

## AGREEMENT TO IMPLEMENT MITIGATION MONITORING AND REPORTING PROGRAM

<i>Record No.:</i>	2023-005928ENV	<i>Block/Lot:</i>	7283/004, 7206/001, 2107/001 (for pump station sites); N/A for pipelines in public streets
<i>Project Title:</i>	Westside Potable Emergency Firefighting Water System	<i>Lot Size:</i>	various
<i>BPA Nos:</i>	NA	<i>Project Sponsor:</i>	San Francisco Public Utilities Commission
<i>Zoning:</i>	Public (pump stations); N/A for pipelines in public streets Height and Bulk District: Open Space (at pump station sites); N/A for pipelines in public streets	<i>Lead Agency:</i>	San Francisco Planning Department
		<i>Staff Contact:</i>	Timothy Johnston – 628.652.7569

The table below indicates when compliance with each mitigation measure must occur. Some mitigation measures span multiple phases. Substantive descriptions of each mitigation measure’s requirements are provided on the following pages in the Mitigation Monitoring and Reporting Program.

Adopted Mitigation Measure	Period of Compliance			Compliance with Mitigation Measure Completed?
	Prior to the Start of Construction*	During Construction**	Post--construction or Operational	
Mitigation Measure M-CR-1a: Protection of Sidewalk and Roadway Elements in Historic Districts	X			
Mitigation Measure M-CR-1b: Emergency Pump Station Design for Compatibility with Central Pump Station per Secretary of the Interior’s Standards	X			
Mitigation Measure M-CR-2a: Accidental Discovery	X	X		
Mitigation Measure M-CR-2b: Archeological Monitoring	X	X	X	
Mitigation Measure M-CR-2c: Archeological Testing	X	X	X	
Mitigation Measure M-TCR-1 Tribal Cultural Resources Program		X	X	
Mitigation Measure M-NO-1a: Noise Reduction during Construction	X	X		
Mitigation Measure M-NO-1b: Operational Noise Analysis and Attenuation of Stationary Noise Sources	X			

Adopted Mitigation Measure	Period of Compliance			Compliance with Mitigation Measure Completed?
	Prior to the Start of Construction*	During Construction**	Post--construction or Operational	
Mitigation Measure M-NO-2: Vibration Reduction during Construction	X	X		
Mitigation Measure M-GE-6: Inadvertent Discovery of Paleontological Resources during Construction	X	X		

NOTES:

\* Prior to any ground disturbing activities at the project site.

\*\* Construction is broadly defined to include any physical activities associated with construction of a development project including, but not limited to: site preparation, clearing, demolition, excavation, shoring, foundation installation, and building construction.

## MITIGATION MONITORING AND REPORTING PROGRAM

		Monitoring and	Reporting Program	
Adopted Mitigation Measure	Implementation Responsibility	Mitigation Schedule	Monitoring/Reporting Responsibility	Monitoring Actions/Completion Criteria
<b>MITIGATION MEASURES AGREED TO BY SFPUC</b>				
<b>HISTORIC ARCHITECTURAL/CULTURAL RESOURCES</b>				
<p><b>Mitigation Measure M-CR-1a: Protection of Sidewalk and Roadway Elements in Historic Districts</b></p> <p>Within historic districts established by ordinance (Article 10 landmarks and Article 11 conservation districts), and/or determined eligible for or on the California Register of Historic Resources and/or the National Register of Historic Places, distinctive sidewalk and roadway elements, namely brick surfacing, brick gutters, gutters lined with former cemetery furniture (broken head and foot stones), granite curbs, cobblestones, railway and streetcar rails, sidewalk lights, and utility plates that appear to be 45 years or older shall be treated as potentially character-defining features of the setting of their respective historic districts. For those locations, historic materials shall be protected in place (preferred method), salvaged and re-installed, or replaced in-kind to match the existing color, texture, material, and character of the feature.</p>	<p>1. SFPUC EMB</p> <p>2. SFPUC CM Team</p>	<p>1. Design</p> <p>2. Construction</p>	<p>1. SFPUC EMG</p> <p>2. SFPUC EMG</p>	<p>1. Ensure contract documents require protection in place, salvage and re-installation, or replacement in kind of any historic materials present in sidewalks and roads in historic districts.</p> <p>2. Confirm historic materials are protected, salvaged or replaced</p>
<p><b>Mitigation Measure M-CR-1b: Emergency Pump Station Design for Compatibility with Central Pump Station per Secretary of the Interior’s Standards</b></p> <p>The new emergency pump station 1 at the existing Central Pump Station/Merced Manor Reservoir facility shall be designed and constructed in a manner that is in conformance with the Secretary of the Interior’s Standards for the Treatment of Historic Properties. Specifically, the new emergency pump station shall be designed to meet Standard #9, which requires that “New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be</p>	<p>1. SFPUC EMB</p>	<p>1. Design</p>	<p>1. SFPUC EMG, ERO</p>	<p>1. Ensure design of pump station and cabinets conforms to Secretary of the Interior standards. Submit design for ERO review and approval.</p>

