APPENDIX D-1
PUBLIC COMMENTS ON DRAFT IS/MND

Central Valley Regional Water Quality Control Board

19 December 2022

Governor's Office of Planning & Research

Dec 19 2022

STATE CLEARINGHOUSE

Dan Canfield
California Department of Parks and Recreation
P.O. Box 266
Tahoma, CA 96142-0266
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COMMENTS TO REQUEST FOR REVIEW FOR THE MITIGATED NEGATIVE DECLARATION, MALAKOFF DIGGINS STATE HISTORIC PARK PIT DRAINAGE RUNOFF SEDIMENT CONTROL BEST MANAGEMENT PRACTICES PLAN, SCH#2022110416, NEVADA COUNTY

Pursuant to the State Clearinghouse's 18 November 2022 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Mitigated Negative Declaration* for the Malakoff Diggins State Historic Park Pit Drainage Runoff Sediment Control Best Management Practices Plan, located in Nevada County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore, our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has

adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website: http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at: https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Construction General Permit Order No. 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention

Plan (SWPPP). For more information on the Construction General Permit, visit the State Water Resources Control Board website at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_certification/

Waste Discharge Requirements – Discharges to Waters of the State

If USACE determines that only non-jurisdictional waters of the State (i.e., “non-federal” waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at:https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water

Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at:
https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at:
https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf

Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:
https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf

NPDES Permit

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit. For more information

regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/help/permit/

If you have questions regarding these comments, please contact me at (916) 464-4684 or Peter.Minkel2@waterboards.ca.gov.

Peter Minkel

Peter Minkel
Engineering Geologist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

Oswalt, Caitlyn@Wildlife

GOVERNOR'S OFFICE OF PLANNING AND RESEARCH
Jan 17 2023
STATE OF CALIFORNIA

From: Oswalt, Caitlyn@Wildlife
Sent: Friday, January 13, 2023 5:01 PM
To: Canfield, Dan@Parks
Cc: Wilson, Billie@Wildlife; Griffith, Kaylee@Wildlife; Seapy, Briana@Wildlife; Wildlife R2 CEQA
Subject: CEQA Comments for MDSHP Pit Drainage Runoff Sediment Control Best Management Practices Plan IS-MND; SCH# 2022110416

Dear Mr. Dan Canfield,

The California Department of Fish and Wildlife (CDFW) received and reviewed the Notice of Completion of an MND from the California Department of Parks and Recreation for the Malakoff Diggins State Historic Park (MDSHP) Pit Drainage Runoff Sediment Control Best Management Practices Plan (Project) pursuant the California Environmental Quality Act (CEQA) statute and guidelines.

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish, wildlife, native plants, and their habitat. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may need to exercise its own regulatory authority under the Fish and Game Code.

CDFW ROLE

CDFW is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statute for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a)). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (Fish & G. Code., § 1802.) Similarly for purposes of CEQA, CDFW provides, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW is also submitting comments as a **Responsible Agency** under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), related authorization as provided by the Fish and Game Code will be required. CDFW also administers the Native Plant Protection Act, Natural Community Conservation Act, and other provisions of the Fish and Game Code that afford protection to California's fish and wildlife resources.

PROJECT DESCRIPTION SUMMARY

The Project site is located approximately 9 miles northeast of Nevada City in Nevada County, California.

The Project consists of Best Management Practices (BMPs) aimed to minimize, abate, or control sediment discharge from the Hiller Tunnel. These BMPs include coarse sediment management in the eastern portion of the Pit using a grade control structure and brush barriers to capture and retain gravel and sand. Constructing an interceptor swale in the south-central portion of the Pit to redirect flows from the eastern portion of the Pit away from the Hiller Tunnel and

to the northwest into the Pit Lake to allow for additional fine sediment settling. Enhancement of the Pit Lake to increase its sediment settling capacity with construction of a soldier pile wall to manage surface water discharge to the Hiller Tunnel. The removal of boardwalk and a trail realignment of an approximately 1,200-foot segment of new pedestrian trail around the southernmost perimeter of the southwest portion of the Pit.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist the California Department of Parks and Recreation in adequately identifying and, where appropriate, mitigating the Project's significant, or potentially significant, direct, and indirect impacts on fish and wildlife (biological) resources.

CDFW is primarily concerned with the Project impacts to existing fish and wildlife resources including Scadden Flat checkerbloom (*Sidalcea stipularis*), Olive-sided Flycatcher (*Contopus cooperi*), Little willow flycatcher (*Empidonax traillii brewsteri*), Yellow-breasted chat (*Icteria virens*), Yellow (Brewster's) warbler (*Setophaga petechia brewsteri*), Ringtail (*Bassariscus astutus*), Foothill yellow-legged frog (*Rana boylii*), California Spotted Owl (*Strix occidentalis occidentalis*), Long-eared owl (*Asio otus*), Northern Goshawk (*Accipiter gentilis*), Golden eagle (*Aquila chrysaetos*), Bald eagle (*Haliaeetus leucocephalus*), Western pond turtle (*Emys marmorata*), Bat species, and other aquatic and terrestrial plant and wildlife species. CDFW is also concerned with impacts from the discharge of water on riparian habitat, impacts to downstream aquatic resources. CDFW provides the following comments for the California Department of Parks and Recreation's consideration:

COMMENTS

1. The Project includes the potential use of anionic polyacrylamide flocculants as a soil stabilizer in certain areas of the Pit to reduce sediment entrainment in stormwater flows to enhance fine sediment settling within the Pit. Please provide additional details on the success criteria that will be used for the pilot study, the approximate frequency of flocculant log replacement, and approximate decomposition rates of polyacrylamides and their decomposition byproducts. Describe the potential effects anionic polyacrylamide flocculants and their byproducts could have on fish and wildlife resources over the lifetime of this project. CDFW recommends these impacts be addressed within the IS/MND.

