p. 4-211.) The MND fails to discuss the massive increase in traffic on the dirt access road. This increase in traffic is relevant as well to consideration of biological impacts. Currently there is almost no traffic on this small dirt road, which is shown on the right side of MND Figure 3-1. Operations under the project would include up to hundreds of rig days for rock core drilling, 26 days of auger/rotary wash drilling, 120 days of supplemental borings, 16 days of test pit digging, and 40 days of geophysical surveys over the course of eight months. (MND, pp. 2-36, to 2-39.) From 5-20 workers would access the site each day of project operations. (MND, p. 2-36.)

E. INFORMATION IN THE MND CONFLICTS WITH INFORMATION RELIED UPON FOR THE PROPOSITION 1 FUNDING

The MND contains inconsistencies from information presented to the CWC to obtain grant funding under the Proposition 1 Water Storage Investment Program. For instance, the MND states:

PPWD releases from Pacheco Reservoir for groundwater recharge are the primary source of flows in Pacheco Creek. These summer releases often percolate entirely into the streambed before reaching the Walnut Avenue Gage. From May through November, releases of 2 to 15 cubic feet per second (cfs) made from Pacheco Reservoir can percolate entirely into the

streambed of Pacheco Creek, as indicated by measured flow of 0 cfs in the same month at the USGS gage (SBCWD 2009).

(MND, p. 4-130.) The provision of flows for the South-Central California Coast Steelhead was a key rationale for the CWC’s findings of public benefit for the new Dam project. Based on Valley Water’s Feasibility Documentation,²⁰ it appears that the Dam project would not maintain in-channel flows sufficient to support native and resident fish under conditions outside of pulse flows. The description of flows from 2-15 cfs percolating entirely into the streambed in the MND indicates that prior characterizations of potential fisheries benefits and claimed ecosystem benefits of the new Dam were overestimated in the Proposition 1 process. This and other available information support a conclusion that the Dam has become infeasible and should not receive any additional public funding under Proposition 1 from the CWC. (See Cal. Code Regs., tit 23, § 6013, subd. (f).)

Table 3-3. Flow Release Schedule Under the Project and Alternative C (Variable Flow Schedule)

Month	Baseflow					Pulse Flow									
	Continuous Releases from New Dam Outlet (cfs)					Pulse Flow Target Magnitude at New Dam Outlet ^{1,4} (cfs)					Pulse Flow Duration ^{1,4} (days)				
PRII Water Year	W	AN	BN	D	C	W	AN	BN	D	C	W	AN	BN	D	C
January	8	8	8	8	8	30	30	35	35	0	5	5	5	5	0
February	8	8	8	8	8	30	30	45	45	30	5	5	5	5	5
March	8	8	8	8	8	30	30	50	45	35	8	8	8	8	8
April	8	8	8	8	8	25	25	25	25	25	14 ²	14 ²	14 ²	14 ²	14 ²
May	10	10	10	10	8	25	25	25	25	25	7	7	7	7	7
June	11	11	11	10	8 ^a	--	--	--	--	--	--	--	--	--	--
July	13	13	13	10	8 ^a	--	--	--	--	--	--	--	--	--	--
August	13	13	13	10	8 ^a	--	--	--	--	--	--	--	--	--	--
September	13	13	13	10	8 ^a	--	--	--	--	--	--	--	--	--	--
October	13	13	13	10	8 ^a	--	--	--	--	--	--	--	--	--	--
November	11	11	11	9	8	--	--	--	--	--	--	--	--	--	--
December	9	9	9	9	8	--	--	--	--	--	--	--	--	--	--

Notes:

¹ The scheduled pulse flow would not be released in a given month if the target pulse flow magnitude and duration were exceeded at USGS streamgage 11153000 in Pacheco Creek.

² 14-day total duration reflects two separate 7-day duration pulses.

³ Baseflow releases may be reduced to induce dryback in drought periods (may occur in Critical inflow years).

⁴ Pulse flows during January, February, and March would support adult SCCC Steelhead attraction. Pulse flows during April and May would support SCCC Steelhead smolt outmigration.

Key:

-- = Not applicable

AN = Above Normal

BN = Below Normal

C = Critical

cfs = cubic feet per second

D = Dry

PRII = Pacheco Reservoir Inflow Index

D = Dry

SCCC = South-Central California Coast

USGS = U.S. Geological Survey

W = Wet

F. CONCLUSION

Reliance on an MND must be based on a finding that a project will not have any significant impacts on the environment. (CEQA Guidelines, § 15071.) Here, the MND fails to adequately describe the environmental effects of the investigations Valley Water proposes to perform at the proposed new Dam site. The MND also fails to adequately inform the public and decisionmakers about the potentially significant impacts of the project, along with means to mitigate those impacts to less than significant levels. The approach to mitigation in the MND is also flawed in that the MND fails to clearly explain how the project's significant impacts would be mitigated as well as inclusion of measures that fail to include enforceable performance standards. Substantial evidence supporting a fair argument of potentially significant impacts, in addition to this project's relationship to the reasonably foreseeable new Dam project, make an EIR the only appropriate method of evaluating the project's impacts.

Thank you for considering these comments. Please feel free to contact my office with any questions about these comments.

Very truly yours,

SOLURI MESERVE
A Law Corporation

By: 
Osha R. Meserve

Attachments:

Exhibit A Scott Cashen. M.S. – Biological Resources Report
Exhibit B Dr. Christopher D. Dore – Cultural Resources Report
Exhibit C Environmental Protection Agency – Categorical Exclusion for WIFIA Loan
Exhibit D DSOD Letters (2017-2021)
Exhibit E Stop Pacheco Dam Coalition Letter to California Water Commission

cc: California Water Commission
(joseph.yun@water.ca.gov and cwc@water.ca.gov)

EXHIBIT A

July 17, 2024

Ms. Osha Meserve
Soluri Meserve
510 8th Street
Sacramento, CA 95814

Subject: Comments on the Initial Study and Mitigated Negative Declaration for Design Level Geotechnical Investigations for the Pacheco Reservoir Expansion Project

Dear Ms. Meserve:

This letter contains my comments on biological resources issues in the Draft Initial Study and Mitigated Negative Declaration (“IS/MND”) prepared by the Santa Clara Valley Water District (“Valley Water”) for the Design Level Geotechnical Investigations for the Pacheco Reservoir Expansion Project (“Project”). As described herein, the IS/MND’s analysis and mitigation of impacts to biological resources is inadequate and must be corrected prior to the agency making a decision on the Project.

I am an environmental biologist with 30 years of professional experience in wildlife biology and natural resources management. I have served as a biological resources expert for over 200 projects in California. My experience and scope of work in this regard has included assisting various clients with evaluations of biological resource issues; preparation and peer review of environmental compliance documents prepared pursuant to the California Environmental Quality Act (“CEQA”) and the National Environmental Policy Act (“NEPA”); and preparation of written comments that address deficiencies with CEQA and NEPA documents. My work has included written and oral testimony for the California Energy Commission, California Public Utilities Commission, and Federal courts. My educational background includes a B.S. in Resource Management from the University of California at Berkeley, and a M.S. in Wildlife and Fisheries Science from the Pennsylvania State University. A copy of my current curriculum vitae is attached hereto.

The comments herein are based on my review of the environmental documents prepared for the Project, including the Draft Environmental Impact Report (“DEIR”) that was prepared for the Pacheco Reservoir Expansion Project in November 2021; a review of scientific literature pertaining to biological resources known to occur in the Project area; two visits to the Project site; and the knowledge and experience I have acquired during my 30-year career in the field of natural resources management.

All references cited in this report are available at:

<https://www.dropbox.com/scl/fo/yd6wiu30cyic7iovvqvoa/AEKxWm9kI9jG4hLLOybQfvw?rlkey=6xz472wh5u0gkrl1amnmr9z5r&st=cfo3p007&dl=0>

PROJECT DESCRIPTION

The helicopter staging area is in the far north of the Project area (IS/MND, Figure 2-2b). This location would maximize disturbance to wildlife because: (a) of its remote location; (b) the helicopter would generate a lot of noise and would be departing and landing at this location frequently; and (c) human activity associated with helicopter flight, fueling, and maintenance activities would take place several times a day.¹ Valley Water should consider placing the helicopter staging area closer to Highway 152 to reduce the level of disturbance on biological resources.

ENVIRONMENTAL SETTING

The IS/MND Fails to Provide Accurate Information on Biological Resources within Work Areas

The IS/MND fails to adequately address, and potentially improperly minimizes the extent of, impacts on biological resources in the following respects:

1. On the map of “Vegetation Communities and Other Habitat Types” (Appendix D, Attachment 2, Exhibit 2A, plate 7), work areas S-30, CB-25, and most of the associated access route are identified as Water (Reservoir). However, the map depicting Waters of the State (Appendix D, Attachment 3, Exhibit 3E, plate 7) identifies these areas as “Reservoir above OHWM [ordinary high-water mark],” with only a few fragments classified as potential Waters of the State. If work areas S-30, CB-25 and the associated access route are classified as “Water” (as was done in Exhibit 2A), those areas are potential waters of the State and they must be accounted for in the IS/MND’s impact analysis. Conversely, if work areas S-30, CB-25 and the associated access route are not classified as potential Waters of the State (as was done in Exhibit 3E), the IS/MND must identify the vegetation community(ies) within those work areas to ensure the IS/MND provides accurate information on impacts to sensitive natural communities. That is, the IS/MND cannot classify areas as Water on one map, but classify those same areas as non-Water on another map.
2. The IS/MND classifies work area BA-25 as *Avena* spp. – *Bromus* spp. (wild oats and annual brome grasslands).² However, almost all of work area BA-25 coincides with a cluster of trees (see Figure 1 below).
3. The IS/MND classifies the work area for test pit 48 (TP-48) as Needle grass – melic grass grassland.³ However, almost all of the work area for TP-48 coincides with oak trees (see Figure 7, below).

¹ IS/MND, p. 2-31.

² IS/MND, Appendix D, Attachment 2, Exhibit 2B, plate 10.

³ *Ibid*, plate 8.



Figure 1. Work activity area (red circle) for BA-25.⁴

Special-Status Plants

Surveys for special-status plants were conducted within the Pacheco Reservoir Expansion Project (“PREP”) study area in 2020 and 2023. The PREP study area encompasses the study area of the currently proposed Project. According to the IS/MND:

“Stantec botanists conducted three survey passes of the PREP study area, each of which consisted of walking meandering transects that covered the accessible portions of the study area. The portion of the PREP study area within Henry Coe State Park was inaccessible and was not included in the survey efforts and totaled approximately 105 acres (i.e., less than 2 percent of the study area was inaccessible during the surveys). Other inaccessible areas include those that were restricted by landowners or those that were too steep or otherwise unsafe to access. Areas that were unsafe or restricted were scanned using binoculars.”⁵

A considerable amount of the Project study area is located on steep slopes without road access.⁶ The IS/MND fails to identify which portions of the study area were inaccessible to the botanists, and therefore, not surveyed for special-status plants. As a result, it is impossible to understand how much of the study area remains un-surveyed, and thus, how accurately the IS/MND portrays the Project’s environmental setting and impacts.

⁴ Geographic coordinates for work areas were obtained from IS/MND, Tables 2-2 and 2-3. Work activity area is 100 feet in diameter (IS/MND, p. 2-12). Imagery dated 18 Oct 2023.

⁵ IS/MND, Appendix D, Attachment 1, Exhibit 1B, p. 5.

⁶ IS/MND, Appendix D, Attachment 1, Figure 2-1.

In addition, using binoculars to scan the terrain is not a valid method for identification of special-status plants. Indeed, identifying a plant species often involves use of a magnifying glass to distinguish minute differences among species (e.g., the morphology of stem hairs). Even if a particular species could be identified using binoculars, most of the study area would have been obscured by vegetation and terrain (i.e., the botanists would not be able to see all areas that could contain special-status plants).

Numerous special-status plants were detected during the botanical surveys⁷ but were not included on the Project maps, presumably because they were detected outside of the Project study area (but within the PREP study area). The IS/MND's failure to map all special-status plants that have been detected in close proximity to the Project study area⁸ precludes the ability to assess the potential for the Project to have significant impacts to those plants. For example, the following special-status plant populations (or occurrences) were detected in the immediate vicinity of the Project study area, but were not disclosed (or mapped) in the IS/MND:

1. The Project includes several boring locations (e.g., UB-101 and UB-109) and a refraction line (USR-15) in the immediate vicinity of a most beautiful jewelflower population (Rare Plant Rank 1B.2).⁹
2. Boring locations S-07, UB-78, and the associated access route would be in the immediate vicinity of a Parry's rough tarplant population (Rare Plant Rank 4.2).¹⁰
3. Boring location UB-103 and refraction line LSSR-5 would be in close proximity to, and possibly overlap, an additional Parry's rough tarplant population.¹¹
4. Hall's bush-mallow plants were detected at several locations along the Project's existing access road south of the dam.¹²

The IS/MND states: "two special-status plant species were documented in the study area during the survey efforts include Hall's bush-mallow (*Malacothamnus arcuatus* var. *elmeri* [syn. *M. hallii*]) and woodland woollythreads (*Monolopia gracilens*) ... One occurrence of approximately 95 individual [Hall's bush-mallow] plants were observed during the survey efforts ... One occurrence and approximately 61 individual [woodland woollythread] plants were observed during the survey efforts."¹³ This information is inconsistent with what is depicted on the IS/MND's special-status plants map, which shows 2 occurrences of Hall's bush-mallow.¹⁴ It is also inconsistent with what was reported in the November 2021 Draft Environmental Impact

⁷ IS/MND, Appendix D, Attachment 1, Exhibit 1B, Sub-exhibit 1B1.

⁸ The IS/MND (Appendix D, Attachment 1, p. 6) states: "the Project study encompasses approximately 55 acres and includes the currently proposed impact areas associated with geotechnical borings, test pits, staging areas, and access routes."

⁹ Santa Clara County Water District. 2021 Nov. Draft Environmental Impact Report for the Pacheco Reservoir Expansion Project [State Clearinghouse # 2017082020]. Biological Resources – Botanical/Wildlife Appendix, Attachment A, Exhibit B, Sub-exhibit C (Special-Status Plant California Natural Diversity Database Forms).

¹⁰ *Ibid.*

¹¹ *Ibid.* Approximately 200 plants were detected on the dry edge of reservoir, below high-water line. However, only a single GPS point was provided (37.0649, -121.2992).

¹² *Ibid.*, Exhibit B, Figure 3-1c.

¹³ IS/MND, Appendix D, Attachment 1, Exhibit 1B, p. 6.

¹⁴ IS/MND, Appendix D, Attachment 1, Exhibit 1B, Figure 3-2c.

Report (“DEIR”) prepared for the PREP. During the 2020 botanical surveys, Stantec detected 808 Hall’s bush-mallow plants (across several mapped occurrences) in the proposed test pit area east of the dam.¹⁵ In addition, although Stantec detected 9 populations of woodland woollythreads in 2020, none of these populations were comprised of 61 plants.¹⁶ Therefore, it is unclear whether Stantec detected 95 Hall’s bush-mallow plants and 61 woodland woollythreads plants during the 2023 surveys, or whether the IS/MND includes erroneous information.

Nevertheless, the number of plants (and occurrences) that were detected during surveys for the PREP do not provide the information needed to assess impacts of the currently proposed Project. The IS/MND needs to clarify how many Hall’s bush-mallow and woodland woollythreads plants have been detected in or adjacent to the Project study area, and it needs to provide a map that depicts the location of those plants in relation to areas that would be subject to ground disturbance. If Valley Water is unable to provide a map of sufficient scale due to a license agreement with the California Natural Diversity Database (“CNDDDB”), it must describe the density and spatial configuration of the plants in relation to the Project study area so as to substantiate the feasibility of avoidance.

Sensitive Natural Communities

The IS/MND does not provide accurate information on sensitive natural communities in the Study Area. Valley Water’s botanists mapped vegetation communities to the “association” level in accordance with the State’s classification standards. According to the IS/MND: “[v]egetation communities mapping followed the technical approach and vegetation alliance classification system described in A Manual of California Vegetation, 2nd Edition (MCV) (Sawyer et al. 2009) and updated in the current online edition (California Native Plant Society 2023).”¹⁷

Two of the vegetation community associations mapped in the Project study area were: (1) the *Quercus agrifolia* / *Artemisia californica* Association, and (2) the *Quercus agrifolia* – *Umbellularia californica* / *Toxicodendron diversilobum* Association.¹⁸ According to the IS/MND, neither vegetation is a sensitive natural community.^{19,20} The information provided in the IS/MND is incorrect: both associations have a State Rank of S3 and are on the California Department of Fish and Wildlife’s (“CDFW”) most recent list of California Sensitive Natural

¹⁵ Santa Clara County Water District. 2021 Nov. Draft Environmental Impact Report for the Pacheco Reservoir Expansion Project [State Clearinghouse # 2017082020]. Biological Resources – Botanical/Wildlife Appendix, Attachment A, Exhibit B, Figure 3-1c and Sub-exhibit C (Special-Status Plant California Natural Diversity Database Forms).

¹⁶ *Ibid.*

¹⁷ IS/MND, Appendix D, Attachment 2, p. 2-1.

¹⁸ IS/MND, Appendix D, Attachment 2, Table 3-1.

¹⁹ *Ibid.* See also IS/MND, 4.4-4 (showing omission of the two vegetation communities from the impact analysis).

²⁰ The *Quercus agrifolia* – *Umbellularia californica* / *Toxicodendron diversilobum* Association is not identified as an association on CDFW’s most recent (June 1, 2023) California Natural Community List [<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153398&inline>], nor is it listed as an association in A Manual of California Vegetation Online [<https://vegetation.cnps.org/alliance/78>]. However, both sources identify *Quercus agrifolia* – *Umbellularia californica* as a possible association. That association is identified as a sensitive natural community on CDFW’s (2023 June) California Natural Community List.

Communities.²¹ Because both associations occur in areas that would be directly impacted by the Project,²² the IS/MND fails to provide a full account of the Project's impacts to sensitive natural communities.

California Floater Mussel

Freshwater mussels serve an important role in aquatic ecosystems, improving water quality and clarity, providing nutrients and habitat for aquatic invertebrates at the core of the food web, and serving as food for aquatic and terrestrial wildlife.²³ However, freshwater mussels have suffered precipitous declines in abundance and distribution and are considered, together with freshwater gastropods, to be the most imperiled faunal group in North America, with about 71% of the 297 known species considered endangered, threatened, or of special concern.²⁴

The California floater mussel (*Anodonta californiensis* or *A. nuttalliana*)²⁵ is one of the species that has experienced precipitous declines²⁶ and it is now considered an imperiled species with high risk of extinction.²⁷ There are historic records of California floater mussels in Pacheco Creek, and in 2021, a biologist conducting work for the PREP found evidence that a population of California floaters inhabits Pacheco Reservoir.²⁸

The IS/MND fails to disclose or analyze potential impacts of the Project on the California floater mussel. The track-mounted drill rig and any support equipment that would drive extensively through the substrates of Pacheco Reservoir could cause direct mortality to floaters, or indirectly impact the species through siltation and degradation of the reservoir banks. Similarly, if a barge-mounted drill rig was used, the sediment disturbance from the mooring, drilling, and movement of the rig could cause these same impacts. These impacts would be potentially significant and are not mitigated by the measures proposed in the IS/MND.

²¹ California Department of Fish and Wildlife. 2023 Jun 1. California Sensitive Natural Communities. [accessed 2024 Jul 9]. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153609&inline>.

²² IS/MND, Appendix D, Attachment 2, Exhibit 2B.

²³ Blevins E, Jepsen S, Box JB, Nez D, Howard J, Maine A, O'Brien C. 2017. Extinction risk of western North American freshwater mussels: *Anodonta nuttalliana*, the *Anodonta oregonensis/kennerlyi* clade, *Gonidea angulata*, and *Margaritifera falcata*. *Freshwater Mollusk Biology and Conservation* 20(2):71-88.

²⁴ Howard JK, Furnish JL, Box JB, Jepsen S. 2015. The decline of native freshwater mussels (Bivalvia: Unionoida) in California as determined from historical and current surveys. *California Fish and Game* 101(1):8-18.

²⁵ *Anodonta* are composed of three distinct clades: *A. nuttalliana/A. californiensis*, *A. oregonensis/A. kennerlyi*, and *A. beringiana*. Recent findings indicate that there is only one species in the *A. nuttalliana/A. californiensis* clade (properly named *A. nuttalliana* according to the rules of the ICZN Code). However, CDFW continues to refer to the species as *A. californiensis*.

²⁶ Howard JK, Furnish JL, Box JB, Jepsen S. 2015. The decline of native freshwater mussels (Bivalvia: Unionoida) in California as determined from historical and current surveys. *California Fish and Game* 101(1):8-18.

²⁷ California Natural Diversity Database. 2024 Apr. Special Animals List. California Department of Fish and Wildlife. Sacramento, CA. *See also* Blevins E, Jepsen S, Box JB, Nez D, Howard J, Maine A, O'Brien C. 2017. Extinction risk of western North American freshwater mussels: *Anodonta nuttalliana*, the *Anodonta oregonensis/kennerlyi* clade, *Gonidea angulata*, and *Margaritifera falcata*. *Freshwater Mollusk Biology and Conservation* 20(2):71-88.

²⁸ Santa Clara County Water District. 2021 Nov. Draft Environmental Impact Report for the Pacheco Reservoir Expansion Project [State Clearinghouse # 2017082020]. p. 3.6-3.

PROJECT IMPACTS

Special-Status Plants

The IS/MND states: “the two special-status plant species in the proposed Project study area have been mapped and would be avoided.”²⁹ This statement is inconsistent with Figure 3-2c in the Biological Resources Assessment Report, which shows direct impacts to Hall’s bush-mallow (Rare Plant Rank 1B.2) at work area TP-53; the access route between TP-45, TP-52, and TP-53; and a small segment of DSR-21.³⁰ Direct impacts to Hall’s bush-mallow at these work areas would be significant and unavoidable due to the high density of Hall’s bush-mallow plants (a large shrub) that occur in this portion of the Project Study Area.³¹

The IS/MND states that the spread and introduction of non-native invasive plant species into the proposed Project study area during Project activities would be a significant impact on special-status plants.³² The IS/MND then concludes that indirect impacts from invasive plants would be less than significant through implementation of the proposed mitigation measures, best management practices (“BMPs”), and avoidance and minimization measures (“AMMs”).³³ However, none of these mitigation measures, BMPs, and AMMs contain performance standards for the spread and introduction of invasive plants, nor do they incorporate a monitoring component to verify their efficacy.

For these reasons, the Project’s direct and indirect impacts on special-status plants remain potentially significant.

Sensitive Natural Communities

The IS/MND states: “[t]o accommodate geotechnical investigations, areas supporting sensitive natural communities may be subject to temporary ground disturbance (approximately 0.24 acres total ground disturbance) associated with test pits, borings, supplemental borings, and contouring with hand tools to accommodate drilling platforms.”³⁴

Table 4.4-4 in the IS/MND provides a breakdown of impacts to sensitive natural communities at the Project site, by activity type. In addition to failing to account for impacts to the *Quercus agrifolia* / *Artemisia californica* Association *Quercus agrifolia* – *Umbellularia californica* Association (which are sensitive natural communities as described above), Table 4.4-4 contains errors. For example, the vegetation community map in Appendix D of the IS/MND identifies Valley Oak Woodland (*Quercus lobata*/grass) within a portion of the Project’s northern staging/staging area,³⁵ but according to Table 4.4-4, the storage/staging area would not cause any

²⁹ IS/MND, p. 4-46.

³⁰ IS/MND, Appendix D, Attachment 1, Exhibit 1B, Figure 3-2c.

³¹ The Applicant’s biologists detected 808 Hall’s bush-mallow plants in this area in 2020. See attached California Native Species Field Survey Form that was included with the Draft Environmental Impact Report for the Pacheco Reservoir Expansion Project.

³² IS/MND, p. 4-45.

³³ IS/MND, p. 4-46.

³⁴ IS/MND, p. 4-54.

³⁵ IS/MND, Appendix D, Attachment 2, Exhibit 2A, Plate 4.

ground disturbance to this sensitive natural community. Furthermore, Valley Water's proposal to store and stage materials in the Valley Oak Woodland conflicts with BMP WQ-4 in the IS/MND, which states: "[t]o protect on-site vegetation and water quality, staging areas should occur on access roads, surface streets, or other disturbed areas that are already compacted and only support ruderal vegetation."³⁶

The northern staging/storage area would be used to stage materials and equipment for helicopter pickup and delivery. It also would be used to stage tools and equipment used to operate and maintain drilling operations (e.g., fuel, sacks of concrete and drilling additives, lumber, containers for water, and drilling fluid).³⁷ Even if work activities in the northern storage/staging area do not require tree removal, staging or storing heavy materials and equipment within the root zone of oak trees is likely to damage the root system (e.g., through soil compaction), which can cause mortality of the trees.³⁸

Another error with Table 4.4-4 is that it indicates the Project would have access routes through several sensitive natural communities, but that none of these access routes have the potential to cause ground disturbance to those sensitive natural communities. The Project's access routes would be used by an excavator and drill rigs in areas that cannot be accessed from existing roads.³⁹ These pieces of equipment are extremely heavy, difficult to steer accurately in some conditions, would compact soils, and would undoubtedly cause ground disturbance.