	Monitoring and		Reporting Program	
Adopted Mitigation Measure	Implementation Responsibility	Mitigation Schedule	Monitoring/Reporting Responsibility	Monitoring Actions/Completion Criteria
<p>compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.”</p> <p>In keeping with this standard, the new emergency pump station shall be designed to be compatible with but differentiated from the historic pump station. Design elements shall include rectangular massing and a similar exterior color to the Central Pump Station and its additions. Similar materials and finishes shall be used. The emergency pump station shall be designed so as to not overpower the existing historic building and shall avoid use of industrial or highly reflective exterior materials. The new emergency pump station shall be sited at a sufficient distance from the Central Pump Station and in an appropriate location on the site to allow the historic building’s architecture and character to be evident. Cabinets located along 23rd Avenue shall be designed to minimize their visual intrusion upon the Central Pump Station from the street and sidewalk. The SFPUC shall submit the proposed design of emergency pump station 1 to planning department preservation staff, who shall review and approve to ensure it is in conformance with the Secretary of the Interior’s Standards for the Treatment of Historic Properties.</p>				

Adopted Mitigation Measure	Implementation Responsibility	Monitoring and	Reporting Program	Monitoring Actions/ Completion Criteria
		Mitigation Schedule	Monitoring/Reporting Responsibility	
<p><b>Mitigation Measure M-CR-2a: Accidental Discovery</b></p> <p>Archeological discovery is applicable to the entire project where ground disturbing activities would occur.</p> <p><b>Archeological Awareness.</b> The SFPUC, in consultation with the Environmental Review Officer (ERO), shall retain the services of an archeological consultant approved by the SF Planning Cultural Resources Team to provide archeological awareness training to all work crews who will be involved in ground disturbing activities at the project site. The training shall inform all project contractors, subcontractors and work crew members to be on the alert for evidence of the presence of archeological resource(s), of how to identify the evidence of such a resource(s), and of stop work, resource protection, and notification requirements in the event of suspected discovery of an archeological resource by construction crew members.</p> <p>The SFPUC shall distribute the planning department archeological resource “ALERT” sheet to the project prime contractor; to any project subcontractor (including demolition, excavation, grading, foundation, pile driving, etc. firms); or utilities firm involved in soils-disturbing activities within the project site. Prior to any soils-disturbing activities being undertaken, each contractor is responsible for ensuring that the “ALERT” sheet is circulated to all field personnel, including machine operators, field crew, pile drivers, supervisory personnel, etc. The SFPUC shall provide the ERO with a signed affidavit from the responsible parties (prime contractor, subcontractor(s), and utilities firm) confirming that all field personnel have received copies of the Alert Sheet.</p> <p><b>Cultural Sensitivity Training.</b> A representative from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the project at their discretion shall provide a Native American cultural sensitivity training to all work crews who will be involved in ground disturbing activities at the project site.</p> <p><b>Stop Work and Notification Upon Discovery.</b> Should any indication of an archeological resource be encountered during any soils-disturbing activity of the project, the project Head Foreman and/or SFPUC shall immediately notify the ERO and shall immediately suspend any soils-disturbing activities in the vicinity of the discovery until the ERO has determined</p>	<p>1. SFPUC EMB</p> <p>2. SFPUC CM Team (qualified archeologist)</p> <p>3. SFPUC CM Team</p> <p>4. SFPUC CM Team</p> <p>5. SFPUC CM Team (qualified archeologist), in consultation with Native American representative</p> <p>6. SFPUC CM Team (qualified archeologist)</p>	<p>1. Design</p> <p>2. Construction, prior to working on project</p> <p>3. Construction</p> <p>4. Construction</p> <p>5. Preconstruction</p> <p>6. Construction</p>	<p>1. SFPUC EMG</p> <p>2. SFPUC EMG</p> <p>3. SFPUC EMG</p> <p>4. SFPUC EMG, ERO</p> <p>5. SFPUC EMG</p> <p>6. SFPUC EMG, ERO</p>	<p>1. Ensure contract documents include requirements for cultural resources training and accidental discoveries protocols.</p> <p>2. Monitor that personnel attend training prior to beginning work and sign training sign-in sheet. Maintain file of signature sheets</p> <p>3. Monitor to ensure that the contractor implements measures in contract documents, report noncompliance, and ensure corrective action.</p> <p>4. Submit signed training affidavit to ERO upon project completion.</p> <p>5. Provide Native American representative opportunity to provide training if desired.</p> <p>6. In the event of a potential discovery, ensure contractor suspends activities near discovery, notify the ERO, and mobilize a qualified archeologist to evaluate</p>