2. Please describe if natural flocculants were considered for this project. Compared to chemical flocculants, natural flocculants are safe and stable shear polymers that are sufficiently biodegradable, and do not produce side effects from the waste produced. Natural flocculants, which are derived from polysaccharides and natural polymers are a more environmentally friendly option compared to chemical flocculants. The use of natural flocculants has the advantages of renewability, biodegradability, and nontoxicity on the environment. CDFW recommends the California Department of Parks and Recreation consider using natural flocculants in replacement of anionic polyacrylamide flocculants.

3. Scadden Flat checkerbloom (*Sidalcea stipularis*) has a moderate potential to occur within the project area due to the presence of cattail marsh which could support this species and known associated species. The Native Plant Protection Act (NPPA) (Fish & G. Code §1900 et seq.) prohibits the take or possession of State-listed rare and endangered plants, including any part or product thereof, unless authorized by CDFW or in certain limited circumstances. Take of state-listed rare and/or endangered plants due to Project activities may only be permitted through an Incidental Take Permit (ITP) or other authorization issued by CDFW pursuant to California Code of Regulations, Title 14, section 786.9 subdivision (b). Plant species not listed as rare, threatened, endangered, or candidates for listing under the California Endangered Species Act (CESA) or NPPA may nevertheless meet the definition of rare or endangered provided in CEQA (Cal. Code Regs., tit. 14, § 15380, subd. (b).). CDFW recommends the IS/MND include species specific measures to minimize and fully mitigate the impacts to any state-listed species the Project has potential to take.

4. CDFW is responsible for ensuring appropriate conservation of fish and wildlife resources including threatened, endangered, and/or candidate plant and animal species, pursuant to CESA. Take of state-listed rare and/or endangered species due to Project activities may only be permitted through an ITP, Restoration Management Permit (RMP), or other authorization issued by CDFW. CDFW recommends that an ITP be obtained where the Project has the potential to result in take of a species listed as candidate, threatened, or endangered under CESA, and cannot be fully avoided, either through construction or over the life of the Project. Please note that mitigation measures that are adequate to reduce impacts to a less-than significant level to meet CEQA requirements may not be enough for the issuance of an ITP. To issue an ITP, CDFW must demonstrate that the impacts of the authorized take will be minimized and fully mitigated (Fish & G. Code §2081 (b)). To facilitate the issuance of an ITP, CDFW recommends the IS/MND include species specific measures to minimize and fully mitigate the impacts to any state-listed species the Project has potential to take.

   Furthermore, an RMP may be issued if the project is implementing a restoration project that is voluntary. The RMP can authorize take of endangered, threatened, and candidate species pursuant to CESA as well as fully protected species (FPS) pursuant to Fish and Game Code sections 3511, 4700, 5050, and 5515 that are associated with management of CESA-listed species or FPS for restoration purposes that result in net benefits for the Covered Species. CDFW recommends the IS/MND state detailed species-specific restoration activities, species-specific survey and monitoring efforts, and specific details on how the project will benefit each species. Additionally, the IS/MND should describe the short-term and long-term restoration goals for the project site. Early consultation with CDFW is recommended to determine RMP eligibility under the Cutting the Green Tape initiative.

5. The following fully protected species are either present or have moderate potential to occur within the Project area, Ringtail (*Bassariscus astutus*), Golden eagle (*Aquila chrysaetos*), and Bald eagle (*Haliaeetus leucocephalus*). Project activities described in the IS/MND should be designed to completely avoid any fully protected species that have the potential to be present within or adjacent to the Project area. CDFW also recommends the IS/MND fully analyze potential adverse impacts to fully protected species due to habitat modification, loss of foraging habitat, and/or interruption of migratory and breeding behaviors. CDFW recommends that the California Department of Parks and Recreation include in the analysis how appropriate avoidance, minimization, and mitigation measures will reduce indirect impacts and avoid take of fully protected species.

6. The IS/MND has identified Project activities that will require notification to CDFW pursuant to Section 1602 of the Fish and Game Code. Notification is required for any activity that may do one or more of the following:

   a. Substantially divert or obstruct the natural flow of any river, stream, or lake;
   b. Substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or
   c. Deposit debris, waste, or other materials where it may pass into any river, stream, or lake.

   Please note that "any river, stream or lake" includes those that are episodic (i.e., those that are dry for periods of time) as well as those that are perennial (i.e., those that flow year-round). This includes ephemeral streams and watercourses with a subsurface flow. It may also apply to work undertaken within the flood plain of a body of water. Upon receipt of a complete notification, CDFW will determine if the Project activities may substantially adversely affect existing fish and wildlife resources and whether a Lake and Streambed Alteration (LSA) Agreement is required. The Project as currently proposed in the IS/MND will require an LSA Agreement. An LSA Agreement will include measures necessary to protect existing fish and wildlife resources.