The IS/MND suggests that impacts to sensitive natural communities would be less than significant through implementation of the BMPs and AMMs that were incorporated into the IS/MND.⁴⁰ Whereas these BMPs and AMMs require seeding areas of disturbed and bare soil following ground disturbance, they do not require restoration of the specific sensitive natural communities that are impacted by the Project, nor do the relevant BMPs and AMMs contain monitoring and performance standards. As a result, Project impacts to sensitive natural communities remain potentially significant.

Special-Status Animals

The IS/MND (p. 4-41) states the following:

- a) "If it is determined the proposed Project would result in take of bald eagles or golden eagles, an incidental take permit from the USFWS would be required."

³⁶ IS/MND, p. 2-42.

³⁷ IS/MND, p. 2-31.

³⁸ University of California Integrated Hardwood Range Management Program. 2010. Living Among the Oaks: A Management Guide for Landowners. Division of Agriculture and Natural Resources Publication #21538. *See also* Sacramento Tree Foundation. 2007. Guide to Sacramento Oaks. Sacramento Tree Foundation, Sacramento, CA. *See also* Rossi RS. 1980. History of cultural influences on the distribution and reproduction of oaks in California. In: Plumb TR, technical coordinator. Proceedings of the symposium on the ecology, management and utilization of California oaks; 1979 June 26-28; Claremont, CA. Gen. Tech. Rep. PSW-44. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station: 7-18.

³⁹ IS/MND, p. 2-13.

⁴⁰ IS/MND, pp. 4.4-55 and -56.

- b) “An incidental take permit from CDFW would be required if it is determined the proposed Project would result in take of state-listed species.”

These determinations on whether the Project would result in take of eagles or a state-listed species need to be disclosed to the public in the IS/MND. Furthermore, although the IS/MND has deferred these “take” determinations, it does not require consultation with the U.S. Fish and Wildlife Service (“USFWS”) and CDFW to determine whether a take permit is needed. This issue is compounded by the IS/MND’s omission of the federal Endangered Species Act (“ESA”), California Endangered Species Act (“CESA”), and the Bald and Golden Eagle Protection Act from its list of “applicable regulatory requirements.”⁴¹ Several of the species that occur or have the potential to occur at the Project site are protected under the ESA.⁴² Therefore, in addition to the potential need for a take permit from CDFW, the Project may require a take permit from the USFWS. Because the Project would generate a substantial amount of disturbance in an area with multiple eagle territories, it is my professional opinion that the Project requires an eagle take permit from the USFWS. In addition, because the Project involves ground disturbance in aquatic habitats potentially occupied by the California red-legged frog and California tiger salamander,⁴³ it is my professional opinion that the Project requires take permits from the USFWS and CDFW if coverage under the SCVHP is not obtained.

Monarch Butterfly

The monarch butterfly is a candidate species for listing under the federal Endangered Species Act. The IS/MND states: “[m]igrating monarchs depend on milkweed for nectar and as a host plant for laying eggs and larval development.”⁴⁴ The IS/MND (Table 4.4-3) identifies direct impacts to milkweed (*Asclepias* spp.) from equipment and vehicles as a potentially significant Project impact. Based on the IS/MND’s special-status plant species map, the Project could have direct impacts on milkweed.⁴⁵ The proposed mitigation for impacts to milkweed include several avoidance measures (i.e., MMs BIO-1, BIO-2, BIO-3, BIO-6).⁴⁶ However, if direct impacts to milkweed occur, Valley Water would implement MM BIO-7, which states:

“Areas disturbed by geotechnical investigation activities at each site shall be rehabilitated to near pre-Project conditions to the extent feasible. Rehabilitation activities shall include backfilling of all excavations/borings and recontouring the areas to match the surrounding conditions as required, seeding with an erosion control seed mix containing native locally occurring watershed specific forbs, wildflowers and/or grasses.”⁴⁷

Therefore, according to MM BIO-7, it may not be feasible to restore milkweed areas impacted by Project activities. Moreover, although MM BIO-7 requires seeding of disturbed areas, it does

⁴¹ IS/MND, Table 1-1.

⁴² IS/MND, Table 4.4-3.

⁴³ Santa Clara County Water District. 2021 Nov. Draft Environmental Impact Report for the Pacheco Reservoir Expansion Project [State Clearinghouse # 2017082020]. Appendix Biological Resources-Botanical/Wildlife, Attachment A, Exhibit C and Exhibit D (PDF 196 and 265).

⁴⁴ IS/MND, Appendix D, Attachment 1, Exhibit 1E (Other Special-Status Species), p. 6.

⁴⁵ IS/MND, Appendix D, Attachment 1, Exhibit 1B, Figure 3-2c.

⁴⁶ IS/MND, Table 4.4-3.

⁴⁷ IS/MND, p. 4-63.

not require establishment of milkweed plants to replace those that are impacted by the Project. As a result, the mitigation measures proposed in the IS/MND do not ensure impacts on the monarch butterfly would be reduced to less than significant levels.

Jurisdictional Waters

The Project Study Area contains 12.858 acres of potentially jurisdictional aquatic resources. According to the IS/MND: “[w]ithin these aquatic resources, a total of 48 borings (41 primary and 7 supplemental borings) would be drilled below the full-pool elevation of the reservoir, which supports seasonal wetlands when the reservoir is drawn-down. Each individual boring would have a total disturbance area of 4 square feet (based on a boring diameter of 6 inches).”⁴⁸

Many of the proposed drilling locations occur at seasonal wetlands located within the full pool line of the existing Pacheco Reservoir.⁴⁹ The IS/MND states that a track-mounted drill rig would be used to extract borings at these seasonal wetland locations,⁵⁰ but a barge-based drill rig would be used if the reservoir is inundated.⁵¹ The IS/MND’s statement that “each individual boring would have a total disturbance area of 4 square feet” reflects the amount of disturbance associated with the bore hole only, thus ignoring disturbance caused by the track-mounted drill rig and associated work crew. As a result, the IS/MND has vastly underestimated the Project’s impacts on jurisdictional aquatic resources because a track-mounted drill rig does not have a disturbance footprint of 4 square feet.⁵²

The IS/MND claims geotechnical activities in the reservoir would not result in significant impacts on federally or state-regulated wetlands because: “[u]nless Pacheco Reservoir contains water at the time of geotechnical analysis, which would then consist of vibracore borings from a barge, geotechnical investigation activities would take place when the seasonal wetlands are dry to minimize potential impacts, including impact to water quality.”⁵³ The IS/MND’s rationale is flawed because ground disturbance to wetlands could still cause significant impacts even if the wetlands are dry. There is also no definition for what comprises “dry” conditions or why and how those conditions minimize any impacts to wetland soils, plants, and animals. A track-mounted drill rig that drives to wetland sampling locations and along access routes through wetlands would impact wetland vegetation (see Figure 2 below), which provides numerous ecological functions, including refugia for semi-aquatic organisms. Furthermore, the track-mounted drill rig would loosen the top layer of soils while simultaneously compacting soils below; both phenomena increase the potential for soil erosion and sediment suspension during the rainy season. The IS/MND fails to assess, or incorporate mitigation for, these impacts due to track-mounted drill rig operations in wetland areas.

⁴⁸ IS/MND, p. 4-56.

⁴⁹ IS/MND, Appendix D, Attachment 3, Exhibit 3E, plates 4 through 10.

⁵⁰ IS/MND, p. 2-33 and footnote to Table 2-3.

⁵¹ IS/MND, p. 2-30.

⁵² IS/MND, pp. 2-12, 4-56, 4-96.

⁵³ IS/MND, p. 4-57.

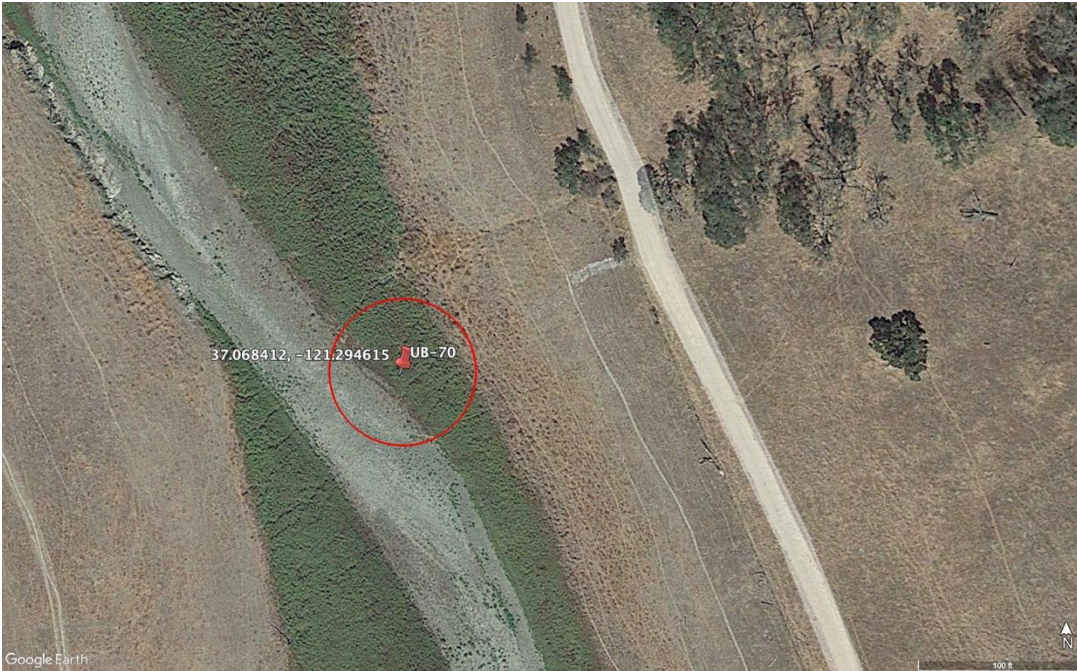


Figure 2. Work area UB-70 (red circle) in Pacheco Reservoir.⁵⁴ Wetland vegetation adjacent to creek channel is green. Imagery dated 25 Sep 2020.

The IS/MND states: “[w]ith the exception of the borings/supplemental borings, no other geotechnical investigation work areas would result in disturbances to wetlands or other aquatic resources regulated by the SWRCB, CDFW, or the USACE.”⁵⁵ This statement is inconsistent with the wetland delineation maps provided in Appendix D to the IS/MND. These maps depict new access roads going through seasonal wetlands, a riverine ephemeral drainage, and across the South Fork Pacheco Creek.⁵⁶ Heavy equipment (e.g., the excavator and drill rigs) could cause significant damage to the geomorphology of jurisdictional aquatic resources and the associated habitat for wetland plants and animals.

The wetland delineation maps also depict potential impacts to seasonal wetlands at: (a) test pits 33 and 47 (e.g., Figure 3 below), (b) along DSR-21 and DSR-22, and (c) along some of the access routes in the test pit area.⁵⁷ These sensitive resources are clearly visible in IS/MND Appendix D: Biological Resources.⁵⁸ Access roads through wetland features violates the terms of the Santa Clara Valley Habitat Plan (“SCVHP”), which states: “[o]ff-road travel will avoid sensitive communities such as wetlands and known occurrences of covered plants.”⁵⁹

⁵⁴ Geographic coordinates for work areas were obtained from IS/MND, Tables 2-2 and 2-3. Work activity area is 100 feet in diameter (IS/MND, p. 2-12).

⁵⁵ IS/MND, p. 4-56.

⁵⁶ IS/MND, Appendix D, Attachment 3, Exhibit 3E, plates 8, and 10 through 12.

⁵⁷ IS/MND, Appendix D, Attachment 3, Exhibit 3E, plates 8 and 10.

⁵⁸ IS/MND, Appendix D, Attachment 3 - Aquatic Resources Delineation, Exhibit 3E. Waters of the State. Plates 8 and 10 through 12.

⁵⁹ ICF International. 2012. Final Santa Clara Valley Habitat Plan. Santa Clara Valley Habitat Agency, Morgan Hill, CA. Table 6-2, ID #62. <https://scv-habitatagency.org/178/Santa-Clara-Valley-Habitat-Plan>



Figure 3. Location of work activity area for TP-33 (red circle).⁶⁰ Yellow arrow points to seasonal wetland (dark color) in the work area.⁶¹

A considerable amount of the proposed northern staging/storage area lies within the top bank (full pool) of Pacheco Reservoir.⁶² According to the IS/MND: “[a]ll activities related to fuel loading and transport would be restricted to the east side of the northern staging/storage area or on existing access roads located above the full pool line.”⁶³ This does not appear feasible because there are only a few feet (approximately 5 to 13 feet, depending on location) between the edge of the road and full pool line, and storing fuel containers on the road where they could get struck by vehicles or equipment would not be a safe option (Figure 4 below).

Even if all activities related to fuel loading and transport could be restricted to areas east of the full pool line, doing so would violate Condition 12 of the SCVHP, which states: “[n]o construction or maintenance vehicles will be refueled within 200 feet of avoided wetlands and ponds unless a bermed and lined refueling area is constructed and hazardous material absorbent pads are available in the event of a spill.”⁶⁴ The northern staging/storage area does not contain a bermed and lined refueling area, but rather, a slope leading directly to Pacheco Reservoir.

⁶⁰ Geographic coordinates for work areas were obtained from IS/MND, Tables 2-2 and 2-3. Work activity area is 100 feet in diameter (IS/MND, p. 2-12). Imagery dated 18 Oct 2023.

⁶¹ This seasonal wetland was mapped as potential Waters of the State. *See* IS/MND, Appendix D, Attachment 3, Exhibit 3E, plate 10 (upper right corner).

⁶² IS/MND, Appendix D, Attachment 3, Exhibit 3E, plates 8 and 10, plate 4.

⁶³ IS/MND, p. 2-31.

⁶⁴ ICF International. 2012. Final Santa Clara Valley Habitat Plan. Santa Clara Valley Habitat Agency, Morgan Hill, CA. p. 6-58.

Fueling activities at the helicopter staging area would also violate this condition.⁶⁵ In addition to violating Condition 12 of the SCVHP, the northern staging/storage area would violate WQ-4, which is one of the BMPs incorporated into the IS/MND. WQ-4 states: “[b]uilding materials and other project-related materials, including chemicals and sediment, will not be stockpiled or stored where they could spill into water bodies or storm drains.”⁶⁶ The Project’s failure to comply with Condition 12 and WQ-4 has implications on the findings in the IS/MND, because these two measures were used to support Valley Water’s determination that impacts on special-status plants, special-status animals, and sensitive natural communities would be reduced to less than significant levels.⁶⁷ For these reasons, the IS/MND does not adequately analyze sensitive aquatic resources that would or could be impacted by the Project.

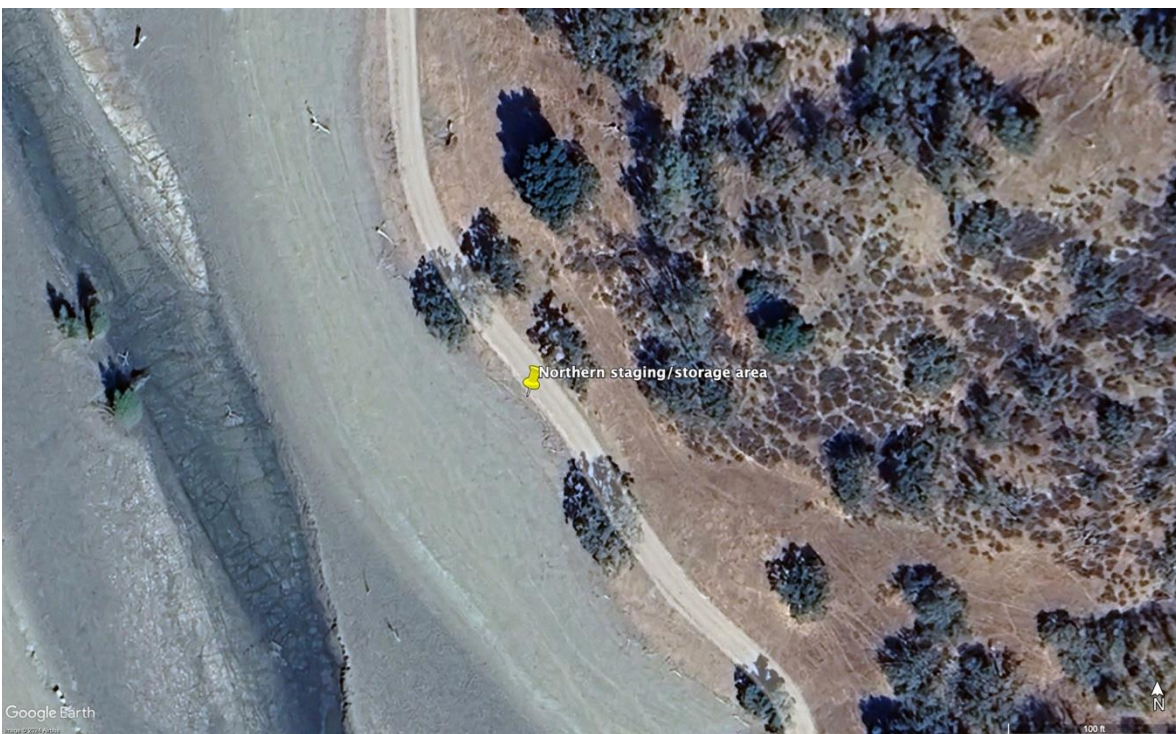


Figure 4. Location of the proposed northern staging/storage area. Distance between the edge of the road (yellow pin) and bank of Pacheco Reservoir (gray color) is approximately 6 feet. Imagery dated 18 Oct 2023.

Impacts to Wildlife Corridors

The Project involves: (a) new access routes for vehicles and equipment in hills east of the reservoir, and through Pacheco Creek both within and outside of the defined OHWM of the

⁶⁵ Based on Google Earth imagery and IS/MND Figure 2-2b, helicopter fueling would occur approximately 110 feet from the top bank of Pacheco Reservoir.

⁶⁶ IS/MND, p. 2-43.

⁶⁷ IS/MND, pp. 4-45 through 4-56.

existing reservoir; (b) a significant increase in traffic and disturbance on existing “ranch” roads, which are infrequently used; and (c) a substantial amount of helicopter activity throughout the valley and surrounding hills.⁶⁸ Collectively, these activities would generate a substantial amount of disturbance (e.g., noise and human activity) in an area with minimal human activity. This substantial increase in disturbance levels, which would extend across multiple seasons, could have a significant impact on wildlife movement, especially because Project activities represent novel sources of disturbance to resident wildlife (e.g., resident animals are unaccustomed to helicopter and drilling noise, or abundant human activity).

The IS/MND’s analysis of impacts to wildlife movement begins by stating the following:

“As described in the Valley Habitat Plan, the portion of Pacheco Creek immediately downstream of the confluence of North Fork Pacheco Creek and South Fork Pacheco Creek that flows under SR-152 is considered a wildlife landscape linkage, as assessed by the California Wilderness Coalition (SCVHA 2012). By crossing underneath the SR-152 bridge over Pacheco Creek, wildlife can safely disperse across the highway, which functions as a dispersal barrier for terrestrial wildlife species. However, due to the presence of the plunge pool downstream of the existing North Fork Dam, dense riparian vegetation, and a nearby rural residence, this crossing has lower value as a habitat linkage compared to bridge crossings located further downstream of the proposed Project along Pacheco Creek.”⁶⁹

The IS/MND’s determination that the crossing underneath SR-152 has “lower value as a habitat linkage compared to bridge crossings located further downstream” is not substantiated and conflicts with scientific evidence.⁷⁰ Moreover, the stated rationale for the IS/MND’s determination lacks credibility. Both the plunge pool and the “nearby rural residence” are nearly one-third of a mile from the crossing, a distance that would not affect the crossing’s value to wildlife. In addition, and despite what the IS/MND suggests, dense riparian vegetation provides excellent characteristics for wildlife movement (e.g., by providing cover).⁷¹

The IS/MND’s analysis then states:

“Upstream of North Fork Dam, Pacheco Reservoir provides limited dispersal opportunities for terrestrial wildlife in the late summer through early winter while it is drawing down, because it functions as a dispersal barrier for wildlife after it fills earlier in the year.”⁷²

⁶⁸ See IS/MND, Tables 2-4 and 2-5.

⁶⁹ IS/MND, p. 4-58.

⁷⁰ See Penrod K, Garding PE, Paulman C, Beier P, Weiss S, Schaefer N, Branciforte R, Gaffney K. 2013. Critical Linkages: Bay Area & Beyond. Fair Oaks (CA): Science & Collaboration for Connected Wildlands. [accessed 2024 Jul 16]. p. 183: “*These six structures provide ample opportunities for wildlife movement in this branch of the linkage.*”

⁷¹ Catterall CP, Lynch R, Jansen A. 2007. Riparian wildlife and habitats. Principles for riparian lands management. Land and Water Australia, Canberra, Australia. pp. 141-158. See also Penrod K, Garding PE, Paulman C, Beier P, Weiss S, Schaefer N, Branciforte R, Gaffney K. 2013. Critical Linkages: Bay Area & Beyond. Fair Oaks (CA): Science & Collaboration for Connected Wildlands. [accessed 2024 Jul 16]. http://www.scwildlands.org/reports/CriticalLinkages_BayAreaAndBeyond.pdf

⁷² IS/MND, p. 4-58.

The IS/MND's statement regarding Pacheco Reservoir functioning as a dispersal barrier for wildlife contradicts Valley Water's previous analysis. In the analysis that was prepared for the PREP, Valley Water determined that the (proposed) reservoir expansion would have a less than significant impact on wildlife because "larger animals such as mountain lion and badger, which have larger dispersal and home ranges, would be less affected by the expanded reservoir even when the reservoir is full given the mobility of the species."⁷³ In fact, the analysis that was prepared for the PREP suggests that the reservoir, although acting as a barrier to east-west movement of terrestrial animals during certain times of year, may facilitate wildlife movement because it provides a "water source for animals during the dry months and increases the prey base for many species in the surrounding area."⁷⁴

Many wildlife species avoid areas with human activity and noise.⁷⁵ Therefore, the Project's substantial increase in noise and human activities close to the reservoir could have a significant impact on animals that use areas near the reservoir as a movement corridor due to availability of water and food (prey). Although the IS/MND acknowledges that use of the existing ranch roads that occur near the banks of the reservoir could directly impact animals through vehicle strikes, or indirectly impact animals through displacement and reduced fitness, it fails to consider how those same impacts would affect wildlife movement.

The IS/MND addressed only one species, the tule elk, in its analysis of impacts to wildlife movement. The IS/MND states:

"As noted in Attachment 1, Biological Resources Assessment Report, in Appendix D, tule elk from the San Luis herd are known to cross the uppermost portion of Pacheco Reservoir while it is dry during rutting season (September through November), which could coincide with proposed geotechnical investigations. However, due to the discrete nature of each activity area, proposed Project activities would not create temporary or permanent barriers to wildlife dispersal, although the noise generated from proposed Project activities and human presence could result in wildlife avoiding work areas, expending more effort while dispersing through the proposed Project study area."⁷⁶

The IS/MND apparently fails to recognize that noise and human activity associated with the Project would not be confined to discrete work areas (e.g., the individual test pit and exploratory boring sites), but also would occur at the various staging areas, and along several miles of the Project's access routes and roadways. Furthermore, although ground disturbance at each test pit or boring site might be confined to a 100-foot diameter "work area" circle,⁷⁷ the noise and human activity associated with the work would extend far beyond the work area boundary.

⁷³ Santa Clara County Water District. 2021 Nov. Draft Environmental Impact Report for the Pacheco Reservoir Expansion Project [State Clearinghouse # 2017082020]. Table 3.5-5 and p. 3.5-113.

⁷⁴ *Ibid.* p. 3.5-113.

⁷⁵ Frid A, Dill L. 2002. Human-caused disturbance stimuli as a form of predation risk. *Conservation Ecology* 6(1):11. *See also* Lucas E. 2020. Recreation-related disturbance to wildlife in California – better planning for and management of recreation are vital to conserve wildlife in protected areas where recreation occurs. *California Fish and Wildlife, Recreation Special Issue.* p. 29–51.

⁷⁶ IS/MND, p. 4-58.