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		Mitigation Schedule	Monitoring/Reporting Responsibility	
<p>what additional measures should be undertaken. The ERO may also require that the SFPUC immediately implement a site security program if the archeological resource is at risk from vandalism, looting, or other damaging actions.</p> <p><b>Discovery Identification, Evaluation, and Treatment Determination.</b> If the ERO determines that an archeological resource may be present within the project site, the SFPUC shall retain the services of an archeological consultant archeological consultant approved by the planning department to identify, document, and evaluate the archeological resource. The archeological consultant shall be empowered to temporarily redirect construction crews and heavy equipment until the deposit is evaluated. The archeological consultant shall, after making a reasonable effort to assess the integrity and significance of the encountered archeological deposit, present the findings of this assessment to the ERO.</p> <p>If the ERO determines that a significant archeological resource or tribal cultural resource is present and that the resource could be adversely affected by the project, the ERO, in consultation with the SFPUC, shall determine whether preservation of the resource in place is feasible. If so, the project shall be re-designed so as to avoid any adverse effect on the significant archeological resource and the archeological consultant shall prepare an archeological resource preservation plan, which shall be implemented by the SFPUC during construction. The consultant shall submit a draft preservation plan to the planning department for review and approval. If preservation in place is not feasible, a data recovery program shall be implemented, unless the ERO determines that the archeological resource is of greater interpretive than research significance and that interpretive use of the resource is feasible.</p>	<p>7. SFPUC CM Team (qualified archeologist)</p> <p>8. SFPUC CM Team (qualified archeologist in consultation with Native American representative)</p> <p>9. SFPUC CM Team (qualified archeologist and, Native American representative if so desired)</p> <p>10. SFPUC CM Team (qualified archeologist)</p>	<p>7. Construction</p> <p>8. Construction</p> <p>9. Construction</p> <p>10. Construction</p>	<p>7. SFPUC EMG, ERO</p> <p>8. SFPUC EMG, ERO</p> <p>9. SFPUC EMG, ERO</p> <p>10. SFPUC EMG, ERO</p>	<p>the find and advise ERO as to significance of discovery.</p> <p>7. Preserve resource in place or initiate monitoring, data recovery program and/or interpretive program per below.</p> <p>8. Contact descendant group(s) relevant discovery, in consultation with ERO, and provide opportunity for group(s) to provide recommendations for appropriate treatment.</p> <p>9. Conduct monitoring if requested by ERO. Ensure descendant group(s) are afforded an opportunity to monitor if desired.</p> <p>10. Prepare Archeological Results Report and provide to ERO and descendant group(s) for review and approval.</p>