   CDFW's issuance of an LSA Agreement is a "project" subject to CEQA (see Pub. Resources Code 21065). To facilitate issuance of an LSA Agreement, the IS/MND should fully identify the potential impacts to the lake, stream, or riparian resources, and provide adequate avoidance, minimization, mitigation, and monitoring and reporting commitments.

ENVIRONMENTAL DATA

CEQA requires that information developed in mitigated negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data. The completed form can be submitted online or mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov.

FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

CONCLUSION

Pursuant to Public Resources Code §21092 and §21092.2, CDFW requests written notification of proposed actions and pending decisions regarding the proposed Project. Written notifications shall be directed to: California Department of Fish and Wildlife North Central Region, 1701 Nimbus Road, Rancho Cordova, CA 95670 or emailed to R2CEQA@wildlife.ca.gov.

CDFW appreciates the opportunity to comment on the IS/MND to assist in identifying and mitigating Project impacts on biological resources. CDFW personnel are available for consultation regarding biological resources and strategies to minimize and/or mitigate impacts. Questions regarding this letter or further coordination should be directed to Caitlyn Oswalt, Environmental Scientist at (916) 358-4315 or caitlyn.oswalt@wildlife.ca.gov.

Sincerely,

Caitlyn Oswalt

(She/Her)
Environmental Scientist | 916.358.4315
North Central Region – Region 2
California Department of Fish and Wildlife

From: Ember Amador (CHIRP) <ember@chirpca.org>
Sent: Wednesday, December 28, 2022 3:47 PM
To: Green, Scott@Parks <Scott.Green@parks.ca.gov>
Cc: shelly@nevadacityrancheria.org; Shelly Covert <Nevadacityrancheria@live.com>; Bob Delp <bdelp@benchmarkresources.com>
Subject: Re: Malakoff MND Review extension

Hi Scott,

Shelly said she thinks everything looks good in the report, with one additional comment/concern/request. It may not belong in the report, necessarily, but an understanding between the Park and Nevada City Rancheria: in the Cultural Resource Mitigation section there is no current mention of how any "Cultural Resources" found would be handled.

Shelly suggests this off the top of her head, to instigate the conversation about a paragraph to address this in the document:

Upon the possible finding of the aforementioned Cultural Resources, a conversation between Nevada City Rancheria Nisenan Tribe (NCR) and State Parks will take place to discuss best practices to handle/house these items. Such items could be given to NCR to be cared for into the future, in alignment with their Tribal Protocol.

Warmly,

Ember Amador (Nishenan menim ni ~ I am not Nisenan)

Executive Assistant | California Heritage: Indigenous Research Project (CHIRP)

Learn More:

Learn about the Tribe's history, CHIRP's programs and online store, sign up for our newsletter, to volunteer, to donate. More here.

Ancestral Homelands Reciprocity Program:

An initiative of: The Nevada City Rancheria Nisenan Tribal Council, CHIRP and current residents of the Bear & Yuba River watersheds. More info and sign up here.

From: Daniel Ketcham <ketcham530@gmail.com>
Sent: Wednesday, December 28, 2022 7:33 AM
To: dan.canfield@parks.ca.gov
Cc: Bob Delp <bdelp@benchmarkresources.com>
Subject: MALAKOFF DIGGINS STATE HISTORIC PARK PIT DRAINAGE RUNOFF SEDIMENT CONTROL BEST MANAGEMENT PRACTICES PLAN

Nevada County Historical Society would like Malakoff Diggins State Historic Park to continue to serve the county with historical interpretation of the region's historic-era gold mining past and that the proposed project is taking actions to achieve that.

Respectfully submitted,
Daniel R. Ketcham
President - Board of Directors
Nevada County Historical Society
President@NevadaCountyHistory.org
office (530) 477-8056

Dan Canfield, District Superintendent
California Department of Parks and Recreation
P.O. Box 266
Tahoma, CA 96142-0266
January 16, 2023

Subject: Comments on Malakoff Diggins State Historic Park Pit Drainage Runoff Sediment Control Best Management Practices Plan MND
SCH# 2022110416
Comments due: January 18, 2023