⁷⁷ IS/MND, p. 2-12.

Terrestrial mammals exhibit increased stress levels and decreased reproductive efficiency at noise levels between 52 dBA and 68 dBA.⁷⁸ The rock drill that would be used at many of the exploratory boring sites⁷⁹ produces a noise level of 95 dBA at 50 feet.⁸⁰ At this noise level, it would take 7,063 feet for the noise level to attenuate to 52 dBA, and 1,119 feet for it to attenuate to 68 dBA.⁸¹ In other words, terrestrial mammals as far as 7,063 feet from the work area could be significantly impacted by noise from the rock drill. However, the Project would not be generating noise from only one rock drill; up to 5 drill rigs may be operating concurrently.⁸² Other Project equipment such as the helicopter (98 dBA) and excavator (85 dBA) also would generate loud noise.⁸³ Based on the Project schedule reported in the IS/MND,⁸⁴ noise (and human activity) would extend across the entire rutting season and times of year when tule elk move in search of high-quality forage or water.⁸⁵ This Project-related noise and human activity could have a significant impact on tule elk movement, especially given the species' intolerance of human disturbance.⁸⁶ Indeed, research on tule elk at other sites in Central California demonstrated that avoidance of roads and human disturbance is a significant predictor of habitat use.⁸⁷

Other species that are highly intolerant of human disturbance include the mountain lion and golden eagle, both of which are likely to be significantly impacted by noise and human activity associated with the Project.

Mountain lions require a habitat mosaic that provides sufficient space to move away from human-disturbed areas, and that connects to expansive, intact, heterogeneous environments. Lack of adequate habitat and functional connectivity between mountain lion subpopulations is the primary driver of declining mountain lion populations,⁸⁸ including the Southern California/Central Coast Evolutionarily Significant Unit (ESU) of mountain lions that occurs in the Project area, and that is currently a candidate for listing under the California Endangered Species Act.

⁷⁸ Shannon G, McKenna MF, Angeloni LM, Crooks KR, Fristrup KM, Brown E, Warner KA, Nelson MD, White C, Briggs J, McFarland S. 2016. A synthesis of two decades of research documenting the effects of noise on wildlife. *Biological Reviews* 91(4):982-1005.

⁷⁹ IS/MND, Table 4.13-8.

⁸⁰ IS/MND, Table 4.13-7.

⁸¹ Omni Calculator. 2014 Jul 11. Distance Attenuation Calculator. [accessed 2024 Jul 16].

<https://www.omnicalculator.com/physics/distance-attenuation#what-is-the-spl-sound-pressure-level>.

⁸² IS/MND, footnote to Table 2-4.

⁸³ IS/MND, Table 4.13-7.

⁸⁴ IS/MND, p. 2-36.

⁸⁵ Mohr AS, Stafford R, Bean WT. 2022. Tule elk selection of surface water and forage is mediated by season and drought. *California Fish and Wildlife Journal* 108:e19.

⁸⁶ *Ibid.*

⁸⁷ *Ibid.*

⁸⁸ California Department of Fish and Wildlife. 2020. Evaluation of a Petition from the Center for Biological Diversity and the Mountain Lion Foundation to List the Southern California/Central Coast Evolutionarily Significant Unit (ESU) of Mountain Lions as Threatened Under the California Endangered Species Act. Report to the California Fish and Game Commission. Final Review Draft. 50 p. [accessed 2024 Jun 5]. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=177482>

Even low levels of disturbance can have significant population-level effects on the golden eagle, which is known to be highly sensitive to many types of human activities,⁸⁹ including pedestrian and other non-motorized forms of recreation.⁹⁰ Studies on golden eagle nest success have found that between 46 and 85 percent of nesting failures were due to human disturbance.⁹¹ Although many golden eagle nest sites experience some level of intermittent and on-going low levels of disturbance from human activities, and although the resident pair of eagles may have acclimated to these existing levels of disturbance, the eagles may not tolerate *increases* in human activity.⁹² As a result, the USFWS recommends a one-mile no-disturbance buffer surrounding golden eagle nesting sites in California.⁹³

For the reasons discussed above, Project impacts on wildlife movement may warrant a mandatory finding of significance under CEQA Guidelines section 15065(a)(1) by restricting the range of various species.

Missing Use of Wildlife Corridor Datasets

To understand the landscape-scale impacts of a geographically broad project impact, it is necessary to apply tools that also assess corridors at that scale. The analysis in the IS/MND fails to use even the most basic sources of public information regarding regional corridors that overlap the project. For example, the “Terrestrial Connectivity” dataset is one of the four key components of the California Department of Fish and Wildlife’s Areas of Conservation Emphasis (“ACE”) suite of terrestrial conservation information along with terrestrial Biodiversity, Significant Habitats, and Climate Resilience. The Terrestrial Connectivity dataset summarizes information on terrestrial connectivity by ACE hexagon including the presence of mapped corridors or linkages and the juxtaposition to large, contiguous, natural areas. This dataset was developed to support conservation planning efforts by allowing users to spatially evaluate the relative contribution of an area to terrestrial connectivity based on the results of statewide, regional, and other connectivity analyses.⁹⁴ Almost all of the Project study area (except for a few drilling locations along Highway 152) has an ACE Rank of 5 (the highest rank).⁹⁵ ACE Rank 5 areas are defined as *Irreplaceable and Essential Corridors*. These areas

⁸⁹ Ruddock M, Whitfield DP. 2007. A Review of Disturbance Distances in Selected Bird Species. A report from Natural Research (Projects) Ltd to Scottish Natural Heritage. 181 p. *See also* Steenhof K, Brown JL, Kochert MN. 2014. Temporal and spatial changes in Golden Eagle reproduction in relation to increased off highway vehicle activity. *Wildlife Society Bulletin* 38(4):682–688.

⁹⁰ U.S. Fish and Wildlife Service. 2021. Recommended Buffer Zones for Ground-based Human Activities around Nesting Sites of Golden Eagles in California and Nevada. [accessed 2024 Jun 6]. https://www.fws.gov/sites/default/files/documents/USFWS-California-Great-Basin-golden-eagle-nest-buffer-recommendations-May2021_0.pdf

⁹¹ Suter GW III, JL Joness. 1981. Criteria for Golden Eagle, Ferruginous Hawk and Prairie Falcon Nest Site Protection. *Raptor Research* 15(1):12–18.

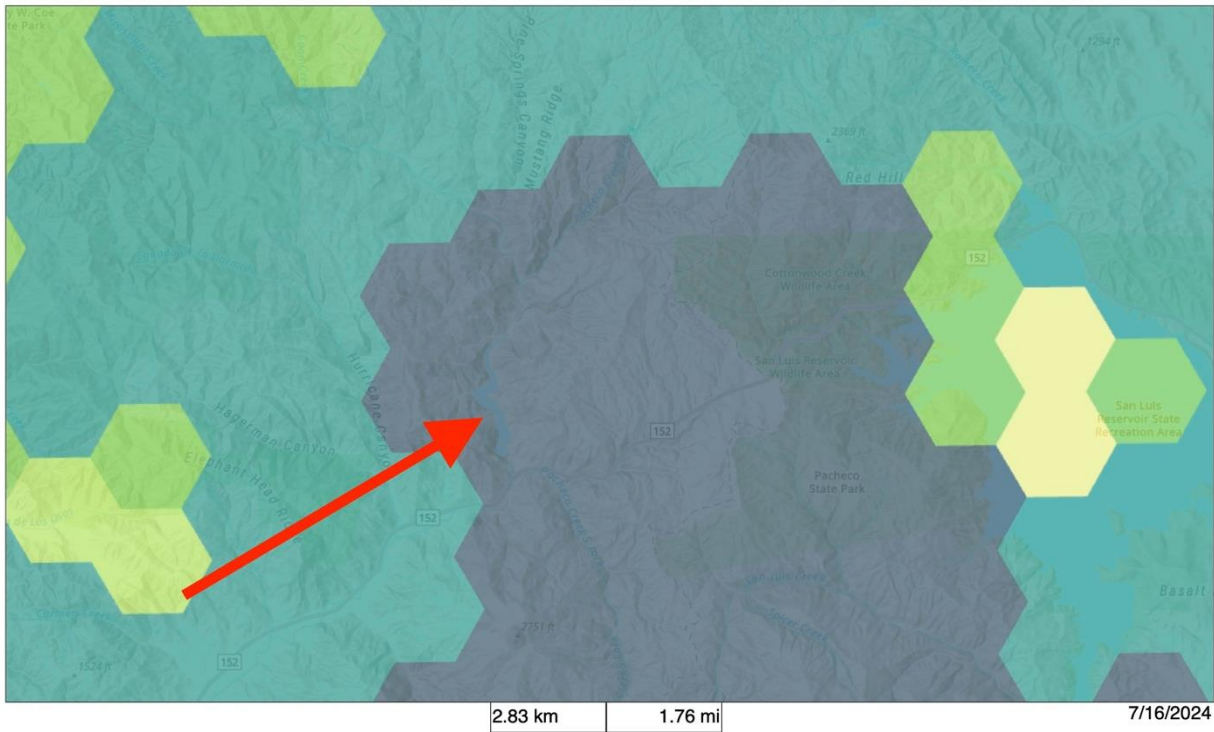
⁹² U.S. Fish and Wildlife Service. 2021. Recommended Buffer Zones for Ground-based Human Activities around Nesting Sites of Golden Eagles in California and Nevada. [accessed 2024 Jun 6]. https://www.fws.gov/sites/default/files/documents/USFWS-California-Great-Basin-golden-eagle-nest-buffer-recommendations-May2021_0.pdf

⁹³ *Ibid.*

⁹⁴ California Department of Fish and Wildlife. 2019. ACE Dataset Fact Sheet: Terrestrial Connectivity (DS2734). [accessed 2024 Jun 5]. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=150835&inline>

⁹⁵ Hardy M. 2024 [revision]. Terrestrial Connectivity – ACE [ds2734]. Biogeographic Information and Observation System (BIOS). Calif. Dept. of Fish and Wildlife. <https://apps.wildlife.ca.gov/ace/>

encompass channelized areas and priority species movement corridors. Channelized areas may represent the last available connection(s) between two areas, making them high priority for conservation.⁹⁶ Figure 5 below depicts the Project region with an overlay of the hexagons analyzed in the ACE Terrestrial Connectivity dataset and their relative values to landscape-level connectivity.



Map Legend

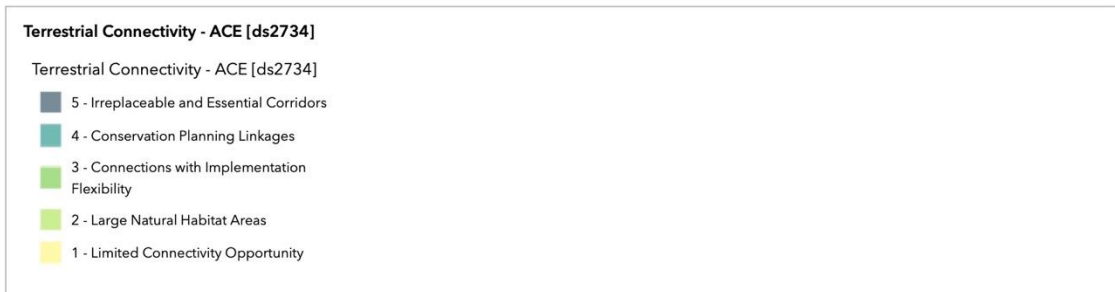


Figure 5. ACE Terrestrial Connectivity ranks for hexagons in the Project area. Darkest hexagons represent Irreplaceable and Essential Corridors. Red arrow points to Pacheco Reservoir.

⁹⁶ California Department of Fish and Wildlife. 2019. ACE Dataset Fact Sheet: Terrestrial Connectivity (DS2734). [accessed 2024 Jun 5]. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=150835&inline>

Similarly, the Project analysis ignores the landscape linkages identified in the Critical Linkages: Bay Area & Beyond Project. This project identified areas that are vital for connectivity within the nine-county Bay Area and beyond to ensure the region is connected to the larger landscapes to the north and south. The Project area coincides with a critical linkage between the Diablo Range and Inner Coast Range. The linkage contains three strands.⁹⁷ The Project would significantly impact movement of wildlife within the western strand (Figure 6 below), which was delineated by the overlapping least-cost corridors for 5 of the 8 focal species (mountain lion, bobcat, black-tailed deer, California quail, and ringtail).⁹⁸

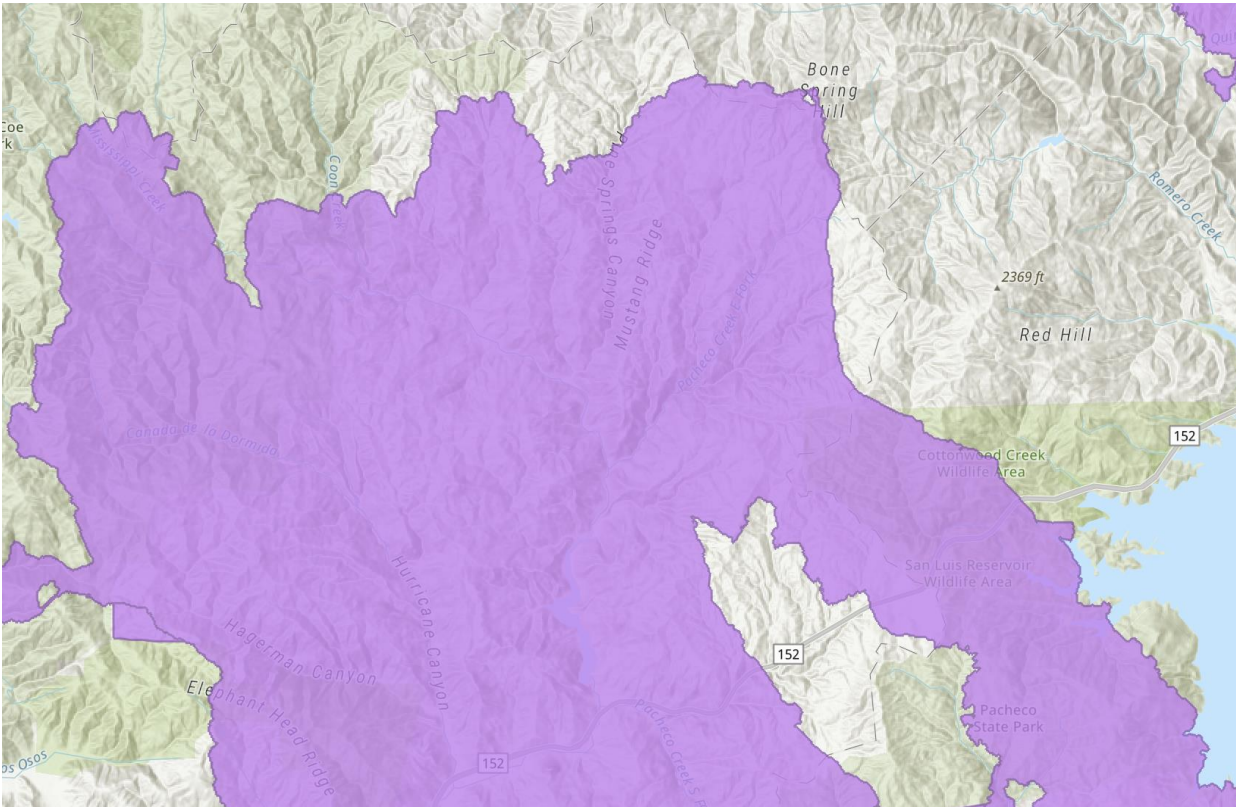


Figure 6. Western and central strands of the critical linkage between the Diablo Range and Inner Coast Range.⁹⁹

The IS/MND’s analysis is fundamentally defective, as it ignores the State’s standard regional corridor mapping datasets. These data can only be interpreted as identifying that the Project

⁹⁷ Penrod K, Garding PE, Paulman C, Beier P, Weiss S, Schaefer N, Branciforte R, Gaffney K. 2013. Critical Linkages: Bay Area & Beyond. Fair Oaks (CA): Science & Collaboration for Connected Wildlands. Figure 152. [accessed 2024 Jul 16]. http://www.scwildlands.org/reports/CriticalLinkages_BayAreaAndBeyond.pdf

⁹⁸ *Ibid.* pp. 183 and 184.

⁹⁹ Penrod K. 2014. Linkage Design for the California Bay Area Linkage Network [ds852]. Calif. Dept. of Fish and Wildlife. Biogeographic Information and Observation System (BIOS). [accessed 2024 Jul 16]. <https://apps.wildlife.ca.gov/bios6/?al=ds852>

footprint would clearly overlap and bisect irreplaceable corridors and habitat linkages that deserve specific analysis.

Trees

Appendix A to the IS/MND contains a table that provides a summary of the tree impacts. The table only identifies tree removal at the boring locations, thus suggesting that no tree removal would be required for the test pits and access routes. However, based on the maps and GPS coordinates provided in the Project Description, it appears it would be impossible to avoid impacting trees at TP-40, TP-48, and TP-52 (see Figure 7 below). There is no Certified Arborist report included or referenced in the IS/MND, and no analysis that describes the current conditions of the trees and their potential for disease or mortality if they are damaged. Even if Valley Water could find 20-foot by 3-foot openings for test pits at these locations,¹⁰⁰ the excavator may not be able to access the work areas without damaging trees and their associated root zones. Several of the other proposed test pit areas are centered on trees (e.g., TP-30, TP-36, TP-63). Although tree removal at those locations may be avoidable (given the lower tree density), it raises questions on the accuracy of the IS/MND's statement that no more than 30 trees would be removed for the Project.¹⁰¹

Condition 14 in the SCVHP states the following: “[i]f trees are maintained on a site, buffer zones will be established between preserved valley oak or blue oak trees and development at a distance equal to or greater than the root protection zone, which is defined as a buffer zone determined by calculating one foot for each inch of trunk diameter measured at 4.5 feet above ground surface.”¹⁰² Although the IS/MND claims the Project would comply with this condition,¹⁰³ it fails to provide evidence that it would be possible to do so, especially because several of the proposed work areas are located entirely within areas classified as valley oak or blue oak woodland.¹⁰⁴

¹⁰⁰ IS/MND, p. 2-13: “Each test pit would be excavated to a depth and length determined by field conditions but would generally be about 10 to 20 feet long, 3 feet wide (i.e., test pit excavations would be rectangular in shape), and ranging between 5 and 20 feet deep.”

¹⁰¹ IS/MND, p. 4-59.

¹⁰² ICF International. 2012. Final Santa Clara Valley Habitat Plan. Santa Clara Valley Habitat Agency, Morgan Hill, CA. p. 6-60.

¹⁰³ IS/MND, p. 4-59.

¹⁰⁴ DEIR, Appendix D, Attachment 2, Exhibit 2A.



Figure 7. Work areas (red circles) for test pits 40 and 48.¹⁰⁵ Imagery dated 18 Oct 2023.

MITIGATION MEASURES

Qualifications of the Qualified Biologist

BIO-1, BIO-2, BIO-5, and BIO-6 require actions by a “qualified biologist.” However, nowhere does the IS/MND identify what skills and experience would make a person a “qualified biologist.” Because the IS/MND fails to establish standards (minimum qualifications) for the “qualified biologist” that would implement BIO-1, BIO-2, BIO-5, and BIO-6, it does not ensure those mitigation measures would be successfully implemented.

Relocation of Work Areas

Mitigation measure BIO-1d states: “[i]f the qualified biologist identifies sensitive resources and potential effects [during the pre-activity survey], the geologist shall work with the specialist to relocate the investigation site to avoid the sensitive area.”¹⁰⁶ The potential that Valley Water would relocate work areas after termination of the CEQA review process is further affirmed in

¹⁰⁵ Geographic coordinates for work areas were obtained from IS/MND, Tables 2-2 and 2-3. Work activity area is 100 feet in diameter (IS/MND, p. 2-12).

¹⁰⁶ IS/MND, Table 4.4-5.

the Project Description, which states: “[i]n the event that one or more supplemental borings would require adjustments extending beyond the 100-foot diameter work activity area boundary, a reevaluation of each of those sites and approval by Valley Water prior to implementing any activity beyond the specific activity area boundary would be required.”¹⁰⁷

The Project study area is defined as the currently proposed impact areas associated with geotechnical borings, test pits, staging areas, and access routes.¹⁰⁸ Therefore, despite what is suggested in the IS/MND, there will be minimal flexibility in adjusting the disturbance area within a given 100-foot diameter work area, while also implementing the setback buffers specified in the IS/MND and SCVHP. If Valley Water is allowed to move work areas outside of the Project study area at its own discretion and without any oversight, it could cause significant environmental impacts that were not analyzed in the IS/MND.

BIO-1c (Nesting Birds)

MM BIO-1c states: “[i]f excavation activities are planned during the avian nesting season (i.e., January 15 through September 1), a qualified biologist shall conduct ground-based surveys within the site(s) and within 150 feet for nesting passerines and 300 feet for nesting raptors.”¹⁰⁹ The IS/MND must clarify whether these “excavation activities” include drilling sites and other locations where disturbance would occur (e.g., staging areas), or only areas where soil would be excavated for test pits.

As reported in the IS/MND, noise and human activity can cause nest abandonment, the loss of fertile eggs, or mortality of young.¹¹⁰ The Project would result in a considerable amount of noise and human activity at the 2 storage/staging areas, and at the staging area for the helicopter. Noise from the helicopter (between 97.2 dBA Lmax and 98.1 dBA Lmax at 100 feet)¹¹¹ greatly exceeds the level known to be deleterious to birds and other wildlife.¹¹² Vehicles and equipment (e.g., excavator, ATV, drill rig truck) traveling on the Project’s access routes would also produce noise levels that can negatively impact nesting birds.¹¹³ Therefore, the IS/MND must identify the specific Project activities and areas that would require nesting bird surveys.

The USFWS uses 60 dBA as the noise threshold for impacts to federally-listed (nesting) birds.¹¹⁴ This is consistent with Dooling and Popper’s 2016 assessment that: “[a]bove ambient noise

¹⁰⁷ IS/MND, p. 2-17.

¹⁰⁸ IS/MND, Appendix D, Attachment 1, p. 6.

¹⁰⁹ IS/MND, Table 4.4-5.

¹¹⁰ IS/MND, p. 4.4-3.

¹¹¹ IS/MND, p. 4-185.

¹¹² Barber JR, Crooks KR, Fristrup KM. 2010. The costs of chronic noise exposure for terrestrial organisms. *Trends in ecology & evolution* 25(3):180-189. *See also* Shannon G, McKenna MF, Angeloni LM, Crooks KR, Fristrup KM, Brown E, Warner KA, Nelson MD, White C, Briggs J, McFarland S. 2016. A synthesis of two decades of research documenting the effects of noise on wildlife. *Biological Reviews* 91(4):982-1005. *See also* Dooling RJ, Popper AN. 2016. *Technical Guidance for Assessment and Mitigation of the Effects of Traffic Noise and Road Construction Noise on Birds*. The California Department of Transportation, Sacramento, CA.

¹¹³ *Ibid.* *See also* IS/MND, Table 4.13-7.

¹¹⁴ For example, see pp. 52 and 54 in: U.S. Fish and Wildlife Service. 2019 May 31. Section 7 Consultation on FEMA Disaster, Mitigation and Preparedness Programs in Imperial, Inyo, Kern, Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties, California. [accessed 2024 Jul 16].

levels, critical ratio data from 14 bird species, well documented short-term behavioral adaptation strategies, and a background of ambient noise typical of a quiet suburban area would suggest noise guidelines in the range of 50–60 dBA.”¹¹⁵ Based on the inverse square law, if the Project’s helicopter produces a noise level of 98.1 dBA at 100 feet, it would take 8,035 feet for the helicopter noise to attenuate to 60 dBA.¹¹⁶ Similarly, if the excavator or auger drill rig is producing a noise level of 85 dBA at 50 feet,¹¹⁷ all areas within 889 feet of the excavator or auger drill rig would be exposed to a noise level above 60 dBA. For this reason, nesting bird surveys that are confined to areas within 150 or 300 feet (for nesting passerines and nesting raptors, respectively) of excavation activities would not be sufficient to avoid significant impacts to nesting birds.

BIO-1d (Special-status Animals)

MM BIO-1d states:

“A qualified biologist shall conduct pre-activity surveys within 48 hours prior to commencement of Project activities at each site for special-status animal species ... at appropriate times of day and weather condition, using appropriate survey methods and equipment (e.g., binoculars, DSLR cameras with telephoto lens and high shutter speed, wind meters, etc.). For special-status wildlife species that require more than one round of pre-construction surveys (e.g., Crotch’s bumble bee and nesting birds), the first survey round can be conducted during the pre-activity survey described in Mitigation Measure BIO-1a by a qualified biologist.”¹¹⁸

This mitigation measure is far too vague to ensure efficacy. The IS/MND needs to clarify where pre-activity surveys would be conducted and define what would be considered “appropriate times of day and weather condition.” In addition, the IS/MND must establish the permissible survey methods and state whether established survey protocols would be implemented. This is important because some of the special-status species that could be impacted by the Project (e.g., California tiger salamander, silvery legless lizard, bats) are generally not detectable through standard visual surveys.