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		Mitigation Schedule	Monitoring/Reporting Responsibility	
<p><b>Consultation with Descendant Communities.</b> On discovery of an archeological site associated with descendant Native Americans, the Overseas Chinese, or other potentially interested descendant group an appropriate representative of the descendant group and the ERO shall be contacted. The representative of the descendant group shall be given the opportunity to monitor archeological field investigations of the site and to offer recommendations to the ERO regarding appropriate archeological treatment of the site, of recovered data from the site, and, if applicable, any interpretative treatment of the associated archeological site. The ERO and SFPUC shall work with the Native American representative or other representatives of descendant communities to identify the scope of work to fulfill the requirements of this mitigation measure, which may include participation in preparation and review of deliverables (e.g., plans, interpretive materials, artwork). Representatives shall be compensated for their work as identified in the agreed upon scope of work. A copy of the Archeological Resources Report (ARR) shall be provided to the representative of the descendant group.</p>	11. SFPUC CM Team (qualified archeologist)	11. Construction	11. SFPUC EMG, ERO	11. If triggered, prepare Archeological Data Recovery Plan (ARDP) for and approval by ERO .
	12. SFPUC CM Team (qualified archeologist)	12. Construction	12. SFPUC EMG, ERO	12. Monitor ADRP is implemented.
	13. SFPUC CM Team	13. Construction	13. SFPUC EMG, ERO	13. Identify and determine if other project(s) would affect resources in project area, in consultation with the ERO, and conduct coordination.

<p><b>Archeological Data Recovery Program.</b> An archeological data recovery program shall be conducted in accordance with an Archeological Data Recovery Plan (ADRP) if all three of the following apply: 1) a resource has potential to be significant, 2) preservation in place is not feasible, and 3) the ERO determines that an archeological data recovery program is warranted. The project archeological consultant, SFPUC, and ERO shall meet and consult on the scope of the ADRP. The archeological consultant shall prepare a draft ADRP that shall be submitted to the ERO for review and approval.</p> <p>The ADRP shall identify how the proposed data recovery program will preserve the significant information the archeological resource is expected to contain. That is, the ADRP will identify what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the project. Destructive data recovery methods shall not be applied to portions of the archeological resources if nondestructive methods are practical.</p> <p>The scope of the ADRP shall include the following elements:</p> <ul style="list-style-type: none"> <li>• Field Methods and Procedures. Descriptions of proposed field strategies, procedures, and operations.</li> <li>• Cataloguing and Laboratory Analysis. Description of selected cataloguing system and artifact analysis procedures.</li> <li>• Discard and Deaccession Policy. Description of and rationale for field and post-field discard and deaccession policies.</li> <li>• Security Measures. Recommended security measures to protect the archeological resource from vandalism, looting, and non-intentionally damaging activities.</li> <li>• Final Report. Description of proposed report format and distribution of results.</li> <li>• Curation. Description of the procedures and recommendations for the curation of any recovered data having potential research value, identification of appropriate curation facilities, and a summary of the accession policies of the curation facilities.</li> </ul>	14. SFPUC CM Team (qualified archeologist)	14. Construction	14. SFPUC EMG, ERO	14. Perform required notifications if human remains are discovered, including notify ERO.
	15. SFPUC CM Team, in consultation with Native American representatives	15. Construction	15. SFPUC EMG, ERO	15. If Native American remains, SFPUC shall make good faith effort to develop an Agreement with the NAHC-assigned MLD for the treatment and disposition of the remains and implement the agreed to protocols.
	16. SFPUC CM Team (qualified archeologist)	16. Post Construction	16. SFPUC EMG, ERO	16. Prepare Archeological Findings Report submit to ERO for review and approval, and distribute approved report as required.
	17. SFPUC CM Team (qualified archeologist), Native American representative if Native American resource	17. Post Construction	17. SFPUC EMG, ERO	17. If ERO requires, prepare Cultural Resources Public Interpretative Plan (CRPIP) and submit to ERO for review and approval.
18. SFPUC CM Team (qualified archeologist)	18. Post Construction	18. SFPUC EMG, ERO	18. Curate collections and samples in consultation with ERO or return cultural materials to the engaged Native American representatives at their discretion.	