Dear Mr. Canfield:
Thank you for extending the comment period for the above-referenced document and for providing a hard copy of Appendix A-1 for me to review.
I have been studying, observing and commenting on previous plans and ideas to deal with the turbid outflow from Hiller Tunnel since the early 1980's. I have led numerous field trips to the site, closely followed and participated in grants, studies, and reports designed to address the problems associated with the legacy of hydraulic mining at Malakoff Diggins State Historic Park.
I have reviewed, edited, and prepared action plans for the management of sediment transport and impacts to the water quality of Humbug Creek and the South Yuba River. I have personally participated in fish surveys of Humbug Creek below the confluence with Diggins Creek and of the South Yuba River up- and down-stream of the confluence with Humbug Creek.
With that history in mind, and ***as a private citizen***, I offer the following comments.
Implementation of the proposal to construct vehicle access routes within the pit, construct an in-pit diversion swale, grade control structure, and soldier pile wall surrounding the entrance to Hiller Tunnel would have **significant impacts** to the aesthetics, and culturally significant features of the Malakoff pit. I have observed the slow, yet successful natural re-vegetation of the pit floor from a stark barren landscape devoid of vegetation and organic debris to a fairly robust riparian forest supporting avian, mammalian, and amphibian species. The vegetation has struggled to thrive, and the lack of soil nutrients and the disturbance of the surface features from mining activities have made the re-vegetation process painfully slow. The proposed activities would involve vegetation removals and surface disturbance. The proposed project would offer little effective benefit, yet would produce multiple negative impacts.
I submit that given the physical conditions of the pit floor and walls, and the actively eroding areas adjacent to the proposed access road, that the preferred course of action would be to continue to allow natural "healing" of the geomorphic features (in-pit sediment transport and deposition) and natural re-vegetation. The eastern landslide areas have continued to adjust to the loss of lateral support from the pit excavation; however, the landslide toe has reached the pit floor and has demonstrated little catastrophic movements in recent years, despite heavy rainfall events and cumulative saturating storms.
The proposed actions would introduce jarring intrusions to a significantly wild, yet human-impacted landscape that has been recognized as a cultural resource by federal and state cultural resource officials. Constructing a 14' (minimum) wide road where a

narrow footpath currently provides access around the pit perimeter would destroy the isolating feel of discovery.
Cut and fill construction, and scarifying surfaces would actually lead to additional erosion. The plans call for scarification and re-compaction; however, the native material is tightly compacted in its current state and the scarification would only promote additional soil mobility and burial and eventual ineffectiveness of the proposed imported crushed rock road base. I believe that the importation of any offsite rock material will negatively impact the views, aesthetics, and cultural integrity of the site.
Elevating the pit lake by diverting flow along the northern boundary of the pit would have multiple negative significant impacts. Wind and wave erosion would attack the base of the steep cliff walls and potentially undermine them, leading to massive cliff failures. As they currently exist, the cliffs at the far western part of the pit actively ravel, even in dry weather. When subjected to wave attack and blown water spray and wind energy, the cliff walls will accelerate in their erosion, and slope failures can be expected, depositing more material on the pit floor margins, and access ways.
The access road, truck turnouts, soldier pile wall, diversion swale and grade control structure would all significantly negatively impact the appearance of this damaged, yet healing landscape. The angular features proposed are in conflict with the setting.
I question the ability to drive I-beams into “bedrock” since the area is largely debris from mining activities and either alluvium (which is not bedrock) or cobbles, which will resist penetration.
The longer residence time projected for sediment delivery to the pit lake **(Sec. 2.5.3, page 15-16)** is unlikely to significantly promote fine particle settling, since the troublesome fine-grained particles are clay-sized, and stay in suspension.
Construction and fencing of staging areas would remove these areas from public use **(Sec. 2.5.5, pages 18)**, and would create visual intrusions for the recreating public.
Sec. 2.6.6: I question the capacity of DPR staff to perform the BMP inspections and maintenance as described in the document. The cost to support the construction, in addition to the inspections and maintenance, seems to exceed the environmental benefits anticipated from the admitted interim treatment (Sec. 2.10. page 32). Given that the situation has existed in a slowly healing state since the cessation of hydraulic mining, the urgency and justification for the proposed project seem unjustified: “Long-term sediment control and remediation measures have not been determined and the environmental effects of their implementation have not and cannot be assessed at this time.” **(Sec. 2.10. page 32).**

Environmental Checklist
Aesthetics: The checklist ascribes **no impact** to scenic resources including but not limited to trees, rock outcroppings, and historic buildings…within a state scenic highway. I submit that a State Historic Park warrants even greater consideration than a state scenic highway. The checklist assigns less than significant impact to the degradation of the existing visual character or quality of the site and surroundings. I disagree that the impact of the proposed project’s degradation of the site’s visual character is less than significant.
Page 39: “These construction disturbances and activities would be visible from trails and overlooks during the duration of construction, and would represent an **adverse change in the character of the Pit** [bolding added by me] during the construction phase.”

Page 41: **Interceptor Swale and Soldier Pile Wall**: The document dismisses the impact of vegetation removal with the glib statement that the swale and adjacent berm "are expected to return quickly to a thickly vegetated condition" (paragraph 1, Interceptor Swale). There is no basis for this conclusion; the re-vegetation that exists has taken 140 years to become established! Continuing on, in paragraph 3, in the discussion of the "**Enhanced Pit Lake and Soldier Pile Wall**" the document states that "much of the wall would quickly be shielded by regrowth of the riparian vegetation." I dispute this finding and the conclusion at the end of the paragraph that "the placement of the soldier pile wall would not result in a significant change in the visual character of the Pit." The opposite is true.

Page 42, **Boardwalk Removal and Trail Realignmen**t: The document states that "the boardwalk is not considered to represent an important element to the visual character of the Pit and its removal is not considered adverse." Again, I dispute this conclusion. I have led many hikes throughout the pit and along the Diggins Loop trail, and the boardwalk is always a favorite stop, with the recently installed natural history interpretive panel. This is an important vantage point to view the open water and waterfowl families that use the pond.