The IS/MND states some species would require more than one round of pre-construction surveys, but it does not identify which species would require multiple surveys other than the Crotch bumble bee and nesting birds. For the Crotch bumble bee, the IS/MND must establish whether the biologist would implement CDFW’s 2023 *Survey Considerations for California*

https://www.fema.gov/sites/default/files/documents/fema_carlsbad-usfws-fema-programmatic-biological-opinion_2019.pdf

¹¹⁵ Dooling RJ, Popper AN. 2016. Technical Guidance for Assessment and Mitigation of the Effects of Traffic Noise and Road Construction Noise on Birds. The California Department of Transportation, Sacramento, CA. Footnote 6 to Table ES1.

¹¹⁶ <https://www.omnicalculator.com/physics/distance-attenuation#what-is-the-spl-sound-pressure-level>.

¹¹⁷ IS/MND, Table 4.13-7.

¹¹⁸ IS/MND, Table 4.4-5.

*Endangered Species Act (CESA) Candidate Bumble Bee Species.*¹¹⁹ In addition, the IS/MND must establish whether the biologist would implement the SCVHP’s pre-construction survey requirements for the San Joaquin kit fox, burrowing owl, tricolored blackbird, and least Bell’s vireo.

BIO-2c (Pre-construction Biological Check)

MM BIO-2c states: “[a]s part of biological monitoring, a qualified biologist shall conduct a pre-construction biological check of the access routes and work footprint on the morning of and immediately prior to start of mobilization of equipment to the work area and prior to start of work activities, for special-status species.”

It would not be feasible for a single biologist to implement this mitigation measure given the number of concurrent Project activities (e.g., the IS/MND states “up to 5 drill rigs may be operating concurrently”),¹²⁰ especially for remote works areas on steep terrain. To ensure the efficacy of MM BIO-2c, one biologist will be needed for each concurrent work area.

BIO-2e (Biological Monitoring)

MM BIO-2e states (in part): “[t]he biologist shall document pre-disturbance conditions and verify the mitigation measures and BMPs are appropriately implemented.” The efficacy of this measure is uncertain because there is no mechanism in place (e.g., a reporting requirement) to verify that the mitigation measures and BMPs were appropriately implemented.

BIO-3 (Vehicle and Equipment Decontamination) and BIO-4 (Aquatic Invasive Species Decontamination)

Mitigation measures BIO-3 and BIO-4 contain appropriate provisions for minimizing the spread of invasive species and pathogens. However, both measures fail to contain a mechanism for ensuring compliance. Informing construction contractors that both the inside and outside of their vehicles and equipment must be thoroughly cleaned before arriving at the Project site is not a reliable strategy. Consequently, the IS/MND must establish a compliance mechanism for BIO-3 and BIO-4. At a minimum, this should include an independent inspection (e.g., by the biologist) of vehicles and equipment arriving onsite, along with photographs and a written log documenting compliance with BIO-3 and BIO-4.

BIO-5 (Eagles)

Mitigation measure BIO-5 states the following:

“A qualified biologist shall perform nesting surveys for golden eagle and bald eagle within a 1-mile radius of the project footprint and access routes, including flight paths for any proposed helicopter work, where access is permitted. Ground

¹¹⁹ California Department of Fish and Wildlife. 2023 Jun 6. Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species. [accessed 2024 Jul 17]. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=213150&inline>

¹²⁰ IS/MND, footnote to Table 2-4.

based surveys will be conducted in January and late March/early April, as well as aerial surveys in late March/early April. If active eagle nests are documented with their corresponding avoidance buffers intersecting the planned work areas, a third survey will be conducted in June/July to confirm nest status.”¹²¹

These surveys are not feasible given the project schedule, which states field activities are expected to begin in the summer of 2024.¹²² Therefore, Valley Water must identify how it intends to adhere to the terms of MM BIO-5, while also starting construction activities in the summer of 2024.

Ground-based surveys for eagles were conducted in 2023; however, the aerial surveys were cancelled.¹²³ The associated survey report recognizes that the 2023 ground-based surveys were insufficient. It states: “[i]n future years, aerial surveys are recommended to accurately determine the location of active bald and golden eagle nests and associated breeding ranges.”¹²⁴

The USFWS recommends a one-mile no-disturbance buffer surrounding golden eagle nesting sites in California and Nevada.¹²⁵ The recommended buffer distance surrounding bald eagle nesting sites ranges from 330 feet (e.g., non-motorized recreation) to 0.25-miles (e.g., loud intermittent noises), with 1,000 feet being the recommended distance for helicopters.¹²⁶ Mitigation measure BIO-5 adopts these recommended buffer distances.

Two inactive eagle nests (one golden eagle and one unknown eagle) were detected in the “Eagle Study Area” in 2020.¹²⁷ In 2022, two potential raptor nests, one potential bald eagle nest, and one unknown nest were detected in the Eagle Study Area.¹²⁸ In 2023, two additional potential raptor nests were detected in the Eagle Study Area.¹²⁹ As reported in the eagle survey report for the PREP: “[c]onsidering both bald and golden eagles typically have alternate nests in their territory, any or all of the eagle nests observed during the 2020 nesting season have the potential to be active in the coming years.”¹³⁰ Therefore, if no additional survey data will be collected before initiation of the Project, the “potential raptor nests” and “inactive eagle nests” in the Eagle Study Area must be treated as active eagle nests, and Valley Water must implement a one-mile no-disturbance buffer around each of those nests.

¹²¹ IS/MND, Table 4.4-5.

¹²² IS/MND, p. 2-36.

¹²³ IS/MND, Attachment 4, p. 3.

¹²⁴ IS/MND, Attachment 4, p. 6.

¹²⁵ U.S. Fish and Wildlife Service. 2021 May. Recommended Buffer Zones for Ground-based Human Activities around Nesting Sites of Golden Eagles in California and Nevada. [accessed 2024 Jul 10].

<https://www.fws.gov/library/collections/eagle-nest-buffers-california-and-nevada>

¹²⁶ U.S. Fish and Wildlife Service. 2017 Dec. Recommended Buffer Zones for Ground-based Human Activities around Nesting Sites of Bald Eagles in California and Nevada. [accessed 2024 Jul 10].

<https://www.fws.gov/library/collections/eagle-nest-buffers-california-and-nevada>

¹²⁷ IS/MND, Appendix D, Attachment 4, Exhibit 4C, Attachment A, Figure 1.

¹²⁸ *Ibid.*

¹²⁹ *Ibid.*

¹³⁰ Santa Clara County Water District. 2021 Nov. Draft Environmental Impact Report for the Pacheco Reservoir Expansion Project [State Clearinghouse # 2017082020]. Biological Resources – Botanical/Wildlife Appendix, Attachment D, p. 4-1.

BIO-7 (Site Rehabilitation)

Mitigation measure BIO-7 states the following:

“Areas disturbed by geotechnical investigation activities at each site shall be rehabilitated to near pre-Project conditions to the extent feasible. Rehabilitation activities shall include backfilling of all excavations/borings and recontouring the areas to match the surrounding conditions as required, seeding with an erosion control seed mix containing native locally occurring watershed specific forbs, wildflowers and/or grasses.”¹³¹

This mitigation measure would not ensure impacts are reduced to less than significant levels because it is not accompanied by performance standards for site rehabilitation, nor is there a monitoring and reporting requirement that would verify disturbance areas have been successfully rehabilitated. These deficiencies are compounded by the IS/MND’s failure to establish a timeline for completion of MM BIO-7. According to the conditions of the SCVHP (p. 6-34): “[a]ll temporarily disturbed areas, such as staging areas, will be returned to pre-project or ecologically improved conditions within 1 year of completing construction or the impact will be considered permanent.”

BMPs

WQ-9 in the IS/MND states: “[t]he seed mix should consist of California native grasses, (for example hordeum Brachyantherum; elymus glaucus; and annual Vulpia microstachys) or annual, sterile hybrid seed mix (e.g., regreen™, a wheat x wheatgrass hybrid).” Application of a sterile seed mix without subsequent native seed treatments is inconsistent with the terms of the SCVHP (Table 6-2), which state: “[i]f sterile nonnative species are used for temporary erosion control, native seed mixtures must be used in subsequent treatments to provide long-term erosion control and slow colonization by invasive nonnatives.”

SCVHP Conditions

The IS/MND summarizes several of the applicable conditions of the SCVHP.¹³² I have the following comments pertaining to those conditions:

Condition 14 (Valley Oak and Blue Oak)

Condition 14 states: “[r]oads and pathways will be aligned outside of the tree’s root protection zone (as defined above) whenever possible.” The Project does not comply with this condition: several of the new access routes go through the root protection zone.¹³³

Condition 14 states: “[a]lteration of natural grade through fill or other means within the root protection zone of oak trees will be minimized.” It is unclear whether the Project would be able to comply with this condition given the 64 helicopter-mobilized borings that would require hand

¹³¹ IS/MND, Table 4.4-5.

¹³² IS/MND, pp. 2-49 through 2-51.

¹³³ See *images in* IS/MND, Appendix D, Attachment 3, Exhibit 3D.

contouring with picks and shovels and clearing of brush and trimming or cutting of trees to allow the placement of the temporary drilling platforms, approximately 15 feet x 15 feet in plan dimension.

Condition 14 states: “[t]renching for utility lines and other purposes will be minimized within root protection zones. Utilities may be installed in these areas by boring below the root zone.” The Project does not comply with this condition. Several of the test pits, which would be up to 20 feet deep, are in areas classified as blue oak or valley oak woodland. Some of the proposed test pit areas are even centered on top of oak trees.¹³⁴

Condition 14 states: “[i]f extensive pruning of blue oaks and valley oaks is necessary, pruning will be conducted during the winter dormant period for these species and under the supervision of an arborist certified to International Society of Arboriculture or similar standards.” The Project does not comply with this condition because it not confine pruning to the dormant season.¹³⁵

Condition 20 - Covered Plants

Condition 20 states: “[a] setback buffer will be established around covered plant occurrences located on any project site or in an adjacent area that could be affected by construction traffic or activities. The setback buffer will be adequate to prevent or minimize impacts during or after project implementation. The plants and buffer area will be protected from encroachment and damage during construction by installing temporary construction fencing.” The Project does not comply with this condition. As discussed previously, the Project includes several boring locations (e.g., UB-101 and UB-109) and a refraction line in the immediate vicinity of a most beautiful jewelflower, which is a covered plant species. No setback buffer has been established around this plant population.

This concludes my comments on the IS/MND.

Sincerely,



Scott Cashen, M.S.
Senior Biologist

¹³⁴ IS/MND, Appendix D, Attachment 2, Exhibit 2A.

¹³⁵ IS/MND, p. 2-30.

EXHIBIT A

Scott Cashen, M.S. **Senior Wildlife Biologist**

Scott Cashen has 28 years of professional experience in natural resources management. During that time he has worked as a field biologist, forester, environmental consultant, and instructor of Wildlife Management. Mr. Cashen focuses on CEQA/NEPA compliance issues, endangered species, scientific field studies, and other topics that require a high level of scientific expertise.

Mr. Cashen has knowledge and experience with numerous taxa, ecoregions, biological resource issues, and environmental regulations. As a biological resources expert, Mr. Cashen is knowledgeable of the various agency-promulgated guidelines for field surveys, impact assessments, and mitigation. Mr. Cashen has led field investigations on several special-status species, including ones focusing on the yellow-legged frog, red-legged frog, desert tortoise, steelhead, burrowing owl, California spotted owl, northern goshawk, willow flycatcher, Peninsular bighorn sheep, red panda, and various forest carnivores.

Mr. Cashen is a recognized expert on the environmental impacts of renewable energy development. He has been involved in the environmental review process of over 100 solar, wind, biomass, and geothermal energy projects. Mr. Cashen's role in this capacity has encompassed all stages of the environmental review process, from initial document review through litigation support. Mr. Cashen provided expert witness testimony on several of the Department of the Interior's "fast-tracked" renewable energy projects. His testimony on those projects helped lead agencies develop project alternatives and mitigation measures to reduce environmental impacts associated with the projects.

Mr. Cashen was a member of the independent scientific review panel for the Quincy Library Group project, the largest community forestry project in the United States. As a member of the panel, Mr. Cashen was responsible for advising the U.S. Forest Service on its scientific monitoring program, and for preparing a final report to Congress describing the effectiveness of the Herger-Feinstein Forest Recovery Act of 1998.

AREAS OF EXPERTISE

- CEQA, NEPA, and Endangered Species Act compliance issues
- Comprehensive biological resource assessments
- Endangered species management
- Renewable energy development
- Scientific field studies, grant writing and technical editing

EDUCATION

M.S. Wildlife and Fisheries Science - The Pennsylvania State University (1998)

Thesis: *Avian Use of Restored Wetlands in Pennsylvania*

B.S. Resource Management - The University of California, Berkeley (1992)

PROFESSIONAL EXPERIENCE

Litigation Support / Expert Witness

Mr. Cashen has served as a biological resources expert for over 125 projects subject to environmental review under the California Environmental Quality Act (CEQA) and/or the National Environmental Policy Act (NEPA). As a biological resources expert, Mr. Cashen reviews CEQA/NEPA documents and provides his clients with an assessment of biological resource issues. He then submits formal comments on the scientific and legal adequacy of the project's environmental documents (e.g., Environmental Impact Report). If needed, Mr. Cashen conducts field studies to generate evidence for legal testimony, or he can obtain supplemental testimony from his deep network of species-specific experts. Mr. Cashen has provided written and oral testimony to the California Energy Commission, California Public Utilities Commission, and U.S. district courts. His clients have included law firms, non-profit organizations, and citizen groups.

REPRESENTATIVE EXPERIENCE

Solar Energy

- Abengoa Mojave Solar Project
- Avenal Energy Power Plant
- Beacon Solar Energy Project
- Blythe Solar Power Project
- Calico Solar Project
- California Flats Solar Project
- Calipatria Solar Farm II
- Carrizo Energy Solar Farm
- Catalina Renewable Energy
- Fink Road Solar Farm
- Genesis Solar Energy Project
- Heber Solar Energy Facility
- Imperial Valley Solar Project
- Ivanpah Solar Electric Generating
- Maricopa Sun Solar Complex
- McCoy Solar Project
- Mt. Signal and Calexico Solar
- Panoche Valley Solar
- San Joaquin Solar I & II
- San Luis Solar Project
- Stateline Solar Project
- Solar Gen II Projects
- SR Solis Oro Loma
- Vestal Solar Facilities
- Victorville 2 Power Project
- Willow Springs Solar

Geothermal Energy

- Casa Diablo IV Geothermal
- East Brawley Geothermal
- Mammoth Pacific 1 Replacement
- Orni 21 Geothermal Project
- Western GeoPower Plant

Wind Energy

- Catalina Renewable Energy
- Ocotillo Wind Energy Project
- SD County Wind Energy
- Searchlight Wind Project
- Shu'luuk Wind Project
- Tres Vaqueros Repowering Project
- Tule Wind Project
- Vasco Winds Relicensing Project

Biomass Facilities

- CA Ethanol Project
- Colusa Biomass Project
- Tracy Green Energy Project

Other Development Projects

- Cal-Am Desalination Project
- Carnegie SVRA Expansion Project
- Lakeview Substation Project
- Monterey Bay Shores Ecoresort
- Phillips 66 Rail Spur
- Valero Benecia Crude By Rail
- World Logistics Center

Project Management

Mr. Cashen has managed several large-scale wildlife, forestry, and natural resource management projects. Many of the projects have required hiring and training field crews, coordinating with other professionals, and communicating with project stakeholders. Mr. Cashen's experience in study design, data collection, and scientific writing make him an effective project manager, and his background in several different natural resource disciplines enable him to address the many facets of contemporary land management in a cost-effective manner.

REPRESENTATIVE EXPERIENCE

Wildlife Studies

- Peninsular Bighorn Sheep Resource Use and Behavior Study: (CA State Parks)
- "KV" Spotted Owl and Northern Goshawk Inventory: (USFS, Plumas NF)
- Amphibian Inventory Project: (USFS, Plumas NF)
- San Mateo Creek Steelhead Restoration Project: (Trout Unlimited and CA Coastal Conservancy, Orange County)
- Delta Meadows State Park Special-Status Species Inventory: (CA State Parks, Locke)

Natural Resources Management

- Mather Lake Resource Management Study and Plan – (Sacramento County)
- Placer County Vernal Pool Study – (Placer County)
- Weidemann Ranch Mitigation Project – (Toll Brothers, Inc., San Ramon)
- Ion Communities Biological Resource Assessments – (Ion Communities, Riverside and San Bernardino Counties)
- Del Rio Hills Biological Resource Assessment – (The Wyro Company, Rio Vista)

Forestry

- Forest Health Improvement Projects – (CalFire, SD and Riverside Counties)
- San Diego Bark Beetle Tree Removal Project – (SDG&E, San Diego Co.)
- San Diego Bark Beetle Tree Removal Project – (San Diego County/NRCS)
- Hillslope Monitoring Project – (CalFire, throughout California)

Biological Resources

Mr. Cashen has a diverse background with biological resources. He has conducted comprehensive biological resource assessments, habitat evaluations, species inventories, and scientific peer review. Mr. Cashen has led investigations on several special-status species, including ones focusing on the foothill yellow-legged frog, mountain yellow-legged frog, desert tortoise, steelhead, burrowing owl, California spotted owl, northern goshawk, willow flycatcher, Peninsular bighorn sheep, red panda, and forest carnivores.

REPRESENTATIVE EXPERIENCE

Biological Assessments/Biological Evaluations (“BA/BE”)

- Aquatic Species BA/BE – Reliable Power Project (*SFPUC*)
- Terrestrial Species BA/BE – Reliable Power Project (*SFPUC*)
- Management Indicator Species Report – Reliable Power Project (*SFPUC*)
- Migratory Bird Report – Reliable Power Project (*SFPUC*)
- Terrestrial and Aquatic Species BA – Lower Cherry Aqueduct (*SFPUC*)
- Terrestrial and Aquatic Species BE – Lower Cherry Aqueduct (*SFPUC*)
- Terrestrial and Aquatic Species BA/BE – Public Lands Lease Application (*Society for the Conservation of Bighorn Sheep*)
- Terrestrial and Aquatic Species BA/BE – Simon Newman Ranch (*The Nature Conservancy*)
- Draft EIR (Vegetation and Special-Status Plants) - Wildland Fire Resiliency Program (*Midpeninsula Regional Open Space District*)

Avian

- Study design and Lead Investigator - Delta Meadows State Park Special-Status Species Inventory (*CA State Parks: Locke*)
- Study design and lead bird surveyor - Placer County Vernal Pool Study (*Placer County: throughout Placer County*)
- Surveyor - Willow flycatcher habitat mapping (*USFS: Plumas NF*)
- Surveyor - Tolay Creek, Cullinan Ranch, and Guadacanal Village restoration projects (*Ducks Unlimited/USGS: San Pablo Bay*)
- Study design and Lead Investigator - Bird use of restored wetlands research (*Pennsylvania Game Commission: throughout Pennsylvania*)
- Study design and surveyor - Baseline inventory of bird species at a 400-acre site in Napa County (*HCV Associates: Napa*)
- Surveyor - Baseline inventory of bird abundance following diesel spill (*LFR Levine-Fricke: Suisun Bay*)

- Study design and lead bird surveyor - Green Valley Creek Riparian Restoration Site (*City of Fairfield: Fairfield, CA*)
- Surveyor - Burrowing owl relocation and monitoring (*US Navy: Dixon, CA*)
- Surveyor - Pre-construction burrowing owl surveys (*various clients: Livermore, San Ramon, Rio Vista, Napa, Victorville, Imperial County, San Diego County*)
- Surveyor - Backcountry bird inventory (*National Park Service: Eagle, Alaska*)
- Lead surveyor - Tidal salt marsh bird surveys (*Point Reyes Bird Observatory: throughout Bay Area*)
- Surveyor – Pre-construction surveys for nesting birds (*various clients and locations*)

Amphibian

- Crew Leader - Red-legged frog, foothill yellow-legged frog, and mountain yellow-legged frog surveys (*USFS: Plumas NF*)
- Surveyor - Foothill yellow-legged frog surveys (*PG&E: North Fork Feather River*)
- Surveyor - Mountain yellow-legged frog surveys (*El Dorado Irrigation District: Desolation Wilderness*)
- Crew Leader - Bullfrog eradication (*Trout Unlimited: Cleveland NF*)

Fish and Aquatic Resources

- Surveyor - Hardhead minnow and other fish surveys (*USFS: Plumas NF*)
- Surveyor - Weber Creek aquatic habitat mapping (*El Dorado Irrigation District: Placerville, CA*)
- Surveyor - Green Valley Creek aquatic habitat mapping (*City of Fairfield: Fairfield, CA*)
- GPS Specialist - Salmonid spawning habitat mapping (*CDFG: Sacramento River*)
- Surveyor - Fish composition and abundance study (*PG&E: Upper North Fork Feather River and Lake Almanor*)
- Crew Leader - Surveys of steelhead abundance and habitat use (*CA Coastal Conservancy: Gualala River estuary*)
- Crew Leader - Exotic species identification and eradication (*Trout Unlimited: Cleveland NF*)

Mammals

- Principal Investigator – Peninsular bighorn sheep resource use and behavior study (*California State Parks: Freeman Properties*)

- Scientific Advisor – Study on red panda occupancy and abundance in eastern Nepal (*The Red Panda Network: CA and Nepal*)
- Surveyor - Forest carnivore surveys (*University of CA: Tahoe NF*)
- Surveyor - Relocation and monitoring of salt marsh harvest mice and other small mammals (*US Navy: Skagg's Island, CA*)
- Surveyor – Surveys for Monterey dusky-footed woodrat. Relocation of woodrat houses (*Touré Associates: Prunedale*)

Natural Resource Investigations / Multiple Species Studies

- Scientific Review Team Member – Member of the scientific review team assessing the effectiveness of the US Forest Service's implementation of the Herger-Feinstein Quincy Library Group Act.
- Lead Consultant - Baseline biological resource assessments and habitat mapping for CDF management units (*CDF: San Diego, San Bernardino, and Riverside Counties*)
- Biological Resources Expert – Peer review of CEQA/NEPA documents (*various law firms, non-profit organizations, and citizen groups*)
- Lead Consultant - Pre- and post-harvest biological resource assessments of tree removal sites (*SDG&E: San Diego County*)
- Crew Leader - T&E species habitat evaluations for Biological Assessment in support of a steelhead restoration plan (*Trout Unlimited: Cleveland NF*)
- Lead Investigator - Resource Management Study and Plan for Mather Lake Regional Park (*County of Sacramento: Sacramento, CA*)
- Lead Investigator - Biological Resources Assessment for 1,070-acre Alfaro Ranch property (*Yuba County, CA*)
- Lead Investigator - Wildlife Strike Hazard Management Plan (*HCV Associates: Napa*)
- Lead Investigator - Del Rio Hills Biological Resource Assessment (*The Wyro Company: Rio Vista, CA*)
- Lead Investigator – Ion Communities project sites (*Ion Communities: Riverside and San Bernardino Counties*)
- Surveyor – Tahoe Pilot Project: Validation of California's Wildlife Habitat Relationships (CWHR) Model (*University of California: Tahoe NF*)

Forestry

Mr. Cashen has five years of experience working as a consulting forester on projects throughout California. Mr. Cashen has consulted with landowners and timber operators on forest management practices; and he has worked on a variety of forestry tasks including selective tree marking, forest inventory, harvest layout, erosion control, and supervision of logging operations. Mr. Cashen's experience with many different natural resources enable him to provide a holistic approach to forest management, rather than just management of timber resources.

REPRESENTATIVE EXPERIENCE

- Lead Consultant - CalFire fuels treatment projects (*SD and Riverside Counties*)
- Lead Consultant and supervisor of harvest activities – San Diego Gas and Electric Bark Beetle Tree Removal Project (*San Diego*)
- Crew Leader - Hillslope Monitoring Program (*CalFire: throughout California*)
- Consulting Forester – Forest inventories and timber harvest projects (*various clients throughout California*)

Grant Writing and Technical Editing

Mr. Cashen has prepared and submitted over 50 proposals and grant applications. Many of the projects listed herein were acquired through proposals he wrote. Mr. Cashen's clients and colleagues have recognized his strong scientific writing skills and ability to generate technically superior proposal packages. Consequently, he routinely prepares funding applications and conducts technical editing for various clients.