Adopted Mitigation Measure	Implementation Responsibility	Monitoring and Mitigation Schedule	Reporting Program Monitoring/Reporting Responsibility	Monitoring Actions/Completion Criteria
<p><b>Coordination of Archeological Data Recovery Investigations.</b> In cases in which the same resource has been or is being affected by another project for which data recovery has been conducted, is in progress, or is planned, in order to maximize the scientific and interpretive value of the data recovered from both archeological investigations, the following measures shall be implemented:</p> <ul style="list-style-type: none"> <li>a) In cases where neither investigation has yet begun, both archeological consultants and the ERO shall consult on coordinating and collaboration on archeological research design, data recovery methods, analytical methods, reporting, curation and interpretation to ensure consistent data recovery and treatment of the resource.</li> <li>b) In cases where archeological data recovery investigation is already under way or has been completed for a prior project, the archeological consultant for the subsequent project shall consult with the prior archeological consultant, if available; review prior treatment plans, findings and reporting; and inspect and assess existing archeological collections/inventories from the site prior to preparation of the archeological treatment plan for the subsequent discovery, and shall incorporate prior findings in the final report of the subsequent investigation. The objectives of this coordination and review of prior methods and findings will be to identify refined research questions; determine appropriate data recovery methods and analyses; assess new findings relative to prior research findings; and integrate prior findings into subsequent reporting and interpretation.</li> </ul>	19. SFPUC CM Team (qualified archeologist)	19. Post Construction	19. SFPUC EMG, ERO	19. Provide copy of signed curatorial agreement to ERO.

	Monitoring and Reporting Program		Monitoring and Reporting Program	
Adopted Mitigation Measure	Implementation Responsibility	Mitigation Schedule	Monitoring/Reporting Responsibility	Monitoring Actions/Completion Criteria
<p><b>Human Remains and Funerary Objects.</b> The treatment of human remains and funerary objects discovered during any soil-disturbing activity shall comply with applicable State and Federal laws. This shall include immediate notification of the Office of the Chief Medical Examiner of the City and County of San Francisco (Medical Examiner). The ERO also shall be notified immediately upon the discovery of human remains. In the event of the Medical Examiner’s determination that the human remains are Native American remains, the Medical Examiner shall notify the California State Native American Heritage Commission, which will appoint a Most Likely Descendant (MLD). The MLD will complete his or her inspection of the remains and make recommendations or preferences for treatment within 48 hours of being granted access to the site (Public Resources Code section 5097.98(a)).</p> <p>The landowner may consult with the project archeologist and SFPUC and shall consult with the MLD and ERO on preservation in place or recovery of the remains and any scientific treatment alternatives. The landowner shall then make all reasonable efforts to develop an Agreement with the MLD, as expeditiously as possible, for the treatment and disposition, with appropriate dignity, of human remains and funerary objects (as detailed in CEQA Guidelines section 15064.5(d)). Per PRC 5097.98 (b)(1), the Agreement shall address and take into consideration, as applicable and to the degree consistent with the wishes of the MLD, the appropriate excavation, removal, recordation, scientific analysis, custodianship prior to reinterment or curation, and final disposition of the human remains and funerary objects. If the MLD agrees to scientific analyses of the remains and/or funerary objects, the archeological consultant shall retain possession of the remains and funerary objects until completion of any such analyses unless otherwise specified in the Agreement, after which the remains and funerary objects shall be reinterred or curated as specified in the Agreement.</p> <p>Both parties are expected to make a concerted and good faith effort to arrive at an Agreement, consistent with the provisions of PRC 5097.98. However, if the landowner and the MLD are unable to reach an Agreement, the landowner, ERO, and SFPUC shall ensure that the remains and/or mortuary materials are stored securely and respectfully until they can be reinterred on the property, with appropriate dignity, in a location not</p>				

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<p>subject to further or future subsurface disturbance, consistent with state law.</p> <p>Treatment of historic-period human remains and of associated or unassociated funerary objects discovered during any soil-disturbing activity, additionally, shall follow protocols laid out in the project's archeological treatment documents, and in any related agreement established between the Medical Examiner and the ERO. The project archeologist shall retain custody of the remains and associated materials while any scientific study scoped in the treatment document is conducted and the remains shall then be curated or respectfully reinterred by arrangement on a case-by case-basis.</p>				
<p><b>Archeological Findings Report.</b> After the conclusion of project ground disturbing work, the archeological consultant shall submit a written report of the findings to the ERO. If the consultant encountered an archeological resource that was determined to be not significant, the consultant shall prepare an Archeological Monitoring or Testing Result Report (AMRR or ATRR). The report shall document the observed resources, evaluate the significance of the discovered archeological resource, and describe the archeological and historical research methods employed in the archeological programs undertaken. If the consultant encountered an archeological resource that was determined to be significant, the consultant shall prepare an Archeological Resources Report (ARR). This report has the same content as the AMRR or ATRR but includes the methods employed in the data recovery program, data and analysis of the resource, interpretation of the resource, and discusses curation arrangements. Formal site recordation forms (CA DPR 523 series) shall be attached to the ARR as an appendix.</p> <p>Once approved by the ERO, copies of the report shall be distributed as follows: California Historical Resources Information System, Northwest Information Center (NWIC) shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the approved report to the NWIC. The environmental planning division of the planning department shall receive one (1) bound hardcopy of the report. Digital files that shall be submitted to the environmental division include an unlocked, searchable PDF version of the report, GIS shapefiles of the site and feature locations, any formal site recordation forms (CA DPR 523 series), and/or documentation</p>				