Agriculture and Forestry Resources Impact Discussion (page 45): With regard to loss of forestland and related habitat, the discussion lists **no impact**; however, the project proposes **removal** of vegetation, possibly including trees, and riparian vegetation that has taken many decades to establish.

Page 53: Second line of paragraph 1. There appears to be a word left out. The sentence reads: "Once **construction**, *[bold added by me, for emphasis*] the Project BMP components would function passively, requiring only limited and periodic maintenance activities."

Figure 3.4.1 (page following page 55 of the document): The figure mis-locates Hiller Tunnel and the proposed soldier pile wall by about 100' to the east (black arrow). The orthophoto base clearly indicates the path of Diggins Creek, in a shadowed serpentine path.

Page 60, Table 3.4-3: The table should include a discussion of the possibility of habitat for Pacific fishers. I have personal knowledge of a Nevada County resident who prepared her masters thesis on Pacific fishers, and she has seen them on North Bloomfield Road (I know this is an anecdotal reporting, but the possible presence of Pacific fishers should be considered).

Page 61, Table 3.4-3, continued, Silver-haired Bat Potential for Occurrence: The notation refers to hoary bats (in fact the description is an exact replica of the Hoary Bat discussion—probably cut and pasted. I believe that there is a high potential for Silver-Haired Bats in the project area, perhaps the author meant to delete "hoary" and replace with "silver-haired".

Page 63, Table 3.4-3, continued: The final entry for Special Status Wildlife Species lists Foothill Yellow-Legged Frog as Moderate Potential for Occurrence in the project area. I have personally counted dozens of foothill yellow-legged frogs finding refuge inside of Hiller Tunnel, the single time I toured a small group through the tunnel. After that, I avoided entry in to the tunnel out of consideration of the disturbance my entry would cause. The table entry should acknowledge the actual presence of the population. In addition, counter to the table's comment, Hiller Tunnel and Diggins Creek in fact are "rocky stream habitat".

Page 73, paragraph 1, first complete sentence**:** The statement "…the Project would

provide a net benefit to wetland resources within and downstream of the BRSA by improving water quality and reducing sediment discharge from the Pit" is aspirational, but not likely to be realized. I submit that there would be little if any measurable reduction of sediment discharge from the pit in the long term, and perhaps even an increase due to disturbance in the short term.

Page 74, e): The document states that the "Project would result in no impact regarding conflicts with local policies and ordinances associated with the protection of biological resources". I submit that if implemented, the Project would negatively impact foothill yellow-legged frog habitat, and it would cause unacceptable disturbance to a recovering riparian forest.

Page 94, Geology and Soils Checklist: The table lists "no Impact" for listed items b), c), d), e), and f) items. The "no impact" judgment is wishful thinking. The eastern area of the project area is actually an active landslide, and the proposed placement of the grade control structure and brush barriers will necessarily disturb the landslide surface.

d): The top part of the landslide moves along a discrete surface of saturated expansive clay—smectite. The grade control structure is unlikely to be effective at establishing a grade, and it will be an unsightly and unwelcome addition to the pit. The grade control structure itself is anticipated to function to contain/retain coarse sediment for about 5 years. If constructed, it is conceivable that its effectiveness could last for much less time, and as described above, the movement of coarse sediment to the pit floor and out of the pit is not a serious problem, but a natural response to the mining-related disturbances**. f) (page 96):** The eastern landslide slopes contain very fragile and unstable fossil remains of Miocene age—plant impressions of leaves, bark, and branches. These fragile resources are rare and not well-described nor protected. The proposed project could result in loss and destruction of these fragile items. I don't believe that there exists a "DPR-qualified specialist" to assess fossils found in the field, and the conclusion that no geology and soils mitigation measures are required is insufficient to assure required resource protection.

Page 121 and 122 (Recreation): The project will introduce disruptions to public use of the trails and park, during the most popular time of year, when visitation is at its highest level. The loss of access during construction, and the permanent loss of the boardwalk are recreation and visitor use impacts that need to be considered and mitigated.

Cultural Resources Considerations

The document cites Selverston 2022 as an evaluation of the impacts of the project, and I requested a copy of the report, and although I was told a redacted version would be made available for my review, as of this date (January 16, 2023), I have not seen or reviewed that report.

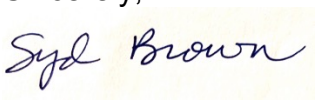
Conclusion

I believe that the document is inadequate in its treatment of a number of issues, as elaborated above, and I am concerned that so much effort and eventual cost will be spent for such a questionable overall benefit. I believe that the slow natural "healing" of the legacy mining impacts is a preferred alternative—far superior to the proposed set of BMP projects. Furthermore, even if implemented as proposed, the BMPs are admittedly not long term "solutions" to the "problem" of turbid water outflow through Hiller Tunnel to Diggins Creek, Humbug Creek, and eventually the South Yuba River. I would recommend that the Department of Parks and Recreation seek a waiver of discharge

requirements under section 13269 of the Water Code[1]. It is my understanding that the public interest would be best served if a waiver were granted, and I submit that the discharge from Hiller Tunnel does not "pose a significant threat to water quality".

Thank you for considering my comments and expressed concerns and opinions.