PERMITS

U.S. Fish and Wildlife Service Section 10(a)(1)(A) Recovery Permit for the Peninsular bighorn sheep

PROFESSIONAL ORGANIZATIONS / ASSOCIATIONS

The Wildlife Society

Cal Alumni Foresters

Mt. Diablo Audubon Society

OTHER AFFILIATIONS

Scientific Advisor and Grant Writer – *The Red Panda Network*

Scientific Advisor – *Mt. Diablo Audubon Society*

Grant Writer – *American Conservation Experience*

TEACHING EXPERIENCE

Instructor: Wildlife Management - The Pennsylvania State University, 1998

Teaching Assistant: Ornithology - The Pennsylvania State University, 1996-1997

PUBLICATIONS

Gutiérrez RJ, AS Cheng, DR Becker, S Cashen, et al. 2015. Legislated collaboration in a conservation conflict: a case study of the Quincy Library group in California, USA. Chapter 19 *in*: Redpath SR, et al. (eds). *Conflicts in Conservation: Navigating Towards Solutions*. Cambridge Univ. Press, Cambridge, UK.

Cheng AS, RJ Gutiérrez RJ, S Cashen, et al. 2016. Is There a Place for Legislating Place-Based Collaborative Forestry Proposals?: Examining the Herger-Feinstein Quincy Library Group Forest Recovery Act Pilot Project. *Journal of Forestry*.

Christopher D. Dore
Curriculum Vitae

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Tucson, AZ 85731-7539
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christopher.dore@heritagebusiness.org

Professional Accreditation

Registered Professional Archaeologist 10331
Member-Chartered Institute for Archaeologists 8900

Professional Certificates

2022 Certified Market Research Professional 2276168. Market Research Society.
2020 Certified Forensic Litigation Consultant, 46. Forensic Expert Witness Association.
2020 Professional Certified Marketer--Digital Marketing, IE-DMI78173. American Marketing Association.
2020 Certified Digital Marketing Professional, IE-DMI78173. Digital Marketing Institute.

Research Interests

Heritage business management; the anthropology of prehistoric and contemporary architecture; the spatial organization of human activity; cultural and behavioral factors of design; the structure and dynamics of human organizational systems; quantitative and geospatial methods; ethnoarchæology.

Education

M.B.A.	2007	University of Arizona. Business Administration.
Ph.D.	1996	University of New Mexico. Anthropology.
M.A.	1986	University of Pennsylvania. Anthropology.
B.A.	1982	Washington State University. Anthropology.
-----	1978-80	Seattle University, Biology.

Continuing Professional Education

2024 FEWA Annual Conference. Forensic Expert Witness Association. 6 hours.
2024 Coaching to Testify: A Speechwriter's Guide to Thinking on your Feet, presented by Marianne Fleischer. Forensic Expert Witness Association. 1 hour.
2024 Preparing for Deposition and Cross-Examination by Opposing Counsel, presented by Robert Goldich and Dan Bonnett. Forensic Expert Witness Association. 1 hour.
2024 Nuts and Bolts with Your Council, presented by Andrew Kaplan. Forensic Expert Witness Association. 1 hour.
2024 New Year – New Rules: Rule 702 Review & Supreme Court Ruling Updates, presented by James E. Smith. Forensic Expert Witness Association. 1 hour.
2023 Houston Appraisers one-day expert workshop
2023 SEAK two-day workshop
2022 Am I Helping or Hurting the Attorney Who Hired Me?, presented by Denise Brown. Forensic Expert Witness Association. 1 hour.
2022 Complex to Simple: Expert Testimony with More Impact, presented by Deborah Johnson. Forensic Expert Witness Association. 1 hour.
2021 Tips For Preventing Professional Liability Exposure and Avoiding E&O Claims, presented by Doug Garmager. Forensic Expert Witness Association. 1 hour.
2021 Ethics Workshop. Chartered Institute for Archaeologists and Register of Professional Archaeologists. 3 hours.

- 2021 Breaking through the Noise When Marketing to Law Firms: Digital Marketing Basics for Professionals Serving the Legal Community, presented by Krista Duncan Black Forensic Expert Witness Association. 1 hour.
- 2021 Developing Effective Expert Witness Contracts, presented by Craig Cherney and Jonathan Ibsen. Forensic Expert Witness Association. 1 hour.
- 2020 Exhibits, Demonstratives, and Graphics for Virtual (or Live) Testimony – Tips All Informed Experts Should Know, presented by David Rosenthal. Forensic Expert Witness Association. 1 hour.
- 2020 Making Your Testimony More Compelling and Effective with Graphics, presented by Adam Bloomberg, Adam Wirtzfeld, and John Ilg. Forensic Expert Witness Association. 1 hour.
- 2020 How to Sharpen Your Expert Video Testimony, presented by Deborah Johnson. Forensic Expert Witness Association. 1 hour.
- 2020 The Art of Selection and Use of Expert Witnesses, presented by Markus Willoughby. Forensic Expert Witness Association. 1 hour.
- 2020 Certified Digital Marketing Professional, American Marketing Association. 30 hours.
- 2020 It Doesn't Happen Overnight: How to Develop a Thriving Testifying Witness Practice. Forensic Expert Witness Association. 1 hour.
- 2020 Effective Sales/Marketing Communications. Forensic Expert Witness Association. 1 hour.
- 2019 Ethical Presence. Forensic Expert Witness Association. 1 hour.
- 2019 Rising Above the Crowd: Marketing for Even the Most Introverted Expert. Lecture presented by Kristin Baldwin. Forensic Expert Witness Association. 1 hour.
- 2018 Deposition Tactics: Costly and Fatal Mistakes Committed by Expert Witnesses During Video Deposition Proceedings. Workshop presented by Michael L. Jones. Forensic Expert Witness Association. 7 hours.
- 2018 A Primer on “Thinking Before Doing” (Civility, Professionalism & Process) for Expert Witnesses, from the Trial Lawyer’s Perspective. Lecture presented by Martin V. Sinclair. Forensic Expert Witness Association. 1 hour.
- 2018 Trial as Drama and Theatre in the Courtroom: What Expert Witnesses Should Know, from the Trial Attorney’s Perspective. Lecture presented by R. Bruce Duffield, Esq. Forensic Expert Witness Association. 1 hour.
- 2009 Historic Preservation Compliance for Energy Projects. CLE International. 16 hours.
- 2006 How to Successfully Manage Multiple Locations. Fred Pryor Seminars. 16 hours.
- 2004 Bi-National Cultural Resource Law Enforcement along the U.S./Mexico Border. Southwest Strategy. 20 hours.
- 2003 Bi-National Cultural Resource Law Enforcement along the U.S./Mexico Border. Southwest Strategy. 20 hours.
- 2002 Integrating Section 106 and the National Environmental Quality Act. The SRI Foundation. 16 hours.
- 2001 Archaeological Damage Assessment. Bureau of Land Management, USDA Forest Service, and Archaeological Resource Investigations. 40 hours.
- 2000 Hazardous Waste Operations and Emergency Response Supervisor Training. Geo Line. 8 hours.
- 1999 The New 35 CFR Part 800: Highlights of Changes. Advisory Council on Historic Preservation. 8 hours.
- 1999 Hazardous Waste Operations and Emergency Response. Geo Line. 40 hours.
- 1997-98 Project Management Training Series. Jones & Stokes Associates. 40 hours.
- 1997 Introduction to Federal Projects & Historic Preservation Law. Advisory Council on

Historic Preservation. 24 hours.

Honors and Awards

- 2020 The 6th International e-Learning Excellence Awards, European Conference on e-Learning. Finalist. Where New Meets Old: Online Graduate Training for Professional Archaeologists and Heritage Practitioners (with John R. Welch, Kanthi Jayasundera, Michael Klassen, David Maxwell, George Nicholas, and Joanne Hammond).
- 2014 Asa T. Hill Memorial Award for outstanding contributions to Plains archaeology, Nebraska State Historical Society.
- 2012 Presidential Recognition Award. Society for American Archaeology.
- 2004 Invited guest. White House Ceremony for the Preserve America Presidential Awards.
- 1990 Who's Who Among Students in American Universities & Colleges.
- 1989 Outstanding Young Men of America.
- 1988 National Student Research Award. National Association for the Practice of Anthropology. Honorable Mention.
- 1988 Distinguished Service Award. National Association of Student Anthropologists.
- 1984 University Writing Fellow. University of Pennsylvania.
- 1982 B.A. in Anthropology, Cum Laude. Washington State University.
- 1982 Paul Dupertuis Scholarship. Washington State University.
- 1982 Inducted into the Honor Society of Phi Kappa Phi.

Research Grants

- 2007 *Digital Antiquity: Planning a Digital Information Infrastructure for Archaeology*. The Andrew W. Mellon Foundation. \$152,497. (with W. Fredrick Limp, Clay Mathers, Keith W. Kintigh, Timothy A. Kohler, and Dean R. Snow)
- 2004 *An Evaluation of Commercial High-resolution Multispectral Remote Sensing Data to Identify Archaeological Resources at Nellis Air Force Base, Nevada*. Nellis Air Force Base, U.S. Department of Defense. \$121,550.
- 1994 *Development of a Pilot Cultural Resources GIS for the State of Nebraska*. Nebraska Department of Roads, Transportation Enhancement Program. \$139,406. (with LuAnn Wandsnider).
- 1992 *Ancient Maya City Planning and Community Organization*. National Geographic Society. Grant 4742-92. \$25,090. (with Michael P. Smyth).
- 1992 *Large Site Archaeology at Sayil, Yucatán, México: A Study of Community Organization and Settlement History*. H. John Heinz III Charitable Trust. \$5,000. (with Michael P. Smyth).
- 1991 *Architectural Variability and Community Organization at Xculoc, Campeche, México*. National Science Foundation. Grant BNS-9115249. \$12,000.
- 1991 *Architectural Variability and Community Organization at Xculoc, Campeche, México*. Sigma Xi. \$400.

- 1991 *The Organization of a Great Maya Center: Sayil, Yucatán, México.* Center for Field Research, Watertown, MA. \$34,500. (with Michael P. Smyth).
- 1991 Margaret Cullinan Wray Grant. American Anthropological Association. \$1,400. (with Michael P. Smyth).
- 1990 Travel Grant. UNM Faculty Development Fund. \$500.
- 1989 *The Organization of a Great Maya Center: Sayil, Yucatán, México.* Center for Field Research, Watertown, MA. \$57,450. (with Michael P. Smyth).
- 1989 *Large Site Archaeology: A Pilot Reconnaissance at Sayil, Yucatán, México.* Mellon Foundation Inter-American Field Research Grant in Latin America: \$1,000. The University of New Mexico: \$2,300. Student Research Allocations Committee Grant, Graduate Student Association, UNM. \$630.
- 1987 *A Study of Intrasite Space: Sayil, Yucatán, México.* Tinker Foundation Field Research Grant. \$250.
- 1987 Travel Grant. Student Research Allocations Committee Grant, Graduate Student Association, University of New Mexico. \$225.
- 1987 Travel Grant. Student Research Allocations Committee Grant, Graduate Student Association, University of New Mexico. \$100.

Academic Employment

- 2016- **Adjunct Professor.** Department of Archaeology, Simon Fraser University.
- 2013- **Adjunct Professor.** School of Anthropology, University of Arizona.
- 2004-13 **Adjunct Assistant Professor.** School of Anthropology, University of Arizona.
- 1998-04 **Research Associate.** Archaeological Research Facility. University of California at Berkeley.
- 1998-99 **Visiting Lecturer.** Department of Anthropology, University of California at Berkeley.
- 1996-98 **Research Fellow.** Phoebe A. Hearst Museum of Anthropology. University of California at Berkeley.
- 1995-96 **Adjunct Assistant Professor.** Department of Anthropology, University of Nebraska.
- 1993-96 **Research Associate.** Division of Anthropology, University of Nebraska State Museum.
- 1990-93 **Adjunct Research Associate.** Department of Anthropology, Texas Tech University.
- 1990 **Instructor.** General Studies Department, University of New Mexico, Valencia Campus.
- 1988 **Adjunct Assistant Professor.** School of Architecture and Planning, University of New Mexico.
- 1988-90 **Teaching Assistant.** Department of Anthropology, University of New Mexico.
- 1984-85 **Teaching Assistant.** Department of Anthropology, University of Pennsylvania.

Classes Taught:

- 2017- Business Management for Heritage Professionals, Archaeology 551-5, SFU.
- 1999 Archaeological Science, Anthropology 131, UCB.
- 1998 Introduction to Geospatial Methods and Theory, Anthropology 230, UCB.
- 1990 Digging Up Our Past, Anthropology 120, UNM.
- 1990 Archæology Lab, Anthropology 121, UNM.
- 1988 Human Settlements, Community and Regional Planning 373/573, UNM.
- 1988 Archæology Lab, Anthropology 121, UNM.
- 1985 Introduction to Archæology, Anthropology 102, UP.
- 1984 Introduction to Cultural Anthropology, Anthropology 105, UP.

Applied Employment

- 2013- **Consultant.** Heritage Business International, L3C. Tucson, AZ
- 2020-2021 **Chief Executive Officer.** Twin Cairns, LLC., Los Angeles, CA.
- 2014-2016 **Treasurer.** Archaeology Southwest, Tucson, AZ.
- 2012-2013 **Vice President Corporate Development.** ASM Affiliates, Inc., Carlsbad, CA.
- 2009-2010 **Vice President, Services.** The Louis Berger Group, Inc., Lakewood, CO.
- 2008-2009 **Chief Executive Officer.** Metcalf Archaeological Consultants, Inc., Wheat Ridge, CO.
- 2007-2008 **Chief Marketing Officer.** Statistical Research, Inc., Tucson, AZ.
- 2002-2006 **Director, Cartography and Geospatial Technologies Department,** Statistical Research, Inc., Tucson, AZ.
- 1998-02 **Cultural Resources Manager (corporate).** Garcia and Associates, San Anselmo, CA.
- 1996-98 **Archaeologist.** Jones & Stokes Associates, Sacramento, CA.
- 1996 **Archaeologist.** PAR Environmental Services, Sacramento, CA.
- 1994-95 **Principal Investigator.** Nebraska Archæological GIS Project.
- 1993-02 **Managing Principal.** Archæological Mapping Specialists, Berkeley, CA.
- 1991-95 **Principal Investigator.** Xculoc Ethnoarchæological Project. Campeche, México.
- 1989-93 **Principal Investigator.** Sayil Archæological Project. Yucatán, México.
- 1991 **Project Director.** Office of Contract Archeology, University of New Mexico.
- 1990 **Archæologist.** Ebert & Associates, Albuquerque, NM.
- 1989 **Archæological Technician.** United States Forest Service, Cibola National Forest.
- 1989 **Archæologist.** Rio Grande Consultants. Albuquerque, NM.
- 1987-89 **Archæological Aid III.** Department of Anthropology, University of New Mexico.
- 1987 **Field Supervisor.** Sayil Archæological Project. Yucatán, México.
- 1986-87 **Research Assistant II.** Department of Anthropology, University of New Mexico.
- 1985-86 **Principal Investigator.** Philadelphia Cultural Space Project. Philadelphia, PA.
- 1985-86 **Research Supervisor.** Cultural Heritage Research Service, Inc. Chester, PA.
- 1984-85 **Research Assistant.** Department of Anthropology, University of Pennsylvania.
- 1982 **Archæologist.** Dolores Archæological Program, Dolores, CO.
- 1981 **Lab Technician.** Lab of Archæology and History, Washington State University.

Independent Consulting

- 2010-2016 U.S. Department of Justice, Los Angeles, CA.
- 2014 Federal Defenders Office, Fresno, CA.
- 2014 Webb & Carey APC, San Diego, CA.

- 2014 MDM Development Group / Stearns Weaver Miller Weissler Alhadeff & Sitterson, P.A., Miami, FL.
- 2012-2013 Schonbrun DeSimone Seplow Harris & Hoffman, LLP. South Pasadena, CA.
- 2010-12 WestLand Resources, Tucson, AZ.
- 1994-96 MayaQuest, Minneapolis, MN.
- 1994 Jewish Cultural Arts Council, Omaha, NE.
- 1989-90 Richard F. Tonigan & Associates, Ltd. Albuquerque, NM.
- 1989 United States Department of Agriculture Forest Service, Cibola National Forest. Albuquerque, NM.
- 1989 Associated Students of the University of New Mexico. Albuquerque, NM.

Publications

Articles

- Dore, Christopher D. and Nicholas K. Rauh
- 2024 Employing Remote Sensing and Multispectral Satellite Data to Measure the Extent of Grapevine and Olive Vegetation: A Case Study in the Landscape of Western Rough Cilicia, Turkey. In *Methods in Ancient Wine Archaeology*, edited by Emlyn Dodd and Dimitri Van Limbergen, pp. 179-188. Bloomsbury Academic, London.
- Dore, Christopher D.
- 2022 How a Rejected Article Started a Journal: The Origins of Advances in Archaeological Practice. Cambridge Core Blog, 30 March 2022.
<https://www.cambridge.org/core/blog/2022/03/30/how-a-rejected-article-started-a-journal-the-origins-of-advances-in-archaeological-practice/>
- Dore, Christopher D.
- 2020 The Anticipated Impact of Covid-19 on Cultural Resource Management. *Anthropology News* website, April 13, 2020. DOI: 10.1111/AN.1377
- Dore, Christopher D. and Kenneth Aitchison
- 2019 Value, Sustainability, and Heritage Impact. *The Archaeologist* 108:24-26.
- Dore, Christopher D.
- 2019 HBI Tracks Cultural Resource Services in the Heritage Compliance Sector. In *Environmental Business Journal* XXXII(9/10):44-46.
- Dore, Christopher D. and Kenneth Aitchison
- 2019 Business and Marketing. In *The SAS Encyclopedia of Archaeological Sciences*, edited by Sandra L. López Varela, pp. 837-842. John Wiley & Sons, Chichester, West Sussex, U.K.
- Dore, Christopher D.
- 2018 Business Challenges for the 21st Century: the Next 40 Years of Private Heritage Management. In *Perspectives on Cultural Resource Management*, pp. 229-239, edited by Francis P. McManamon. Routledge, London and New York.
- Welch, John R., David V. Burley, Jonathan C. Driver, Erin A. Hogg, Kanthi Jayasundera, Michael Klassen, David Maxwell, George P. Nicholas, Janet Pivnick, and Christopher D. Dore

- 2018 Digital Bridges Across Disciplinary, Practical and Pedagogical Divides: An Online Professional Master's Program in Heritage Resource Management. *Journal of Archaeology and Education* 2. <https://digitalcommons.library.umaine.edu/jae/vol2/iss2/1>
- Dore, Christopher D.
- 2014 The Two Greatest Business Challenges Heritage Consulting Firms Must Solve for Future Success. *ACRA Edition* 20(2):11-15 and *Environmental Business Journal* XXVII(4/5).
- Dore, Christopher D.
- 2013 Advances in Archaeological Practice: From the Editor. *Advances in Archaeological Practice*, 1(1), 1-2. doi:10.7183/2326-3768.1.1.1
- Dore, Christopher D.
- 2013 Marketing Budgets. *ACRA Edition* 20(1):12-13.
- Dore, Christopher D.
- 2013 Rethinking Advertising. *ACRA Edition* 19(2):9-10.
- Dore, Christopher D.
- 2012 The True Cost of Proposals. *ACRA Edition* 18(4):22.
- Dore, Christopher D.
- 2012 Is Your Firm Client-Centric? *ACRA Edition* 18(3):16-17.
- Dore, Christopher D.
- 2012 Marketing vs. Sales. *ACRA Edition* 18(1):14-15.
- Pecci, Alessandra, Agustín Ortiz, Sandra L. López Varela and Christopher D. Dore
- 2011 "Tracce" chimiche delle attività umane: distribuzione spaziale dei residui in una abitazione – laboratorio di ceramic a Cuentepec (Messico). *Atti del 4° Convegno Nazionale di Etnoarcheologia*, Roma, 17-19 maggio 2006, edited by Francesca Lugli, Alessandra Assunta Stoppiello, and Stefano Biagetti. *BAR International Series* 2235, Oxford.
- Dore, Christopher D.
- 2010 Digging In: An In-Depth Look at the Archaeological Resource Protection Act: The Archaeological View. *Rocky Mountain Mineral Law Institute* 56:14B-1.
- Dore, Christopher D. and Sandra L. López Varela
- 2010 Regresando del Futuro con Nuevas Perspectivas para la Administración del Patrimonio Arqueológico de Morelos. *Historia del Estado de Morelos*, Horacio Crespo director. Edición del Homenaje al Bicentenario de la Independencia de México y al Centenario de la Revolución Mexicana. H. Congreso del Estado de Morelos, Cuernavaca.
- Dore, Christopher D. and Sandra L. López Varela
- 2010 Kaleidoscopes, Palimpsests, and Clay: Realities and Complexities in Human Activities and Soil Chemical/Residue Analysis. *Journal of Archaeological Method and Theory* 17(3):279-302.

- López Varela, Sandra L. and Christopher D. Dore
 2010 Social Spaces of Daily Life: A Reflexive Approach to the Analysis of Chemical Residues by Multivariate Spatial Analysis. *Journal of Archaeological Method and Theory* 17(3):249-278.
- López Varela, Sandra L. and Christopher D. Dore
 2009 Protecting Mexico's Heritage using Basic GIS Modeling. *SAS Bulletin: Newsletter of the Society of Archaeological Science* 32(1):10-13.
- Rauh, Nicholas K., Rhys F. Townsend, Michael C. Hoff, Matthew Dillon, Martin W. Doyle, Cheryl A. Ward, Richard M. Rothaus, Hülya Caner, Ünal Akkemik, LuAnn Wandsnider, F. Sancar Ozaner, and Christopher D. Dore
 2009 Life in the Truck Lane: Urban Development in Western Rough Cilicia. *Jahrshefte des Österreichischen Archäologischen Instituts in Wien*, Band 78, 253-312.
- Dore, Christopher D., Patrick Stanton, Malcolm Hooe, Donn R. Grenda, and Jeffrey H. Altschul
 2008 Non-contact Digital 3D Laser Scanning of Human Skeletal Remains: A Solution for Science, Native Americans, and Project Developers. In *Advanced Imaging in Biological Anthropology and Bioarchaeology: Acquisition, Analysis and Dissemination*, pp. ??-??. Edited by Robert Hoppa and Andrew Nelson. Cambridge University Press, Cambridge.
- López Varela, Sandra L. and Christopher D. Dore
 2008 La Arqueología Aplicada: Una Alternativa Para La Protección Del Patrimonio Ante Las Políticas De Desarrollo Nacional. In *Tributo a Jaime Litvak King*, pp. 123-138. Edited by Paul Schmidt Schoenberg, Edith Ortiz Díaz, and Joel Santos Ramírez. Universidad Nacional Autónoma de México., Mexico City.
- Rauh, Von Nicholas K., Matthew J. Dillon, Christopher Dore, Richard Rothaus und Mette Korsholm
 2007 Viticulture, Oleoculture, and Economic Development in Roman Rough Cilicia. *Münstersche Beiträge z. antiken Handelsgeschichte* XXV 1 (2006):49-98.
- Dore, Christopher D. and LuAnn Wandsnider
 2006 Modeling for Management in a Compliance World. In *GIS and Archaeological Site Location Modeling*, pp. 75-96. Edited by Mark W. Meher and Konnie L. Wescott, CRC Press, Boca Raton.
- Dore, Christopher D.
 2004 Comments on RPA Membership and Standards. *RPA Notes* 5(1):3-5,11.
- Dore, Christopher D., Stephen Bryne, Michael McFaul, and Garry L. Running IV
 2004 Why Here? Settlement, Geoarchaeology, and Paleoenvironment at the West Berkeley Site (CA-Ala-307). *Proceedings of the Society for California Archaeology* 17. Society for California Archaeology. Chico, CA.