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<p>for nomination to the National Register of Historic Places/California Register of Historical Resources. The PDF report, GIS files, recordation forms, and/or nomination documentation should be submitted via USB or other stable storage device. If a descendant group was consulted during archeological treatment, a PDF of the report shall be provided to the representative of the descendant group.</p>				
<p><b>Interpretative Program.</b> The project archeological consultant shall submit a Cultural Resources Public Interpretative Plan if a significant archeological resource is discovered during a project. As directed by the ERO, a qualified design professional with demonstrated experience in displaying information and graphics to the public in a visually interesting manner, local artists, or community group may also be required to assist the project archeological consultant in preparation of the interpretative plan. If the resource to be interpreted is a tribal cultural resource, the interpretative plan shall be prepared in consultation with and developed with the participation of California Native American tribes traditionally and culturally affiliated with a geographic area of the project. The interpretive plan shall describe the interpretive product(s), locations or distribution of interpretive materials or displays, the proposed content and materials, the producers or artists of the displays or installation, and a long-term maintenance program. The interpretative plan shall be sent to the ERO for review and approval. The interpretive plan shall be implemented prior to completion of project, unless interpretive elements are planned to take place post construction, such as educational events.</p>				
<p><b>Curation.</b> Significant archeological collections and paleoenvironmental samples of future research value shall be permanently curated at an established curatorial facility or Native American cultural material shall be returned to local Native American representatives at their discretion. The facility shall be selected in consultation with the ERO. Upon submittal of the collection for curation the sponsor or archeologist shall provide a copy of the signed curatorial agreement to the ERO.</p>				

<p><b>Mitigation Measure M-CR-2b: Archeological Monitoring</b></p> <p>Prior to the start of construction of each phase of the project, the SFPUC shall submit an Archeological Monitoring Program as applicable for the geographic areas below. In addition, if the records review/search completed for this project is five years or older, then the SFPUC shall consult with the planning department cultural resources staff to determine if an updated records search and/or other action like an updated pedestrian survey is needed to identify if any new archeological sites were discovered after the publication of this document that may require archeological monitoring in additional locations to those required below.</p> <p>Archeological Monitoring is applicable to areas with high sensitivity for buried Native American and/or historic era resources as follows:</p> <ul style="list-style-type: none"> <li>• Lake Merced Pump Station east to Lake Merced Boulevard, Lake Merced Boulevard between Lake Merced Pump Station and Middlefield Drive, (see below regarding local Native American representative to be present during monitoring at this site) Middlefield Drive between Lake Merced Boulevard and Ocean Avenue, Ocean Avenue between Middlefield Drive to Inverness Drive</li> <li>• Sloat Boulevard between Inverness Drive and 37th Avenue, 37th Avenue between Sloat Boulevard and Vicente Street, and 36th between Sloat Boulevard and Vicente Street</li> <li>• 34th Ave between Vicente Street and Wawona Street, Wawona Street between 34th Avenue and 42nd Avenue, 42nd between Wawona and Vicente Street</li> <li>• Ulloa St between 36th Avenue and 32nd 35th Avenue, <u>Ulloa Street between 32nd Avenue and 33rd Avenue</u></li> <li>• <u>25th Avenue between Judah and Martin Luther King Jr Drive, Martin Luther King Jr Drive between 25<sup>th</sup> Avenue and Transverse Drive, Transverse Drive between Martin Luther King Jr Drive and John F Kennedy Drive</u></li> <li>• <del>Lawton between 23rd Avenue and 21st and 21st Avenue between Lawton and Kirkham Street</del></li> </ul>	1. SFPUC EMG	1. Preconstruction	1. SFPUC EMG, ERO	1. Consult with ERO to determine if an updated records search and/or other action like an updated pedestrian survey is needed to identify if any new archeological sites were discovered before advertising a new phase if more than five years has lapsed since publication of the MND, and perform any ERO-required additional identification efforts.
	2. SFPUC EMB	2. Design	2. SFPUC EMG	2. Ensure contract documents include requirements for monitoring at locations listed and others if additional locations are identified for phases starting after five years of publication of the MND.
	3. SFPUC CM Team (qualified archeologist)	3. Construction	3. SFPUC EMG	3. Ensure required AMP is implemented.
	4. SFPUC CM Team	4. Construction	4. SFPUC EMG	4. Ensure that Native American monitor is present at Lake Merced Boulevard between Middlefield Drive and Winston Drive, at their discretion.