Sincerely,



Syd Brown
14124 Honeysuckle Way
Nevada City, CA 95959

[1] § 13269.[Waiver] (a) (1) On and after January 1, 2000, the provisions of subdivisions (a) and (c) of Section 13260, subdivision (a) of Section 13263, or subdivision (a) of Section 13264 may be waived by the state board or a regional board as to a specific discharge or type of discharge if the state board or a regional board determines, after any necessary state board or regional board meeting, that the waiver is consistent with any applicable state or regional water quality control plan and is in the public interest. The state board or a regional board shall give notice of any necessary meeting by publication pursuant to Section 11125 of the Government Code. (2) A waiver may not exceed five years in duration, but may be renewed by the state board or a regional board. The waiver shall be conditional and may be terminated at any time by the state board or a regional board. The conditions of the waiver shall include, but need not be limited to, the performance of individual, group, or watershed-based monitoring, except as provided in paragraph (3). Monitoring requirements shall be designed to support the development and implementation of the waiver program, including, but not limited to, verifying the adequacy and effectiveness of the waiver's conditions. In establishing monitoring requirements, the regional board may consider the volume, duration, frequency, and constituents of the discharge; the extent and type of existing monitoring activities, including, but not limited to, existing watershed-based, compliance, and effectiveness monitoring efforts; the size of the project area; and other relevant factors. Monitoring results shall be made available to the public. **(3) The state board or a regional board may waive the monitoring requirements described in this subdivision for discharges that it determines do not pose a significant threat to water quality.**

January 18, 2023

Dan Canfield, District Superintendent
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Re: Comments on the IS/MND for the proposed Malakoff Diggins State Historic Park Pit Drainage Runoff Sediment Control Best Management Practices Plan

Dear California Department of Parks and Recreation, District Superintendent, Dan Canfield,

We are pleased to present our comments regarding the Initial Study/ Mitigated Negative Declaration (IS/MND) for the proposed Malakoff Diggins State Historic Park Pit Drainage Runoff Sediment Control Best Management Practices Plan. The proposed project is historic, visionary, and impactful, and we hope that our comments are helpful in shaping the IS/MND and this important project.

Our Qualifications

The Sierra Fund (TSF) is a non-profit, tax-exempt organization with the mission to "restore ecosystem and community resiliency in the Sierra Nevada." Over the last two decades we have carefully documented the impacts of the gold rush from the hardrock mines in the middle of our towns to the sprawling hydraulic mines across the forest. Led by our Program Director, Carrie Monohan Ph.D., working with a team of experts, we have demonstrated methods for restoring headwater landscapes while remediating the historic mines that in many cases are the root cause of impacts ranging from water quality to forest resilience.

In 2008 we released Mining's Toxic Legacy, the first comprehensive report detailing the impacts of historic mining, data gaps, and recommendations for action. Since then, we have conducted educational presentations in all 22 counties of the Sierra Nevada, held a biennial Reclaiming the Sierra (RTS) conference to convene experts and stakeholders, and released scientific studies to show the extent of contamination and human exposure. Key studies include our Gold Country Recreational Trails and Abandoned Mines Assessment (2010), The Gold Country Angler Survey (2011 and 2018), Environmental Health Outreach Program Report (2014), Humbug Creek Watershed Assessment and Management Recommendations (2015), and Fish Consumption Advisory Posting Protocol (2017). Copies of these documents as well as more information about our work may be obtained online at www.sierrafund.org or by contacting The Sierra Fund directly.

We have a long collaborative relationship with many of the partners in this project including the State of California Department of Parks and Recreation Sierra District and Golder and Associates. We have just completed planning a project at Grizzly Creek Hydraulic Mine in Sierra County on TNF funded by the Sierra Nevada Conservancy (SNC). This project will

employ best management practices using the most accurate scientific methods to restore forest health and resiliency including addressing the erosive hydraulic mine features we have documented on the landscape.

TSF's pilot projects demonstrate that hydraulic mine remediation can:

- Reduce fire danger and create healthier forests.
- Improve watershed resiliency.
- Improve water quality and reservoir storage capacity.
- Reduce discharge of contaminated water and sediment.
- Reduce carbon emissions and improve carbon sequestration.
- Protect public and environmental health.
- Improve climate resiliency in California's headwaters.
- Recognize and re-establish tribal stewardship of ancestral landscapes.

Summary of Our Comments

Overall, we are very impressed with the size and vision of this project. We are excited to be able to work alongside the partners in the project to address this behemoth of a problem. Malakoff Diggins first water quality samples that quantified the sediment and metals in the discharge were collected in 1978. It is high time we use our combined knowledge and understand to address this ongoing water quality and sedimentation problem.

From our Humbug Creek Watershed Assessment our primary findings at Malakoff were that the majority of the sediment and mercury discharged from the pit took place during high flow events and was primarily silt and clay particles with associated metals. We have measured turbidity and discharge at a gage station we installed downstream of the tunnel outlet on Humbug Creek since Nov 11, 2011 and we still operate this gage today. From these data we are able to calculate the annual sediment and mercury loads from Malakoff Diggins for the past decade. During this time not only did we come to realize the importance of storm events in the transport of mercury and other metals from Malakoff but we also found that over half the load was discharged during one or two storm events a year. And that the metals were associated with silt and clay particles, also known as "particulate bound" metals, not dissolved.