- Dore, Christopher D.
 1997 The Maya Architecture of Campeche, México. In *Encyclopedia of Vernacular Architecture of the World*, edited by Paul Oliver. Cambridge University Press, Cambridge.
- Dore, Christopher D.
 1997 Etnoarqueología de la Arquitectura y Comunidades: Investigación en Xculoc, Campeche. In *Los Investigadores de la Cultura Maya* 5, pp.29-54. Universidad Autónoma de Campeche. Campeche, Mexico.
- Smyth, Michael P., Christopher D. Dore, Hector Neff, and Michael D. Glascock
 1995 The Origin of Puuc Slate Ware: New Data from Sayil, Yucatan, Mexico. *Ancient Mesoamerica* 6:119-134.
- Smyth, Michael P., Christopher D. Dore, and Nicholas P. Dunning
 1995 Interpreting Prehistoric Settlement Patterns: Lessons from the Maya Center of Sayil, Yucatan. *Journal of Field Archaeology* 22:321-374.
- Wandsnider, LuAnn and Christopher D. Dore
 1995 Creating Cultural Resource Data Layers: Experiences from the Nebraska Cultural Resources GIS Project. Part I: Creating the Data Layers, Society for American Archaeology *Bulletin* 13(4):25-26. Part II: Site Locational Accuracy, Society for American Archaeology *Bulletin* 13(5).
- Smyth, Michael P. and Christopher D. Dore
 1994 Maya Urbanism at Sayil, Yucatán. *Research and Exploration* 10:38-55.
- Smyth, Michael P. and Christopher D. Dore
 1992 Large Site Archaeological Methods at Sayil, Yucatán, México: Investigating Community Organization at a Prehispanic Maya Center. *Latin American Antiquity* 3:3-21.
- Smyth, Michael P. and Christopher D. Dore
 1992 Large Site Surface Archaeology at Sayil, Yucatán, México: A Preliminary Report. *Mexicon* 14(3):52-56.
- Smyth, Michael P. and Christopher D. Dore
 1991 La Organización de la Comunidad en Sayil, Yucatán, México, Fase III: Una Investigación Arqueológica de un Sitio Grande de los Maya. In *El Boletín del Consejo de Arqueología* 2. El Instituto Nacional de Antropología e Historia, Mexico City.
- Dore, Christopher D
 1988 The Interpretation of Service: An Anthropological View. *Hospitality Education and Research Journal* 12:81-91.

Monographs & Books

- López Varela, Sandra L. and Christopher D. Dore (guest editors)
 2010 Special Issue: Innovations in the Chemical Analysis of Activity Areas. *Journal of Archaeological Method and Theory* 17(3).

Dore, Christopher D
1986 *Cultural Spaces in a Philadelphia Restaurant*. Coyote Press, Salinas, CA.

Reports

- Dore, Christopher D.
2023 *Expert Supplemental Report*. Long Beach Unified School District vs. Santa Catalina Island Company and City of Avalon; Case Number 2:19-cv-01139; U.S. District Court, Central District of California. Contracted with Cooksey, Toolen, Gage, Duffy & Woog and Best Best & Krieger, Los Angeles. Heritage Business International, Tucson.
- Dore, Christopher D.
2022 *Expert Rebuttal Report*. Long Beach Unified School District vs. Santa Catalina Island Company and City of Avalon; Case Number 2:19-cv-01139; U.S. District Court, Central District of California. Contracted with Cooksey, Toolen, Gage, Duffy & Woog and Best Best & Krieger, Los Angeles. Heritage Business International, Tucson.
- Dore, Christopher D.
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- López Varela, Sandra L., Christopher D. Dore, and Terry H. Klein
2023 Meeting the Demands of Mexico's New Cultural Heritage Protection Law: Advocating for a Paradigm Shift in Academic Training. Paper presented at
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- Dore, Christopher D.
2021 A Conversation on Standards, Qualifications, and Training. Presenter and conversationalist at the 27th annual conference of the American Cultural Resources Association. Alexandria, VA.
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2019 The Business of Archaeology in Arizona: Data for Strategic Decision Making. Paper presented at the Arizona Historic Preservation Conference. Prescott, AZ.
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- Welch, John R., David Burley, Erin Hogg, Kanthi Jayasundera, David Maxwell, George Nicholas, Janet Pivnick, Christopher D. Dore, Joanne Hammond, and Michael Klassen.
2017 An Online Professional Master's Program in Heritage Resource Management: Digital Bridges Across Disciplinary, Practical, and Pedagogical Divides. Paper presented at the 2017 Chacmool Conference, Calgary, Canada.
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2015 Addressing Student Concerns (Part 1): 30 Years of Student Leadership – Strategically Moving Anthropology Forward. Roundtable Discussant at the 114th annual meeting of the American Anthropological Association, Denver, CO.
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2014 The Two Greatest Business Challenges Heritage Consulting Firms Must Solve for Future Success. Paper presented at the 79th annual meeting of the Society for American Archaeology. Austin, TX.
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2009 Measuring CRM. Poster presented at the 74th annual meeting of the Society for American Archaeology. Atlanta, GA.
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2009 Cell-based analysis and landscape archaeology: new approaches and new applications. Poster presented at the 37th annual international conference on Computer Applications and Quantitative Methods in Archaeology. Williamsburg, VA.
- López Varela, Sandra L. and Christopher D. Dore
2008 Evaluating Strategies to Protect the Cultural Patrimony of Morelos, Mexico. Paper presented at the 73rd annual meeting of the Society for American Archaeology. Vancouver, B.C., Canada.
- López Varela, Sandra L. and Christopher D. Dore
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 2004 Non-Contact Digital 3D Laser Scanning of Human Skeletal Remains: A Solution for Science, Native Americans, and Project Developers. Paper presented at 3D Imaging in Anthropological Research, London, Ontario, Canada.
- Dore, Christopher D.
 2004 An Evaluation of Commercial High-Resolution Multi-spectral Remote Sensing Data to Identify Archaeological Resources. Paper presented at the Nellis Air Force Base Native American Program Annual Meeting. Las Vegas, NV.

- López Varela, Sandra L. and Christopher D. Dore
- 2004 Maya Potters from the Sibun River Valley: Chronology and Distribution in the Sibun River Valley. Archaeological Investigations in the Eastern Maya Lowlands. Belize Archaeology Symposium 2004. National Institute of Culture and History, Belize City, July 7-9.
- Dore, Christopher D., Stephen Bryne, Michael McFaul, and Garry L. Running IV
- 2003 Why Here? Settlement, Geoarchaeology, and Paleoenvironment at the West Berkeley Site (CA-Ala-307). Paper presented at the 37th Annual Meeting of the Society for California Archaeology, Sacramento, CA.
- Dore, Christopher D.
- 2003 Panel discussion on remote sensing. Discussion presented at the 37th Annual Meeting of the Society for California Archaeology, Sacramento, CA.
- Rauh, Nicholas, Christopher D. Dore, and LuAnne Wandsnider
- 2003 Enhancing Survey Productivity: Remote Sensing Analysis of High Resolution Satellite Imagery to Locate Substantial Architectural Sites in a Mediterranean Environment (Rough Cilicia, Southern Turkey). Paper presented at the 5th World Archaeological Congress, Washington, D.C.
- Dore, Christopher D.
- 2001 A Behavioral Approach to Understanding Maya Communities. Paper presented at the 100th Annual Meeting of the American Anthropological Association, Washington, D.C.
- Dore, Christopher D. and LuAnn Wandsnider
- 2001 Modeling a Management Framework in a Compliance World. Paper presented at GIS and Archaeological Predictive Modeling: Large-scale Approaches to Establish a Baseline for Site Location Models, Argonne National Laboratory, Argonne, IL.
- Dore, Christopher D.
- 2000 Built and Social Landscapes in a Mesoamerican Village. Paper presented at the 99th Annual Meeting of the American Anthropological Association, San Francisco, CA.
- Dore, Christopher D.
- 1996 La Etnoarqueología de la Arquitectura y Comunidades: Investigación en Xculoc, Campeche. Paper presented at VI Encuentro: Los Investigadores de la Cultura Maya, Campeche, Mexico.
- Cashmere, Corey, Christopher D. Dore, and Michael P. Smyth
- 1996 Geographical Information Systems in the Analysis of Post Depositional Processes at Sayil, Yucatan, Mexico. Paper presented at the 61st annual meeting of the Society of American Archaeology, New Orleans, LA.
- Wandsnider, LuAnn and Christopher D. Dore
- 1996 How close is close enough: GPS Analysis of the Heritage Resource Spatial File. Paper presented at the 1996 Nebraska GIS Symposium, Lincoln, NE.

- Dore, Christopher D.
1995 Behavior and the Built Environment in a Yucatecan Village. Paper presented at the 60th annual meeting of the Society of American Archaeology, Minneapolis, MN.
- Dore, Christopher D.
1993 Resolving Ambiguity and Building Theory at the Community Scale: Crossing Boundaries of Knowledge with a Behavioral Approach. Paper presented at Crossing Boundaries in Practice, The Fifth International and Interdisciplinary Forum on Built Form & Culture Research, Cincinnati, OH.
- Smyth, Michael P., Christopher D. Dore, and Lora L. Anderson
1993 Maya Community Patterns via "La Ruta Puuc": The 1992 Sayil Project. Paper presented at the 58th annual meeting of the Society of American Archeology, St. Louis, MO.
- Smyth, Michael P. and Christopher D. Dore
1992 Prehispanic Maya Community Organization: A Large Site Behavioral Approach. Paper presented at the 57th annual meeting of the Society of American Archaeology, Pittsburgh, PA.
- Smyth, Michael P. and Christopher D. Dore
1991 Large Site Archaeology at Sayil, Yucatán, México: The Organization of a Prehispanic Maya Community. Paper presented at the 56th annual meeting of the Society of American Archaeology, New Orleans, LA.
- Dore, Christopher D.
1990 The NAPA Mentor Program. Special Event, 89th Annual Meeting of the American Anthropological Association, New Orleans, LA.
- Smyth, Michael P. and Christopher D. Dore
1990 The Organization of a Great Maya Center: Sayil, Yucatán, México. Earthwatch Principal Investigators Conference, Watertown and Cambridge, MA.

Publications about Christopher D. Dore

- Environmental Business Journal
2024 Feature Q&A: Cultural Resources Market Matures As A Business; Growth from NEPA, NHPA & BIL with Christopher D. Dore. *Environmental Business Journal*, Volume XXXVII, Number 3/4: 25-27.
- Environmental Business Journal
2014 Feature Q&A: Business challenges in the maturing Cultural Resources Management Industry with Christopher D. Dore. *Environmental Business Journal*, Volume XXVII, Number 4/5: 33-35.
- VoiceAmerica
2014 New Miami Circles: Controversy and Compromise in Site Preservation. Interview with Dr. Christopher D. Dore. *Indiana Jones: Myth, Reality and 21st Century Archaeology*.

- Environmental Business Journal
 2008 As the Cultural Resources Market Consolidates, SRI Looks Forward to Growth Through Acquisition. An Interview with Christopher D. Dore, Chief Marketing Officer. *Environmental Business Journal*, Volume XXI, Number 3/4: 30-31.
- Eller Times
 2008 Mapping Out Success. Alumni Spotlight. *Eller Times*. April 2008. University of Arizona, Tucson.

Professional Societies and Offices Held (* indicates current membership)

- American Academy of Underwater Sciences*
 Dive Control Board, Glendale Community College: 2019-
- American Anthropological Association
 Contributing Editor, Anthropology Newsletter: 1986-1988
- American Cultural Resources Association*
 Past-President: 2004-2005
 President: 2003-2004
 President-elect: 2002-2003
 Director: 2001-2002
- American Marketing Association
- American Society for Photogrammetry and Remote Sensing
- Association of Fundraising Professionals
- Arizona Archaeological and Historical Society
- Arizona Archaeological Council*
- Chartered Institute for Archaeologists*
 Assessor to the Validation Committee: 2021-
- Colorado Council of Professional Archaeologists
- International Association for Impact Assessment
- Environmental Design Research Association
 Chair, Cultural Aspects of Design Network: 1993-1996
- Forensic Expert Witness Association*
 Southwest Region Director: 2019-2022
 VP Southwest Region: 2022
 Director National FEWA: 2022
 National Conference Committee: 2022
- National Association of Environmental Professionals
- National Association for the Practice of Anthropology
 Mentor Program Committee: 1989-1990
- National Association of Student Anthropologists
 Vice-President: 1986-1988
 Editor, *Bulletin of NASA*: 1986-1988
 Executive Committee: 1985-1986
 Co-founder: 1985
- Register of Professional Archaeologists (Registered 1997)*
 President/President-elect 2016-2019
 Executive Director Search Committee: 2022
- Society for American Archaeology*
 President-Elect: 2024
 Findings Verification Committee: 2020-2022

Editor, *Advances in Archaeological Practice*: 2013-2016
 Chair, Nominating Committee 2012
 Treasurer: 2010-2012
 Treasurer-elect: 2009-2010
 Director: 2005-2008
 Investment and Finance Committee: 2016-2020, Chair 2022-2025
 Committee on Meetings Development: 2003-2005
 Committee to draft Professional Standards for the Determination of Archaeological Value: 2003.
 Annual Meeting Program Committee: 1998-1999
 Committee on Student Affairs: 1989-1991
 Manuscript reviewer for *Latin American Antiquity*, *American Antiquity*, and *Advances in Archaeological Practice*.
 Society for Archaeological Sciences
 Manuscript reviewer for *Archaeometry*: 2003
 Society for California Archaeology
 Society for Historical Archaeology
 Manuscript reviewer for *Historical Archaeology*: 2001, 2003
The Grapevine. Associate Editor. Applied Technologies column: 2000-2002
Journal of Archaeological Sciences manuscript reviewer: 2005

Other Professional Service

2004 A Working Conference on Historic Preservation and Transportation: Enhancing and Streamlining Compliance with Section 106 of the National Historic Preservation Act, February 22-25, Santa Fe, NM. (SRI Foundation).

Academic Service

2005 Archaeological Sciences of the Americas Symposium (2006) Executive Committee Member. University of Arizona.
 1989 Committee on Graduate Assistants. Graduate Student Association, University of New Mexico.
 1987-89 Financial Resources Committee. Department of Anthropology, University of New Mexico.

Theses and Dissertations Supervised

2018 Kent Mead, M.A. Low-Cost UAV Photogrammetry: An Application for Archaeological Survey in the Upper Gila River Watershed, New Mexico. University of Arizona, School of Anthropology.

Invited Lectures

2019 Value, Sustainability, and Heritage Impact: The Business-Driven Argument for Archaeologists. Keynote Lecture presented at the Chartered Institute for Archaeology Annual Conference. Leeds, United Kingdom.
 2019 Discussant. #MeToo in Archaeology. Forum presented at the 84th annual meeting of the Society for American Archaeology. Albuquerque, New Mexico.
 2017 Panel Discussant. Publish Archaeology! SFU Archaeology Press and the Open Access Future. Simon Fraser University, Burnaby, British Columbia, Canada.

- 2017 Perspectivos del Norte: Como los Estados Unidos Protege Patrimonio Cultural. Lecture presented at the 2017 workshop of Archaeologists without Borders: Social Participation using Creative Approaches for Sustainable Management of Archaeological Heritage. Puerto Morelos, Quintana Roo, Mexico.
- 2016 Opportunities and Insights for UK Firms: Capacity and Sustainability in North America. FAME Forum, Federation of Archaeological Managers & Employers. York, UK
- 2015 The Future of Archaeological Research in Canada. Lecture presented to the Department of Archaeology, Simon Fraser University, Burnaby, B.C.
- 2014 Envisioning Archaeological Research in the 21st Century. Lecture presented to the Department of Anthropology, Southern Illinois University, Carbondale, IL.
- 2014 Traditional Ecological Knowledge and Challenges to our Understanding of the Past: Agricultural Systems and the Development of Economic Stratification. Amerind Foundation, Dragoon, AZ.
- 2013 Ethnoarchaeology, Community Organization, & Spatial Archaeometry: Rethinking Maya Settlement. Lecture presented to the Department of Anthropology, University of Nebraska. Lincoln, NE
- 2013 Business Essentials for Heritage Professionals. Lecture presented to the Department of Anthropology, University of Nebraska. Lincoln, NE
- 2005 Better Science for more Efficient Compliance: Streamlining Cultural Resource Requirements. U.S. Air Force. Range Commander's Council, Range Environmental Group. Las Vegas, NV.
- 2004 La Conservación del Patrimonio Sociocultural y las Medidas de Protección en los Estados Unidos (una perspectiva desde el sector privado). Lecture presented to the Universidad Autónoma del Estado de Morelos. Cuernavaca, Morelos, Mexico.
- 2004 Photogrammetry and Archaeological Stewardship. Lecture presented to the Center for Desert Archaeology, Tucson, AZ.
- 2004 Ethnoarchaeology, Community Organization, & Spatial Archaeometry: Rethinking Maya Settlement. Lecture presented to the University of Arizona, Department of Anthropology. Tucson, AZ.
- 2002 Space-Age Archaeology. Lecture presented to the Arizona Archaeological and Historical Society. Tucson, AZ.
- 2002 Modeling for Management in a Compliance World. Lecture presented to Desert Archaeology, Inc., Tucson, AZ.
- 2002 Archaeological Update on Geospatial Technologies. Lecture presented to the San Diego County Archaeological Society. San Diego, CA.

- 2001 Space and Place at Two East Bay Shellmounds. Lecture presented at Ancient Native Sites of the East Bay. Berkeley Architectural Heritage Association. Berkeley, CA.
- 1998 New Perspectives on an Old Tradition: Exploring Modern Maya Architecture. Lecture presented to the Phoebe Hearst Museum of Anthropology, University of California, Berkeley.
- 1999 A Consumer's Guide to Archaeological Geospatial Data and Analysis. Lecture presented to the Department of Archaeology, Boston University, Boston.
- 1997 Remote Sensing in the Management of Cultural Resources. Lecture presented at the Symposium on Remote Sensing in the Mojave Desert. Fort Irwin, CA.
- 1995 GIS Essentials for Researchers: What You Need to Know to Apply Spatial Technologies to Anthropological Problem Solving. Lecture presented to the Department of Anthropology, University of Georgia, Athens.
- 1995 From Paper to Pyramids: Discovering the Maya. Lecture presented to El Museo Latino, Omaha, NE.
- 1995 GIS and Archaeology at Sayil, Yucatán, México. Lecture presented to the Nebraska GIS Forum, Nebraska GIS Steering Committee, Lincoln.
- 1994 Site and Community in Yucatán: Methods for Bridging the Gap. Lecture presented to the Department of Anthropology, University of Nebraska-Lincoln.
- 1990 Understanding the Ancient Maya: Current Research at Sayil, Yucatán, México. Lecture presented to the Rotary Club, Belen, NM.
- 1981 Archaeological Work at the Hoko Site. Lecture presented to the Boy Scouts of America, Pullman, WA.

Workshops Presented

- 2019 Ethics Workshop. Chartered Institute for Archaeologists. Leeds, U.K.
- 2018 Ethics Workshop. Chartered Institute for Archaeologists. Brighton, U.K.
- 2010 Marketing for Managers: Successful Strategies for Landing and Retaining the Most Profitable Clients, One-day workshop presented on behalf of the American Cultural Resources Association at the 16th annual meeting of the American Cultural Resources Association, Madison, WI.
- 2007 Three-day workshop on applied archaeological geophysics presented on behalf of the Washington State Department of Archaeology and Historic Preservation. Olympia, WA.
- 2006 Geospatial Field Data Collection Methods for Cultural Resources. Workshop presented to the University of Arizona, College of Architecture, Planning, and Landscape Architecture, Preservation Studies program. Tucson, AZ

- 2004 Introduction to Archaeological Field Photogrammetry. Workshop presented at the Arizona Site Stewards annual meeting. Rio Rico, AZ
- 2004 Geospatial Technologies and Archaeology. Workshop presented to the National Science Foundation IGERT Program's Archaeology Summer Institute for Educators. Tucson, AZ.
- 2003 Introduction to Archaeological Field Photogrammetry. Workshop presented at Statistical Research, Inc. Tucson, AZ
- 2001 CRM and the Future of Geospatial Information Technologies. Workshop presented at the American Cultural Resources Association annual meeting. Cincinnati, OH.
- 2001 Photogrammetry for Archaeological Damage Assessment...and More! Workshop presented at the Archaeological Damage Assessment Class, Bureau of Land Management and USDA Forest Service. 1-5 October. Boise, ID.

Webinars

- 2022 Merger and Acquisition Basics for Development-Driven Archaeological Consulting Organisations. Webinar prepared for the Federation of Archaeological Managers and Employers. Prepared by Heritage Business International, L3C. Tucson, AZ.
- 2022 From Expert to Expert Witness: What Archaeologists Need to Know. Webinar prepared for the Society for American Archaeology. Prepared by Heritage Business International, L3C. Tucson, AZ.
- 2022 How Much is it Worth? Valuing Archaeological Resources under the Archaeological Resources Protection Act. Webinar prepared for the Society for American Archaeology. Prepared by Heritage Business International, L3C. Tucson, AZ.
- 2021 A Digital Marketing Primer. Webinar prepared for the American Cultural Resources Association. Prepared by Heritage Business International, L3C. Tucson, AZ.
- 2019 Acquisition Versus Retention: Strengthening the Firm-Client Relationship. Webinar prepared for the American Cultural Resources Association. Prepared by Heritage Business International, L3C. Tucson, AZ.
- 2017 Beyond Profit: Increase Value and Create a Sustainable Firm. Webinar prepared for the American Cultural Resources Association. Prepared by Heritage Business International, L3C. Tucson, AZ.
- 2017 Why CRM Sales Efforts Aren't Effective...and How You Can Change this at Your Firm. Webinar prepared for the American Cultural Resources Association. Prepared by Heritage Business International, L3C. Tucson, AZ.

EXHIBIT C

Categorical Exclusion and Extraordinary Circumstances Review Form
 United States Environmental Protection Agency
 Washington, DC 20460

I. General Information

Project Name	WIFIA Id Number
Geotechnical Investigations and Design and Planning for the proposed Pacheco Reservoir Expansion	20114CA
Borrower Name	
Santa Clara Valley Water District	
Project Description	
The project includes geotechnical investigations at and surrounding the Pacheco Reservoir, including soil and rock borings, backhoe test pits, seismic tests, and lake sediment borings, and design and planning costs for the proposed Pacheco Reservoir Expansion Project; additional description is included in Attachment 1.	
Project Location Description <i>(street address/city/state/ZIP code; site characteristics)</i>	
Geotechnical investigations will take place at various locations within and surrounding the Pacheco Reservoir in Santa Clara County, California. The Pacheco Dam is located north of Highway 152 and is located approximately 60 miles southeast of San Jose, California.	

II. EPA Contact for Environmental Review on this Project (If different from Responsible Official)

Name	Title	Phone Number
Alaina McCurdy	Environmental Scientist	202-564-6996

III.A. Categorical Exclusion Eligibility *(Check YES or NO)* Complete the following questions in their entirety to determine if the project is eligible for a Categorical Exclusion (CATEX) pursuant to 40 CFR § 6.204(a)(1)(ii). Additionally, supporting statements and documentation can be included in Attachment 1.

If yes to any, CATEX applies	Does the project involve actions relating to existing infrastructure systems (e.g., sewer systems; drinking water supply systems; and stormwater systems, including combined sewer overflow systems) and involve:	
	YES	NO
	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input checked="" type="checkbox"/>
If yes to any, CATEX does not apply	Will the project include actions that:	
	YES	NO
	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Project Name Geotechnical Investigations and Design and Planning for the proposed Pacheco Reservoir Expansion	WIFIA Id Number 20114CA
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III.B. Extraordinary Circumstances (Check YES or NO) Complete the following questions in their entirety to determine if the project involves any of the following extraordinary circumstances which would make it ineligible for a CATEX pursuant to 40 CFR § 6.204(b)(1) through (b)(10). Additionally, supporting statements and documentation can be included in Attachment 1.

YES	NO	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1) Is the action known or expected to have potentially significant environmental impacts on the quality of the human environment either individually or cumulatively over time?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2) Is the action known or expected to have disproportionately high and adverse human health or environmental effects on any community, including minority communities, low-income communities, or federally-recognized Indian tribal communities?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3) Is the action known or expected to significantly affect federally listed threatened or endangered species or their critical habitat?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4) Is the action known or expected to significantly affect national natural landmarks or any property with naturally significant historic, architectural, prehistoric, archaeological, or cultural value, including but not limited to, property listed on or eligible for the National Register of Historic Places?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	5) Is the action known or expected to significantly affect environmentally important natural resource areas such as wetlands, floodplains, significant agricultural lands, aquifer recharge zones, coastal zones, barrier islands, wild and scenic rivers, and significant fish or wildlife habitat?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	6) Is the action known or expected to cause significant adverse air quality effects?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	7) Is the action known or expected to have a significant effect on the pattern and type of land use (industrial, commercial, agricultural, recreational, residential) or growth and distribution of population, including altering the character of existing residential areas or may not be consistent with state or local government, or federally-recognized Indian tribe approved land use plans or federal land management plans?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	8) Is the action known or expected to significantly cause significant public controversy about potential environmental impacts of the proposed action?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	9) Is the action known or expected to be associated with providing financial assistance to a federal agency through an interagency agreement for a project that is known or expected to have potentially significant environmental impacts?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	10) Is the action known or expected to conflict with federal, state, or local government, or federally-recognized Indian tribe environmental resource-protection, or land-use laws or regulations?