All this to say, the type of discharge we have at Malakoff is event driven and stochastic in nature and any solution designed to abate the water quality and sediment problems should take this into consideration. If the solution is not designed for the big storm events then does it address the problem at all? Low flow, baseflow conditions, do not represent the primary water quality problem at Malakoff. Solutions designed to address baseflow conditions will be only minimally effective. And like the brush dams that were installed by Parks in the west end of the pit, may fill in with the first big storm.

Concern 1: The grade control structure is not likely to be effective at establishing a grade. The grade control structure itself is anticipated to function to contain/retain coarse sediment for about 5 years. If constructed, it is conceivable that its effectiveness could last for much less time, and as described above, the movement of coarse sediment to the pit floor and

out of the pit is not the water quality problem, the movement of fines, silts and clays is the primary water quality problem, and this grade control structure will not address that.

Concern 2: Similarly, the longer residence time projected for sediment delivery to the pit lake (Sec. 2.5.3, page 15-16) is unlikely to significantly promote fine particle settling, since the troublesome fine-grained particles are clay-sized, and stay in suspension for long periods of time and can travel long distances. This is in fact the primary water quality concern to the South Yuba River, which can show turbidity for as much as 7 miles downstream of the Humbug Creek confluence.

Concern 3: Overall, as the document states, the "long-term sediment control and remediation measures have not been determined and the environmental effects of their implementation have not and cannot be assessed at this time." (Sec. 2.10. page 32). Which means that the proposed actions are considered temporary and, in our opinion, are unlikely to be successful.

Impact 1: Construction of vehicle access routes within the pit, construct an in-pit diversion swale, grade control structure, and soldier pile wall surrounding the entrance to Hiller Tunnel would have significant impacts to the aesthetics, and culturally significant features of the Malakoff pit.

Impact 2: Constructing a 14' (minimum) wide road where a 2 narrow footpath currently provides access around the pit perimeter would destroy the isolating feel of the pit.

Impact 3: Cut and fill construction, and scarifying surfaces would lead to additional erosion. The plans call for scarification and re-compaction; however, much of the native material is tightly compacted in its current state and the scarification would only promote additional soil mobility and burial and eventual ineffectiveness of the proposed imported crushed rock road base.

In Conclusion

Thank you again for this opportunity to comment on the IS/MND for the proposed Malakoff Diggins State Historic Park Pit Drainage Runoff Sediment Control Best Management Practices Plan. Please feel free to call us if you have any questions about this letter. We are concerned that so much effort and eventual cost will be spent for such a questionable overall benefit that does not address the long-term problem which is driven by large storm events and is water quality associates with the transport of fine silts and clays and their associated metals. The proposed actions would introduce large disturbances to a significantly wild, yet human-impacted landscape that has been recognized as a cultural resource by federal and state cultural resource officials and the actions may make the problem worse.

For the Sierra,

Carrie Monohan, Ph.D.
530 414-5722

Sierra Streams Institute
117 New Mohawk Rd. Ste H
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January 17th, 2023

Dan Canfield, District Superintendent
California Department of Parks and Recreation
Sierra District
PO Box 266
Tahoma, CA 96142-0266

Dear Dan and California Department of Parks and Recreation,

We are writing to provide comment on the proposed Malakoff Diggins State Historic Park Pit Drainage Runoff Sediment Control Best Management Practices Plan Initial Study/Mitigated Negative Declaration open for public comment. We appreciate the opportunity to comment on this important project for Sierra foothill watershed health. Sierra Streams Institute is a community and citizen science watershed monitoring organization that has been monitoring the Yuba and Bear river watersheds since 1995, with community and volunteer-driven work focused on biological integrity, forest health, education, and—most relevant to this project—water quality and mine waste, including mine waste remediation, research on mine waste impacts on human and stream health, and general water quality impacts from restoration projects. Our history includes monitoring chemistry, turbidity, and contaminant concentrations for more than 20 years, lead project design and implementation for the Providence Mine Brownfields cleanup project in Nevada City (which included a peer reviewed pilot study on phytoremediation feasibility for mine waste cleanup), and multiple research projects and studies on mercury distribution, heavy metal content of Nevada County soils, and exposure pathways and cancer rates in Gold Country. Further, we have extensive monitoring history in the region of Malakoff Diggins State Park, specifically on Yellow-Legged Frog (*Rana boylii*) populations in Humbug Creek and Spring Creek. It is because of this extensive regional monitoring history that we feel compelled and qualified to comment on the proposed work plan.

Overall, we feel that the need for the cleanup project is well demonstrated, and is obviously well-known in a region with such an extensive legacy of the toxic impacts of mining. We appreciate the thoughtfulness of the overall approach to be tiered relative to costs and likelihood of multiple potential phases of restoration. However, we have concerns regarding project longevity, monitoring protocols for water quality before, during, and after the project, the lack of adaptive management options presented, and in particular we are concerned about the proposed use of flocculants and soil stabilizers. We also feel that less intrusive yet still

potentially more effective restoration approaches could be utilized. Below we outline our specific concerns and lay out our suggested alternatives.

Coarse Sediment Management and Interceptor Swale Construction:

- The proposed project includes removal of vegetation from the primary source slope of erosion, construction of grade control structures and brush barriers, and the construction of an interceptor swale below the slope to guide erosion. We feel this approach is far too heavy-handed for the system, and question the potential tradeoffs inherent in vegetation removal versus any grade control or rock armoring. Vegetation roots are a primary source of erosion control in this system. Vegetation removal may have more adverse erosion impacts than are remediated through the brush barriers. We recommend keeping vegetation where appropriate as opposed to de-vegetating entire slope.

Soldier Pile Wall Construction and Pit Lake Enhancement:

- The proposed project includes development of a soldier pile wall to increase sedimentation and surface area of the Pit Lake within the main diggins pit. Would this actually unintentionally increase likelihood of discharge over the natural overflow site? Has monitoring been done of discharge over this natural spillway and are impacts different than those through the Hiller Tunnel?

Biological Mitigation Strategies:

- We are concerned the mitigation measures proposed are highly subjective, and should instead use some sort of quantitative threshold of action. For example, BIO-MM 1 & 2 discuss monitoring special status species for “disturbance behaviors.” What qualifies as disturbance behaviors? More clarity is requested on the threshold of disturbance and disturbance behaviors; how will project staff minimize subjectivity of disturbance impact mitigation?
- Seasonal/date-constrained work periods to avoid impacts on sensitive species (in particular herps) should be flow and temperature-based as opposed to strictly using dates. Different flows may occur independent of actual dates, and work may have impacts even in the “approved” work window under certain conditions.

Flocculants/Soil stabilizers:

- We’d like all information on the pilot study on these materials to be publicly available. Specifically, we would like to see re-application timelines, monitoring data from during

and after rain events (as recommended by PAM manufacturers), and general environmental disposition.

- Studies have found re-application necessary after about 6 weeks (in a review/on average) In general, we feel more information is needed about flocculants and/or stabilizers, as numerous studies demonstrate toxicity in invertebrates. Limited toxicity has observed been in vertebrates, but "more data needed" seems to be the consensus of most studies. The acrylamide byproducts of polyacrylamide have been shown to be an inhaled carcinogen. We recommend not using these stabilizers in an already degraded natural system as a pilot microcosm experiment, and instead in a highly controlled environment first before risking contamination of the already degraded site.
- What is the exposure to people if the flocculant and/or soil stabilizer burns in a wildfire? It is a known carcinogen and can be absorbed via inhalation. Indirect exposure and contamination pathways through fire?
- Flocculant is good for limiting mercury contamination downstream, but what is the plan for dredging the pit lake and final disposition of the material?

Time Frame:

- The project will "Install and maintain BMPs that will be effective for a minimum of 3 to 5 years". We understand longer timeframe is cost-prohibitive, but are there specific adaptive management plans in place? Even if cost is prohibitive, we would recommend having the plans in place.

Hydrology and Water Quality:

- "The Project would have no effect on groundwater supplies or groundwater recharge in a manner that could impede sustainable groundwater management. " How is this known? No data presented on groundwater. Do sediments in the pit lake leech materials/have any studies been done on groundwater mercury or other metals, and could this project have a positive or negative impact on those levels? Any data or discussion of this would be appreciated.
- No discussion of monitoring direct downstream impacts. Benthic Macroinvertebrate (BMI) community composition, water quality, and substrate/habitat conditions in the humbug drainage should continue to be monitored throughout the life of the project and after. This data would also directly assess efficacy of the restoration.
- Several mitigation measures are proposed to limit water quality (WQ) degradation during construction (e.g. riprap along access road, protective matting, silt fencing). However, we see no mention of regular WQ monitoring throughout the construction process to ensure these measures are effective. Also, these measures 'minimize' WQ degradation. How long after construction will WQ be in compliance? Day one? Weeks? Will we know how effective they were before the first big storm of the year?

Noise:

- Noise impacts are only discussed relative to human thresholds/surrounding structures, but impacts of noise on bird and other wildlife communities as well as the general "soundscape", as well as potential mitigation efforts, should be discussed. Noise should also be integrated into biological mitigation efforts.

Invasive species mitigation:

- All equipment and tools used for project activities will be cleaned free of plant parts and soil in order to prevent the introduction and spread of invasive plants to uncontaminated areas. - in what way? Will heavy equipment be washed as well to mitigate spread of invasives?
- Any inadvertent weed introductions or expansions will be treated for removal. - how? Which species and containment methods? Scotch broom in particular is highly prevalent in the work area, and prefers highly disturbed landscapes.

Alternative approach suggestions:

- Is there potential for other bioremediation techniques? We are aware of other experimental research being conducted at the site examining the efficacy of materials like Biochar for sequestering heavy metals. We also have conducted our own research and reviews on phytoremediation potential. The site is shown to have an active cattail ponding area and high amount of Arroyo willow. Such a site may be a candidate for phytostabilization. We recommend the plant materials be tested for heavy metal uptake with eye toward a potential harvesting plan whereby currently present vegetation (or constructed wetland vegetation) can be more effective at sequestering contaminants.

Thank you for the opportunity to comment on this interesting and valuable project. We are aware of the difficult tradeoffs between leaving a high level of contamination and considering impacts of the cleanup itself, and appreciate you reviewing our concerns.

If you have any questions, please don't hesitate to contact us.

Sincerely.

Jeff Lauder, PhD

Executive Director

Sierra Streams Institute