Title of Project Geotechnical Investigations and Design and Planning for the proposed Pacheco Reservoir Expansion	WIFIA Id Number 20114CA
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III.C. Extraordinary Circumstances Statement (*Check ONLY ONE box*) If the responses to Section III.A indicate the project is CATEX eligible, and if a **NO** response was recorded for each of the questions in Section III.B, then no Extraordinary Circumstances are present pursuant to 40 CFR § 6.204(b) and one of the following statements should be selected.

- 1) **No extraordinary circumstances apply** to the proposed action pursuant to 40 CFR §§ 6.204(a)(1) and 6.204(b). This statement is based on either past experience with similar actions **at the proposed action site** resulting in a CATEX and/or information gathered as part of previous NEPA or environmental due diligence review conducted **at the proposed action site**. Provide any supporting documentation or references in Attachment I.
- 2) **No extraordinary circumstances apply** to the proposed action pursuant to 40 CFR §§ 6.204(a)(1) and 6.204(b). This statement is based on information gathered as part of this NEPA evaluation. A statement and supporting documentation is attached explaining why no extraordinary circumstances exist or apply to the proposed action pursuant to 40 CFR §§ 6.204(a)(1) and 6.204(b).

IV. NEPA Review Determination and Responsible Official Signature

Sections I through III must be completed to satisfy EPA's documentation requirements for CATEX eligibility. If completion of this form indicates that a CATEX *does apply*, the Responsible Official must sign below.

Categorical Exclusion Determination The EPA finds that the proposed action is eligible for exclusion from detailed environmental review under 40 CFR § 6.204(a)(1)(ii), and will not involve any of the extraordinary circumstances delineated under 40 CFR § 6.204(b)(1) through (b)(10). Consequently, the EPA will not prepare an environmental impact statement or an environmental assessment for the proposed project. The EPA may revoke this categorical exclusion if changes in the proposed action render it ineligible for exclusion or if new evidence emerges which indicates that serious local or environmental issues exist or federal, state, or local laws would be violated.

As the Responsible Official, I have determined that **this action is eligible for a Categorical Exclusion** per the substantive environmental review requirements under EPA regulations at 40 CFR § 6.204. Section III.C of this form has been completed providing the required Extraordinary Circumstances Statement.

ANDREW SAWYERS
Digitally signed by ANDREW SAWYERS
 Date: 2023.10.27 16:59:14 -04'00'

Director, Office of Wastewater Management

Signature of Responsible Official

Title

Date

Title of Project Geotechnical Investigations and Design and Planning for the proposed Pacheco Reservoir Expansion	WIFIA Id Number 20114CA
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Attachment 1. CATEX Eligibility and/or Extraordinary Circumstances Statement(s)

The space below may be used for a statement and supporting documentation explaining CATEX eligibility why no extraordinary circumstances exist or apply to the proposed action pursuant to 40 CFR §§ 6.204(a)(1) and 6.204(b). Attach additional pages as needed.

Discussion: The geotechnical investigation activities included in this action are not known or expected to cause significant impact on biological resources, including special status plants and wildlife species, or sensitive natural communities. Biological surveys, including terrestrial habitat mapping, special status wildlife and plant habitat assessments, special-status species surveys, and wetland delineations, have been completed. Preconstruction surveys will be completed prior to beginning any geotechnical investigations at specific locations. Resource protection measures, such as flagging and monitoring, have been developed and will be implemented when geotechnical investigations take place within 50 feet of any sensitive biological resources. EPA has conducted an Endangered Species Act review pursuant to Section 7 and has determined that the proposed geotechnical investigations will have no adverse effect to threatened or endangered species and their critical habitats.

The geotechnical investigations included in this action are not known or expected to cause significant impact on historical or archaeological resources. EPA conducted consultation with the California State Historic Preservation Officer (SHPO) pursuant to the National Historic Preservation Act. EPA made a finding of “*no historic properties affected*,” SHPO did not object to EPA’s findings. Resource protection measures, such as flagging and monitoring, have been developed and will be implemented when geotechnical investigations take place within 50 feet of any sensitive cultural or archaeological resources. Consultation with tribes was conducted during the Section 106 process.

Geotechnical investigations are not known or expected to significantly affect wetlands and floodplains. Wetland delineations throughout the project area have been completed, and some geotechnical work will occur within wetlands and waters of the U.S. Through coordination with the U.S. Army Corps of Engineers San Francisco District , it was determined that these borings qualified for a non-reporting nationwide permit (NWP) 6 for which no pre-construction notification is required that would necessitate an application. Impacts to wetlands and waters of the U.S. are minimal and temporary in nature.

This action is not known or expected to have disproportionate and adverse human health or environmental effects on any community, including communities of people of color, low-income communities, or federally-recognized Indian tribal communities. Geotechnical investigations are not known or expected to effect significant agricultural lands, aquifer recharge zones, coastal zones, barrier islands, essential fish habitat, air, or wild and scenic rivers.

Title of Project	WIFIA Id Number
Geotechnical Investigations and Design and Planning for the proposed Pacheco Reservoir Expansion	20114CA

Attachment 1. CATEX Eligibility and/or Extraordinary Circumstances Statement(s)

Additional detailed description: Engineering studies and sample collection associated with geotechnical studies are needed to inform project design will be included in the proposed project. Geotechnical investigations are needed to understand site geology, identify potential borrow sites for embankments, study the potential effects of existing landslide deposits on construction, investigate foundation conditions and evaluate geotechnical properties of materials.

The initial Planning Level geotechnical investigations included 104 borings and 3 test pits. Phase II geotechnical investigations included the completion of 41 borings, 2 potholes, and 16 test pits. The subsequent Design Level geotechnical investigations would include approximately 120 borings, 30 supplemental borings, and a maximum of 32 proposed test pits. The existing access road surrounding Pacheco Dam and a helicopter would be used to access many of the exploration and investigation locations; some locations would require minor hand leveling to construct temporary drill rig platforms.

The action also includes financing for design and planning costs for the proposed Pacheco Dam Expansion Project, such as professional planning, design, and environmental documentation and permitting support services, performance of engineering analysis, calculations, and interpretations, and geotechnical/subsurface investigations.

EPA has prepared a CATEX under 40 CFR 6.204(a)(1)(ii) and has also considered the application of a CATEX under 40 CFR 6.204(a)(2)(iii) for actions involving information collection, dissemination, or exchange; planning; monitoring and sample collection wherein no significant alteration of existing ambient conditions occurs; educational and training programs; literature searches and studies; computer studies and activities; research and analytical activities; development of compliance assistance tools; and architectural and engineering studies. As this action involves many of the activities described under 40 CFR 6.204(a)(2)(iii), issuance of a CATEX under that provision could also be applicable. 40 CFR 6.204(a)(2)(iii) includes language related to monitoring and sample collection wherein no significant alteration of existing ambient conditions occurs. Despite apparent applicability under 40 CFR 6.204(a)(2)(iii) to this action, EPA has, in an abundance of caution, decided to apply a CATEX under 40 CFR 6.204(a)(1)(ii) to provide more comprehensive consideration of extraordinary circumstances under 40 CFR 6.204(b)(1) through (b)(10).

EXHIBIT D

APR - 5 2017

Mr. Frank O'Connell, President
Pacheco Pass Water District
Post Office Box 1382
Hollister, California 95023

North Fork Dam, No. 77
Santa Clara County

Dear Mr. O'Connell:

This letter is in response to the incident involving the failure of the temporary repairs to the left spillway wall. The failed section involves four wall panels, having an approximate length of 80 feet and starting approximately 170 feet downstream of the beginning of the left spillway wall. Upon being informed of the incident on January 20, 2017 by Mr. Jeff Cattaneo with the San Benito County Water District, Area Engineer William Vogler, Design Engineer Melissa Collord, and Senior Engineering Geologist Robert Burns inspected the dam on the same day.

The Division's inspection team determined that since the failed left wall section was located away and off the dam, it does not pose an immediate dam safety issue. However, repairs must be completed in a timely manner to prevent deterioration and failure of additional wall panels that could block the spillway or render it inoperable.

Mr. Vogler restricted the reservoir to Elevation 469.00, which is 2.0 feet below the spillway crest. This directive was made in accordance with Division 3, Part 1, Chapter 4, Section 6111 of the California Water Code (CWC). Mr. Vogler also requested that the outlet be fully opened whenever the reservoir level is at or above the restricted level, and the dam be inspected daily if the spillway is in-use, and at least three times a day if the reservoir level is at or above Elevation 473.00 or two-feet above the spillway crest. Mr. Vogler requested that any change in conditions be reported immediately to the Division.

The instability of the left spillway wall panels is a long-standing dam safety issue that dates back to the 1940s, and multiple repairs and failures have occurred. A repair application was filed on June 24, 1999, and approved on October 4, 2001, for a long-term repair; however, this work was never completed due to reported funding issues. The Pacheco Pass Water District's (District) progress towards addressing the dam's spillway deficiency with a long-term permanent repair has been unacceptable.

Therefore, in accordance with Section 6081 of the CWC, THE DISTRICT IS HEREBY ORDERED to complete temporary short-term repairs to the spillway by October 1, 2017. In addition, THE DISTRICT IS HEREBY ORDERED to complete a permanent long-term repair by October 1, 2020.

SURNAME
DWR 155 (Rev 7/11)

Manning and for M. Collord 4/4/17
Vogler 4/4/17
N. Wagner 4/4/17
W. Vogler 4/4/17
E. Collord 4/5/17
W. Vogler 4/5/17
Robert A. Burns 4/5/17
Christina 4/5/17

Mr. Frank O'Connell

APR - 5 2017

Page 2

Submit a repair plan for a short-term repair for our review and approval by June 1, 2017, so construction work can be completed by October 1, 2017. No work may be done without our prior approval.

For the long-term repair, a new repair application will be required. A condition assessment of the entire spillway, including any necessary investigation and exploration, must be incorporated into the design phase for the work. All necessary improvements must be included in the repair work. A new repair application, updated plans and specifications, and a filing fee must be submitted by January 2, 2019, to ensure all construction work is completed by October 1, 2020. The application work must be done under the direction of a civil engineer registered in the State of California.

Until permanent repairs are completed to the left spillway wall, the reservoir level shall remain at or below the restricted level of Elevation 469.00. Whenever the reservoir exceeds the restricted level, the low-level outlet must be fully opened to maximize releases. In addition, if the spillway is in-use, it must be inspected daily, and any change in conditions must be reported to us immediately.

If satisfactory progress is not made toward addressing the North Fork Dam's spillway deficiency, further restrictions will be imposed, or the Certificate of Approval to store water may be revoked in accordance with Division 3, Part 1, Chapter 4, Section 6357.1 of the CWC.

If you have any questions or require additional information, please contact Mr. Vogler at (916) 227-4625 or Regional Engineer Andrew Mangney at (916) 227-4631.

Sincerely,

**Original Signed by
Sharon K. Tapia for**

Sharon K. Tapia, Chief
Division of Safety of Dams

Enclosure
Certified Mail

cc: (See attached list.)

WfVogler:TGlorioso
North Fork Dam.doc
Spell Check 4/4/17

cc: Mr. Scott Morgan, Staff Counsel
Office of the Chief Counsel
Department of Water Resources
1416 Ninth Street, Room 1118
Sacramento, California 95814

Mr. Jeff Cattaneo, District Manager
San Benito County Water District
Post Office Box 889
Hollister, California 95024-0899

Mr. James Fiedler, Chief Operating Officer
Water Utility Enterprise
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, California 95118-3686

DEPARTMENT OF WATER RESOURCES

1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

**APR 06 2018****SECOND NOTICE REGARDING NECESSARY REPAIRS**

Mr. Frank O'Connell, President
Pacheco Pass Water District
Post Office Box 1382
Hollister, California 95023

North Fork Dam, No. 77
Santa Clara County

Dear Mr. O'Connell:

This is a follow-up to our letter dated April 5, 2017, regarding the necessary repairs to the failed left spillway wall panels at North Fork Dam. On November 6, 2017, Area Engineer Austin Roundtree inspected the dam, and noted that no progress has been made toward the required spillway repairs. Additionally, none of the required maintenance work noted in past inspection reports and letters has been completed, which is unacceptable. For your reference, Mr. Roundtree's latest inspection report is attached, which documents his observations, conclusions, and recommendations regarding the safety of the dam.

A fully functional spillway is essential to the safety of the dam. The spillway at North Fork Dam is used nearly every year, and failure to repair the left wall in a timely manner has created an unsafe condition at the dam. In its current condition, additional wall panels adjacent to the failed section could progressively fail and block the channel, render the spillway inoperable, and cause the dam to overtop. Therefore, we are further restricting the reservoir below the current restricted level of two feet below the spillway crest.

In accordance with Division 3, Part 1, Chapter 4, Section 6081 of the California Water Code, **THE DISTRICT IS HEREBY ORDERED** to maintain the upstream and downstream outlet controls in the fully open position in order to maximize releases and maintain the lowest possible water surface elevation. The District must perform daily inspections when the spillway is in use, and any change in conditions needs to be reported immediately. This restriction shall remain in effect until permanent repairs to the left spillway wall are completed.

In addition, **THE DISTRICT IS HEREBY ORDERED** to complete short-term interim repairs to the left spillway wall by October 1, 2018, and long-term permanent repairs by October 1, 2020. A work plan for the interim repairs was not submitted as requested in our April 5, 2017 letter, which is unacceptable. Please submit this plan no later than July 1, 2018. No repair work may be done without our prior approval.

A new repair application will be required for the long-term spillway repair, and a comprehensive condition assessment of the entire spillway must be completed. The District will need to submit for our review and approval a detailed work plan identifying all tasks needed to carry out the comprehensive condition assessment of the spillway, including any necessary investigation and exploration programs. The results of the assessment must be documented in a detailed report and all deficiencies identified as part of the assessment must be addressed and included in the repair work. The repair application, updated plans and specifications, and appropriate filing fee must be submitted by January 2, 2019, to ensure all construction work is completed by October 1, 2020. The application work must be designed and constructed under the direction of a civil engineer registered in the State of California.

Mr. Frank O'Connell

Page 2

If the District fails to comply with the orders stated in this letter and continues to make unsatisfactory progress toward addressing the spillway deficiency at North Fork Dam, the Certificate of Approval to store water will be revoked in accordance with Section 6357.1 of the CA Water Code.

During Mr. Roundtree's inspection, he noted no progress has been made toward addressing the maintenance items requested in previous inspection reports and in our January 15, 2014, and March 15, 2016 letters, and that additional work is now required. Therefore, THE DISTRICT IS HEREBY FURTHER ORDERED to complete the following items by October 1, 2018:

1. Remove all woody vegetation from the downstream face and from within five feet of the downstream groins and toe of the dam.
2. Remove all woody vegetation from the joints of the concrete-lined upstream face, and from the joints of the spillway walls and invert.
3. Seal/repair all cracks, joints, and damaged concrete in the spillway, and grind down any raised downstream panel edges.

If you have any questions or require additional information, contact Mr. Roundtree at (916) 227-4625 or Regional Engineer Melissa Collord at (916) 227-4631.

Sincerely,



Sharon K. Tapia, Chief
Division of Safety of Dams

Enclosure
Certified Mail

cc: (See attached list.)

cc: Ms. Robin Brewer, Assistant Chief Counsel
Office of the Chief Counsel
Department of Water Resources
1416 Ninth Street, Room 1118
Sacramento, California 95814

Ms. Lori Newquist, Coordinator
California Office of Emergency Services
Hazard Mitigation
3650 Schriever Avenue
Mather, California 95655

Mr. Jeff Cattaneo, District Manager
San Benito County Water District
Post Office Box 889
Hollister, California 95024

Ms. Katherine Oven, Deputy Operating Officer
Water Utility Capital Division
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, California 95118-3686

DEPARTMENT OF WATER RESOURCES

P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791



December 20, 2021

Mr. Steve Lindsay, President
Pacheco Pass Water District
Post Office Box 1382
Hollister, California 95023

North Fork Dam, No. 77
Santa Clara County

Dear Mr. Lindsay:

This is to inform the Pacheco Pass Water District (District) that the Division of Safety of Dams (DSOD) has completed an independent assessment of the spillway at North Fork Dam consisting of a file review and visual inspection. DSOD conducted this review given the risk posed by the unmitigated failure of a section of the left spillway wall and the urgent need to evaluate the remainder of the structure for additional deficiencies. The left wall section failed in January 2017 and has not been mitigated despite DSOD's April 5, 2017 and April 6, 2018 letters ordering its repair.

Based on DSOD's review and inspection, the spillway is vulnerable to failure during future storms or landslide events due to its lack of maintenance, design deficiencies, and history of failures. Therefore, we conclude that the spillway must be replaced with one meeting modern design standards. This new spillway must be completed by December 31, 2032, which will allow for the District to budget and secure the necessary funding for the design and construction.

DSOD is aware that the District is working to secure external funding to construct a partial-height wall, which we approved in a May 7, 2020 letter as an interim repair to the failed left wall section. We also understand the District expects to receive the external funding and are on track to complete the interim repairs by July 2023. Please keep DSOD apprised on construction schedules. The completion of the interim repairs does not change the District's obligation to construct a new spillway by December 31, 2032.

No earthwork activities shall proceed along and upslope of the left spillway walls without DSOD review and approval. Such work poses a risk of reactivating historic landslides in the left hillslope that could block the spillway [REDACTED]

Due to the poor condition of the spillway at North Fork Dam, the District must continue to comply with the reservoir restriction imposed in our April 6, 2018 letter, which requires the upstream and downstream outlet controls to remain in the fully open position to maximize releases and maintain the lowest possible water surface elevation. In addition, the District must perform daily inspections if the spillway is in use due to a storm event, and any change in conditions must be reported to DSOD immediately.

Mr. Lindsay
December 20, 2021
Page 2

In the interest of dam safety, DSOD is committed to working closely with the District toward addressing the spillway deficiency at North Fork Dam. If you have any questions or need additional information, you may contact Area Engineer Austin Roundtree at (916) 565-7822 or Regional Engineer Melissa Collord at (916) 565-7820.

Sincerely,

Shawn Jones for

Sharon K. Tapia, P.E.
Division Manager
Division of Safety of Dams

cc: Mr. Casey Meredith, Chief
Dam Safety Planning Division
California Governor's Office of Emergency Services
3650 Schriever Avenue
Mather, California 95655

Mr. Jeff Cattaneo, District Manager
San Benito County Water District
Post Office Box 889
Hollister, California 95024

Mr. Christopher Hakes, Deputy Operating Officer
Dam Safety and Capital Delivery
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, California 95118-3686

EXHIBIT E



April 17, 2023

SENT VIA EMAIL (cwc@water.ca.gov)

Chair Matthew Swanson and California Water Commission Members
California Water Commission
P.O. Box 942836
Sacramento, California 94236-0001

RE: Pacheco Dam Project Reevaluation Request

Dear Chair Swanson and Members of the California Water Commission:

This letter is written on behalf of the Stop the Pacheco Dam Project Coalition, Sierra Club California, and the Sierra Club Loma Prieta Chapter. Our groups are concerned that the Pacheco Dam Project (“project”) does not meet public funding requirements under Proposition 1 and has failed to progress in a satisfactory manner.

Based on discussions at the March 15, 2023, California Water Commission (“Commission”) meeting and the March 16, 2023, Santa Clara Valley Water District (“Valley Water”) Board meeting, we request that the Commission require Valley Water to provide updated information regarding why the project has been delayed several years and whether the project is still technically and financially feasible, and for the Commission to determine whether the project’s Water Storage Investment Program (“WSIP”) funding should be reconsidered.

New Information Regarding the Commission’s Authority and Its Ability to Obtain Updated Information from Project Proponents

Agenda item 9 of the Commission’s March 15, 2023, meeting included an update on the progress of the WSIP projects.¹ During the Commission’s discussion of the item, several Commissioners requested clarification about what actions could be taken if projects are not progressing in a satisfactory manner. Commissioner Makler stated that he

¹ The meeting agenda can be accessed at: <https://cwc.ca.gov/Meetings/All-Meetings/2023/Meeting-of-the-California-Water-Commission-Mar-15-2023>.

would like to know whether the Willow Springs Water Bank project is moving forward sooner rather than later in order to reallocate those funds. Commissioner Makler requested additional briefing from the Willow Spring project proponents to discuss the project's progress.

Commissioner Steiner verified with staff that the Commission has the authority to request project proponents to provide an update regarding what has been done, and what is anticipated to be completed.² Further, the Commissioner noted that internal deadlines for the project proponents may be provided by the Commission to ensure adequate progress is being made. The Commission's counsel clarified that the Commission may request updates, and could decide at a properly agenda meeting that a project is not appropriately progressing, and make additional recommendations or determinations.

Valley Water's Draft Environmental Review Is Inadequate and Is Nowhere Near Complete

The Pacheco Dam review process is still incomplete and is extremely behind schedule. Apparently in order to maintain funding eligibility under Proposition 1 (see Cal. Code Regs., tit. 23, § 6013, subd. (f)(2)), Valley Water hurriedly released its Draft Environmental Impact Report ("DEIR") on November 17, 2021.³ The proposed project described in the DEIR was a hardfill dam, even though the Department of Water Resources ("DWR") Division of Safety of Dams ("DSOD") had already rejected the hardfill dam proposal in October 2021; this was formalized in a November 1, 2021 letter. (Exhibit 1, November 1, 2021, DSOD Letter.) The DEIR thus focused its analysis on a proposed project that had already been deemed technically infeasible.

In addition to analyzing an infeasible proposed project, the DEIR's content was woefully inadequate. Numerous public agencies, both state and federal, along with dozens of nonprofit and tribal entities, submitted hundreds of letters describing the document's extensive inadequacies.⁴ To rectify these deficiencies, Valley Water now

² The video recording can be accessed at: <https://www.water-ca.com/archives.html>. The relevant discussion occurs between 1:22:00 and 1:53:20.

³ The Pacheco Dam Project DEIR can be accessed at: <https://www.valleywater.org/node/1898>.

⁴ Many of the public comments can be accessed at: <https://stoppachecodam.org/public-concerns/draft-environmental-impact-report-deir-comments-2022/>.

proposes to produce another DEIR in May 2025.⁵ Moreover, although the new Dam project would require federal environmental review under the National Environmental Policy Act (42 U.S.C. § 4332 et seq.), that review process has not yet formally begun.

Valley Water should explain why it would take more than two years to produce a recirculated DEIR and a Draft Environmental Impact Statement, along with how it will address the numerous problems that plagued its last round of environmental documentation. Gathering this information is not only important to evaluating the project's feasibility, but is also intertwined with the State's concerns about delays in Proposition 1 funding.⁶

Too Much Funding Has Already Been Wasted on Pacheco Dam

As determined at the March 15, 2023, Commission meeting, the Commission can choose to rescind a project's funding and reallocate those funds to other projects. Valley Water obtained the second-highest funding award at \$504,141,383.⁷ Valley Water has already spent more than \$60 million with only a faulty DEIR, and an infeasible project design to show for it. The Commission should not continue to spend public funds on a project that does not appear to be financially or technically viable.

Additionally, as the cost has continued to increase, the cost-benefit analysis provided at the Commission's June 28, 2018 meeting is no longer accurate.⁸ The PowerPoint Presentation for that meeting stated that the project's benefit/cost ratio was 1.12. (Exhibit 2, June 28, 2018, Application Scores and Commission Determinations Presentation, p. 14.) This ratio was obtained because the total project benefits were

⁵ The updated timelines for the WSIP projects can be accessed at: https://cwc.ca.gov/-/media/CWC-Website/Files/Documents/2023/03_March/March2023_Item_9_Attach_1_PowerPoint_Final.pdf

⁶ Governor's Office Fact Sheet: 6 Ways California is Harnessing Winter Storms to Boost Water Supplies [The Natural Resources Agency established a strike team to help move projects toward completion.] The document can be accessed at: <https://www.gov.ca.gov/wp-content/uploads/2023/02/FACT-SHEET-Winter-Storms-and-Water-Supply-updated.pdf?emrc=63fbfb84899bf>.

⁷ See Proposition 1, Chapter 8 Conditional Amounts, available at: <https://cwc.ca.gov/Water-Storage>.

⁸ California Water Commission Meeting June 28, 2018, available at: https://cal-span.org/meeting/cwc_20180628/.

claimed to be \$1.222 billion,⁹ and the project cost was estimated at \$1.094 billion. (Exhibit 2, p. 14.) This is no longer the case. Capital costs are now estimated to be roughly \$2.7 billion (with a total project cost of roughly \$6 billion), and there is no indication that benefits have increased. Thus, the benefit/cost ratio is now roughly 0.45. Therefore, not only has Valley Water failed to provide a feasible project, but the cost has escalated at such a rate that the costs exceed the project's previously calculated benefits.

New Information Regarding Valley Water's Still Unfulfilled 35 Percent Partnership Assumption

The Pacheco Dam project's infeasibility is also illustrated by the lack of partners that have committed to help fund the project. In 2018, the Valley Water Board directed staff to assume that the Pacheco Dam Project would have funding partnerships of at least 35 percent.¹⁰ Since then, all Valley Water budget publications and planning documents have assumed that 35 percent of the project cost would be covered by other partner agencies. To date, however, not a single agency has formally agreed to share in the cost of the project. This situation is in contrast with other WSIP projects, such as the Los Vaqueros Reservoir Expansion Project; as of September 2021, Los Vaqueros had eight member agencies that had signed on to the Joint Powers Authority.¹¹

During Valley Water's March 16, 2023, Special Meeting, multiple directors inquired about the 35 percent partnership assumption. In response, Director Estremera provided clarification about the origins of that assumption. He stated, "I made the motion with respect to the 35 percent participation, at least the Board at the time felt that if we did not have partners, we would not do this, we just would not do this project and so having said that to the public, we wanted to make sure that all of our assumptions

⁹ Prior correspondence to the Commission from Stop the Pacheco Dam Coalition explains how the claimed benefits are wildly overstated. Dr. Jeffrey Michael's report titled Review of the Pacheco Dam Feasibility Documentation: New Pacheco Dam is Economically and Financially Infeasible, available at: https://stoppachecodam.org/wp-content/uploads/2021/11/21.11.29-Pacheco-Dam-Feasibility-Review_final-003.pdf.

¹⁰ Valley Water Special Meeting, March 16, 2023, available at: https://scvwd.granicus.com/MediaPlayer.php?view_id=3&clip_id=2078 (discussion of the previous decision regarding the 35 percent partnership begins at 1:54:55).

¹¹ The Los Vaqueros Reservoir Joint Powers Authority Agreement, available at: <https://img1.wsimg.com/blobby/go/b7bc6bb0-42f8-4e51-8df7-1b624c766dd9/downloads/Los%20Vaqueros%20Reservoir%20Joint%20Exercise%20of%20Power.pdf?ver=1679410743109>

Chair Matthew Swanson & Members of the California Water Commission
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included that proviso.”¹² Currently, there is no indication that Valley Water will have any partnership funding, much less 35 percent partner funding. Therefore, it is possible that Valley Water Board may consider abandoning the project based on a lack of partnerships in the near future.

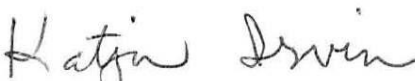
Conclusion

The new Pacheco Dam Project continues to be mired by deficient planning, increasing costs, and growing questions about Valley Water’s desire and ability to complete project milestones, despite expending more than \$60 million. Our coalition believes it would be appropriate for the Commission to inquire about the progress and continued feasibility of the Pacheco Dam Project at this time. As this project has become technically, environmentally and/or financially infeasible, no further Proposition 1 funds should be spent on it. (See Cal. Code Regs., tit 23, § 6013, subd. (f).)


Thank you for considering this information and please feel free to contact me (osha@semlawyers.com, 916-455-7300) with any questions.

Very truly yours,

Sierra Club Loma Prieta Chapter

By: 
Katja Irvin, AICP
Conservation Committee

Sierra Club California

By: 
Molly Culton
Senior Conservation and Digital
Organizer

¹² Valley Water March 16, 2023, Special Meeting, available at: https://scvwd.granicus.com/MediaPlayer.php?view_id=3&clip_id=2078 (Director Estremera clarification begins at 1:55:00).

Chair Matthew Swanson & Members of the California Water Commission
California Water Commission
April 17, 2023
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**Stop the Pacheco Dam
Project Coalition**

By: 
Osha R. Meserve

Attachments:

Exhibit 1, November 1, 2021, DSOD Letter
Exhibit 2, June 28, 2018, Application Scores and Commission Determinations
Presentation

cc (sent via email):

Members of the California Water Commission
Matthew Swanson, Chair (Matthew.Swanson@cwcc.ca.gov)
Fern Steiner, Vice Chair (Fern.Steiner@cwcc.ca.gov)
Samantha Arthur (Samantha.Arthur@cwcc.ca.gov)
Daniel Curtin (Daniel.Curtin@cwcc.ca.gov)
Kimberly Gallagher (Kimberly.Gallagher@cwcc.ca.gov)
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Joe Yun, Executive Director (joseph.yun@water.ca.gov)
Holly Stout, Legal Counsel (holly.stout@water.ca.gov)

EXHIBIT 1

DEPARTMENT OF WATER RESOURCES

P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791



November 1, 2021

Mr. Christopher Hakes, Deputy Operating Officer
Dam Safety and Capital Delivery
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, California 95118

Pacheco Dam, Proposed
Santa Clara County

Dear Mr. Hakes:

This is the Division of Safety of Dams' (DSOD) response to the Santa Clara Valley Water District's (Valley Water) design concept submittals for the proposed Pacheco Dam. Valley Water's submittals, dated March 1, 2021, March 16, 2021, and August 25, 2021, sought DSOD's review and approval of the feasibility of constructing a "hardfill" dam at the preferred upper dam site. For the reasons set forth below, DSOD is unable to approve Valley Water's concept.

DSOD has completed its review of the submitted documents (list enclosed). These submittals define a hardfill dam as a symmetrical gravity dam constructed of cemented materials utilizing construction methods similar to Roller Compacted Concrete (RCC). Hardfill materials generally do not meet industry requirements for RCC mixtures, such as using lower quality aggregates with greater fines content (0.075 mm and smaller particles). According to the submittals, Pacheco Dam would be of similar design.

As proposed, Pacheco Dam would be the largest hardfill dam in the United States, standing at a height of 326-feet with 140,000 acre-feet of storage. A key aspect of DSOD's review has been the design, construction, and performance history of hardfill dams in the United States and elsewhere. However, given the short history (less than 20 years) and limited documentation for this type and size of dam, sufficient information is not readily available. With this limitation, DSOD cannot agree with Valley Water and its consultants that hardfill dams have proven adequate performance based on the lack of documented negative performance.

As discussed in a meeting with you and your staff on October 27, 2021, DSOD has identified major issues that lead us to reject the hardfill dam concept. A complete list of major comments is enclosed. The most critical issue, which was identified during your consultant's (AECOM) Probable Failure Mode (PFM) workshop, is the potential degradation of hardfill over time in the presence of water. This negative factor is identified numerous times in the screening of PFMs, but it was considered remote. However, a lack of research and limited performance history leave large uncertainties as to whether this factor is remote. This compounds the risk since the potential for water to interface with the hardfill cannot be fully mitigated, especially at the interface between the dam and foundation.

Mr. Hakes
November 1, 2021
Page 2

Although risk reduction measures could be incorporated into the design, the adequacy and longevity of any risk reduction measure would be unknown. The ability to monitor the dam's performance would be limited in areas such as at the contact between the dam and its foundation. As such, if deficiencies do manifest after significant progression, intervening actions may not be adequate to prevent a catastrophic failure of the dam.

Additionally, the lack of well-documented case histories, cohesive design standards, and independent research regarding hardfill dams and their long-term performance poses unacceptable risks for public safety. Finally, the suitability of the hardfill as a robust dam design cannot be accepted by DSOD based on these factors and assumptions that may prove incorrect in time as the performance of this dam type is better understood.

The upper dam site preferred by Valley Water remains a feasible site to construct a dam, such as an earthfill dam, but this site does have noted geologic issues that will need to be addressed for any dam type. The concern of site-specific fault rupture and the associated unknowns will remain until the foundation is excavated or fully explored via a trench. Additionally, the adverse bedding in the right abutment and potential for differential settlement between the adjacent geologic units will need to be further evaluated. Any dam constructed at this site will need to be designed to accommodate all uncertainties reliably to mitigate the risks associated with the extremely high downstream consequence associated with a dam of the proposed size.

If you have any further questions or comments, please contact Design Engineer Ashley Moran at (916) 565-7850 or Project Engineer Christopher Dorsey at (916) 565-7846.

Sincerely,



Sharon K. Tapia, P.E.
Division Manager
Division of Safety of Dams

Enclosures

California Natural Resources Agency
DEPARTMENT OF WATER RESOURCES
DIVISION OF SAFETY OF DAMS
November 1, 2021

Enclosure 1

The list of documents submitted by Valley Water that DSOD reviewed for determining the acceptability of a hardfill dam at the proposed Pacheco Dam site follows:

1. Hardfill Dam Workplan Pacheco Reservoir Expansion Project, by AECOM, Inc., Stantec, and GEI Consultants, dated March 11, 2021.
2. Evaluation of Hardfill Dam Technical Memorandum Pacheco Reservoir Expansion Project, by AECOM, Inc., Stantec, and GEI Consultants, dated March 15, 2021.
3. Project Alternatives Assessment Technical Memorandum Pacheco Reservoir Expansion, by AECOM, Inc., Stantec, and GEI Consultants, dated March 2021.
4. DRAFT Assessment of Regional and Local Faulting, Pacheco Reservoir Expansion Project, Santa Clara County, California, by Lettis Consultants International, Inc., dated September 10, 2020.
5. Assessment of Local and Site-Specific Faulting, Pacheco Reservoir Expansion Project, Santa Clara County, California, by Lettis Consultants International, Inc. dated February 12, 2021.
6. Reservoir Rim Landslide Inventory Mapping near the Proposed Pacheco Reservoir Expansion Project, Santa Clara County, California, by Lettis Consultants International, Inc. dated March 2, 2021.
7. Pacheco Reservoir Expansion Project (PREP): Workshop materials from PFM workshop, by AECOM, Inc., Stantec, and GEI Consultants, dated August 25, 2021.

California Natural Resources Agency
DEPARTMENT OF WATER RESOURCES
DIVISION OF SAFETY OF DAMS

November 1, 2021

Enclosure 2

The following is DSOD's list of major comments with respect to the proposed hardfill dam at the Pacheco Dam site (upper or lower):

1. Long-term performance data for hardfill dams of the proposed size are not available to adequately support the proposition of a hardfill dam of such extreme consequence. The dynamic properties of hardfill are not well studied or known, and there are no records showing that the select hardfill dams of a similar or larger size have been subjected to dynamic loading close to their design loads. The documentation by AECOM regarding seismic history are based on estimates rather than direct measurements. The conclusion that hardfill dams have adequate performance because there has been no documentation of negative performance is potentially unconservative given the limited history (less than 20 years) for dams of this type and size under extreme loads.
2. In AECOM's review of potential failure modes (PFMs), a negative factor for many of the PFMs is the possibility that hardfill can degrade over time in the presence of water. We find this to be the most critical issue because water may be able to access the hardfill in multiple locations, and some locations may not be detectable. To date, thorough and complete research on this issue has not been performed, and it would take significant time to completely understand. However, this issue cannot be disregarded and is the crux of further issues below.
3. A grout curtain will not fully prevent seepage below or around the dam, and seepage is likely to permeate the dam at the foundation contacts and potentially cause hardfill degradation. The degradation of hardfill in existing dams is currently unknown and the appropriate research would need to be conducted to mitigate any potential risks.
4. The aggregates will be variable on site, which would increase the potential for hardfill to degrade over time if areas of concentrated seepage occur. While multiple mix designs will be developed, not every property of the hardfill will be understood, and the global variability may cause internal flaws or fractures that cannot be predicted or analyzed before construction. Additionally, adequate mixing will be a challenge with many aggregates exceeding 10-percent fines content. While a liner as proposed would protect the dam, we note that liners do degrade with time and environmental conditions (reservoir cycling, weather, etc.).

Enclosure 2

5. The potential for larger units of shales to abut sandstone units creates a potential for differential settlement below the dam. While structurally, the dam may be able to adequately bridge this condition, water would be more likely to access the interface reducing friction resistance, increasing uplift on the dam, and providing a pathway for seepage into and possible degradation of the hardfill or erosion of the foundation that may be undetectable.
6. Considering the adverse bedding and zones of open fractures in the proposed right abutment and the relatively narrow footprint of the hardfill dam, there is a risk of instability and seepage that could result in failure at that abutment. A dam with a larger footprint, like an earthfill dam, would better mitigate the risk of abutment failure by increasing seepage path lengths and improving the ability to capture and monitor for seepage.
7. The site-specific fault rupture evaluation does not adequately demonstrate absence of active faults in the dam foundation. Any planar, laterally continuous bedrock faults or shear zones exposed in the foundation during construction will be considered conditionally active and a possible rupture hazard if their attributes are reasonably consistent with the current tectonic regime. If a shear is encountered, conclusive proof of inactivity will be difficult to achieve given the apparent absence of Quaternary deposits greater than 35,000 years old.

EXHIBIT 2

California Water Commission

Pacheco Reservoir Expansion

Unique Opportunity for Fisheries Recovery, Flood Risk Reduction and Emergency Water Supply

Application Scores and Commission Determinations
June 28, 2018



PPWD





Agenda

- 1) Review of Component Scores
- 2) Review of Commission Staff Determinations
- 3) Determination of Cost Effectiveness



PPWD

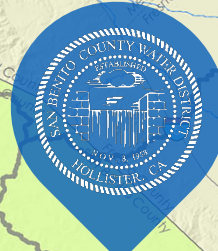


Project Location and Partners

Pacheco Reservoir Expansion to 141,600 acre-feet

Santa Clara Valley Water District

Pacheco Pass Water District



San Benito County Water District



0 5 10 20 Miles

Staff Preliminary Component Scores



Public Benefit Ratio and
Non-Monetized Benefits

Relative Environmental
Value

Resiliency

Implementation Risk



PPWD



Staff Preliminary Component Scores

Component	Sub-Component	Score/Possible Points	Comment
Public Benefit Ratio and Non-Monetized Benefits	Public Benefit Ratio	23/33	<p><i>Focusing on Financial and Environmental Feasibility</i></p>
	Non-Monetized Benefit	4/4	
Relative Environmental Value		21/27	
Resiliency	Integration and Flexibility	8/8	
	Uncertainty	15/15	
Implementation Risk	Technical Feasibility	5/5	
	Financial Feasibility	3/4	
	Economic Feasibility	4/4	
	Environmental Feasibility	1/5	



PPWD





Focusing on Financial and Environmental Feasibility



PPWD





SCVWD's Strong Financial Position Reduces Implementation Risk

SCVWD has full capability to finance the Project

- High credit ratings of Aa1 Moody's and AA+ Fitch ensure relatively inexpensive access to long-term debt
- Strong customer base with long term take-or-pay contracts with water retailers
- Strong local economy
 - Median income \$101K, 159% of CA state median
 - Largest employers include Cisco, Apple, Google and Intel



PPWD





With Full Funding, SCVWD Will be Able to Finance Remaining Capital Costs

Seven member elected Board has full authority to set rates to meet future water supply needs

Financing Plan for remaining \$485M of \$969M capital cost:

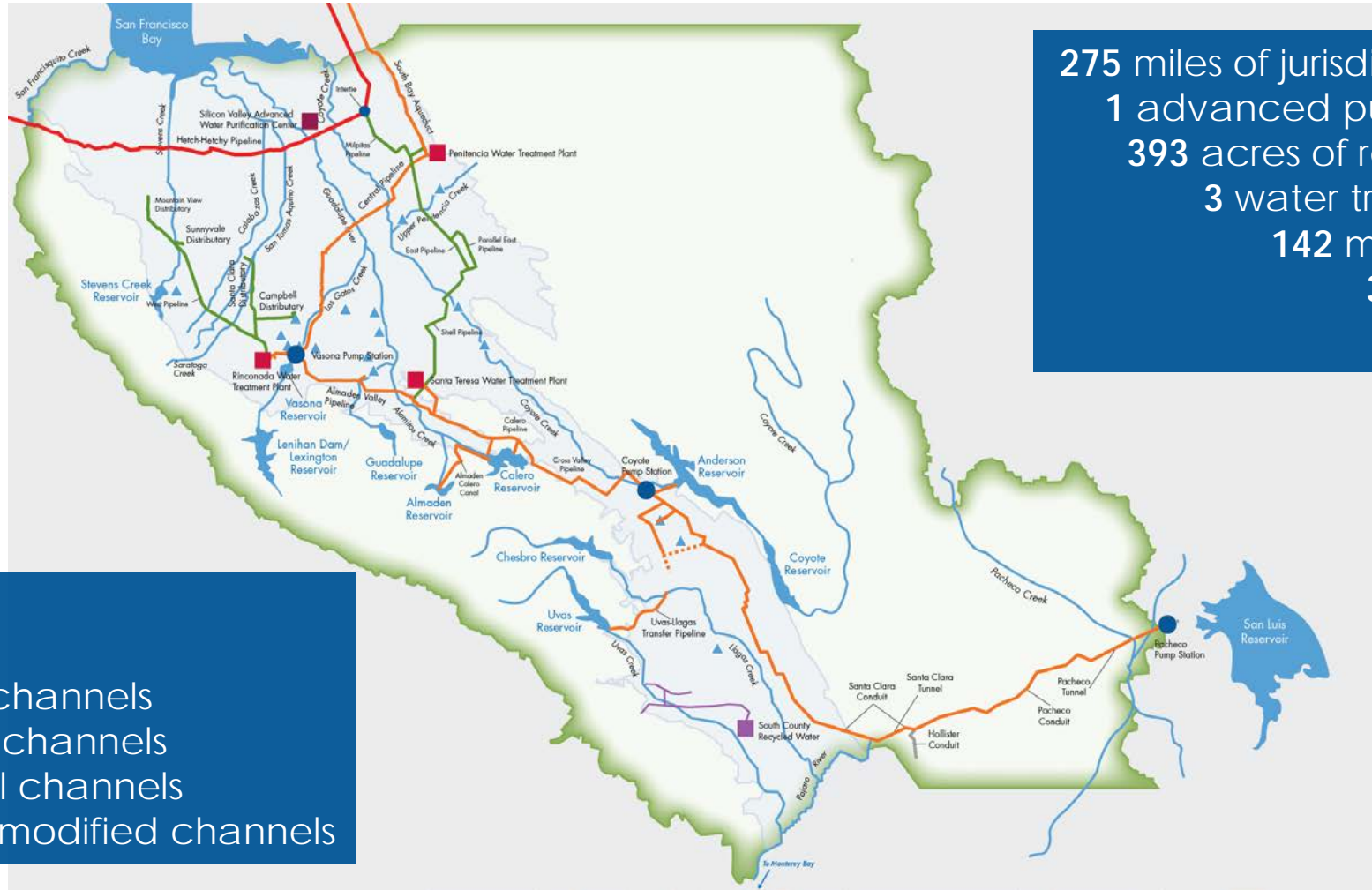
- Fund with cash on hand from annual rates/charges (30%)
- Utilize existing Commercial Paper to pay for project costs as incurred
- Issue bonds with fixed-rate long term debt
- Up to 10% cost share by San Benito County Water District



PPWD



Nearly a Century of Successful Water Infrastructure Development



275 miles of jurisdictional streams
1 advanced purification plant
393 acres of recharge ponds
3 water treatment plants
142 miles of pipelines
3 pump stations
10 reservoirs

22 fish ladders
106 miles of levees
2 miles of Gabian channels
13 miles rock-lined channels
188 miles of natural channels
54 miles of natural modified channels



PPWD





Lexington Reservoir

SCVWD has the Experience and Resources to Deliver this Project

Building on Our Track Record: Implementation of over \$1 billion in projects over last 10 years

- 800 Employees serving 1.9 million people
- Managing 10 existing dams/reservoirs, constructed beginning in the 1930's
- Providing water supply, flood protection, and stewardship of streams



PPWD





Existing Pacheco Reservoir

Implementation Risk – Environmental Feasibility

SCVWD has significant recent experience in implementing large capital programs

- Completed 9 major EIRs in the past 10 years
- Pacheco Reservoir Expansion EIR to build upon San Luis Low Point Improvement Project efforts by Reclamation
- Over 30 environmental planners, biologists and water resource specialists on staff
- Augment staff team with specialized consulting services



PPWD



The Nine Commission Determinations



PPWD



Request Affirmative Determination on Cost Effectiveness

#	Determination	Staff Recommendation	SCVWD Position June 28, 2018
1	The proposed project remains cost effective	--	Request affirmative determination
2	The proposed project improves the operations of the state water system	Yes	Concur ✓
3	The proposed project provides a net improvement in ecosystem and water quality conditions	Yes	Concur ✓
4	The proposed project provides measurable improvement to the Delta ecosystem or to the tributaries to the Delta	Yes	Concur ✓
5	The proposed project's program cost share is less than or equal to 50 percent of the proposed project's total capital costs, with the exception of conjunctive use projects and reservoir reoperation projects.	Yes	Concur ✓
6	The proposed project's program-funded ecosystem improvement benefits make up at least 50 percent of the total public benefits funded by WSIP.	Yes	Concur ✓
7	The proposed project appears to be feasible	Yes	Concur ✓
8	The proposed project will advance the long-term objectives of restoring ecological health and improving water management for beneficial uses of the Delta.	Yes	Concur ✓
9	The proposed project is consistent with all applicable laws and regulations	Yes	Concur ✓

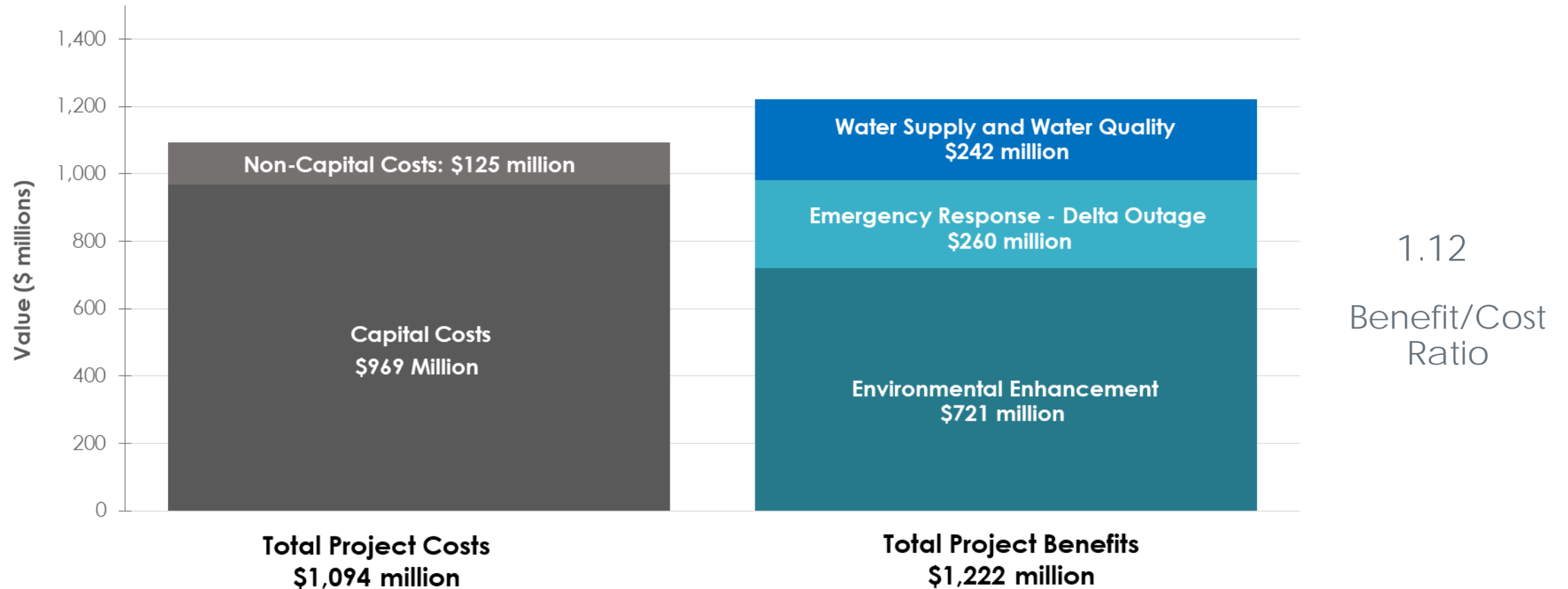


PPWD



Pacheco Reservoir Expansion is Cost Effective

Benefits Exceed Costs



PPWD



Pacheco Reservoir Expansion Project Remains Cost Effective

“Proposed Project remains the least-cost feasible means of providing the same or greater amount of physical benefits” Regulation 6004 (a)(4)(E)

- CWC Staff Concurred with All Physical Benefits; No Changes to Any Physical Benefits
 - Ecosystem Improvement – Steelhead Habitat
 - Ecosystem Improvement – Refuge Supplies
 - Emergency Response – Delta Outage
 - M&I Water Supply
 - M&I Water Quality
- CWC staff reduced Total Project Costs (minor)



PPWD



Conclusions

- SCVWD has Strong Financial and Delivery Capability
- SCVWD has Significant Project Environmental Experience
- Pacheco Reservoir Expansion is Cost Effective



PPWD

Santa Clara Valley
Water District