<ul style="list-style-type: none"> <li>• 43rd Ave between Judah Street and Lincoln Way, Irving St between 42nd Avenue and 37th Avenue, 37th Avenue between Irving St and Lincoln Way, Lincoln Way between 37th Avenue and 42nd Avenue, 36th between Irving Street and Lincoln Way, Martin Luther King Drive to 47th Avenue to Balboa Street</li> <li>• Cabrillo Street between <u>43rd Avenue and 44th Avenue, Cabrillo Street between 41st Avenue and 36th Avenue</u></li> <li>• Clement Street between 44th Avenue and 38th Avenue</li> </ul> <p><b>Archeological Monitoring Program.</b> The purpose of the archeological monitoring program will be to observe soil disturbing construction activities in order to determine if significant archeological resources are present at the project site and to ensure significant archeological resources are appropriately protected or treated. The SFPUC shall retain the services of an archeological consultant approved by the SF Planning Cultural Resources Team.</p> <p>The archeological consultant shall undertake an archeological monitoring program as specified herein. The archeological consultant’s work shall be conducted in accordance with this measure at the direction of the ERO in coordination with SFPUC. All plans and reports prepared by the consultant as specified herein shall be submitted first and directly to the Environmental Review Office (ERO) for review and comment and shall be considered draft reports subject to revision until final approval by the ERO. Reports will be concurrently submitted to SFPUC (i.e., cc’d when sent to the ERO). In addition, the consultant shall be available to conduct data recovery program if required pursuant to this measure. Archeological data recovery programs required by this measure could suspend construction of the project for up to a maximum of four weeks. At the direction of the ERO, the suspension of construction can be extended beyond four weeks only if such a suspension is the only feasible means to reduce to a less than significant level potential effects on a significant archeological resource as defined in CEQA Guidelines Sect. 15064.5 (a)(c).</p> <p>A local Native American representative shall be present during archeological monitoring on Lake Merced Boulevard between Middlefield Drive and Winston Drive, at their discretion, because this work is being conducted in close proximity to a recorded Native American archeological site.</p>	<p>5. SFPUC CM Team (qualified archeologist)</p> <p>6. SFPUC CM Team (qualified archeologist)</p> <p>7. SFPUC CM Team (qualified archeologist)</p> <p>8. SFPUC CM Team (qualified archeologist)</p>	<p>5. Preconstruction</p> <p>6. Construction</p> <p>7. Post construction</p> <p>8. Construction</p>	<p>5. SFPUC EMG, ERO</p> <p>6. SFPUC EMG, ERO</p> <p>7. SFPUC EMG, ERO</p> <p>8. SFPUC EMG, ERO</p>	<p>5. Prepare and submit AMP to ERO for review, and implement approved by ERO.</p> <p>6. Collect samples where warranted.</p> <p>7. Submit results of monitoring, including information about collected samples and paleobotanical analysis, if applicable, to ERO for review and approval.</p> <p>8. Implement additional appropriate measures are implemented as required by ERO, and report to ERO.</p>
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		Monitoring and	Reporting Program	
Adopted Mitigation Measure	Implementation Responsibility	Mitigation Schedule	Monitoring/Reporting Responsibility	Monitoring Actions/Completion Criteria
<p><b>Archeological Monitoring Plan.</b> The archeological monitoring program shall be conducted in accordance with the approved Archeological Monitoring Plan (AMP). The archeological consultant and the ERO shall consult on the scope of the AMP, which shall be approved by the ERO prior to any project-related soils disturbing activities commencing. The ERO in consultation with the project archeologist shall determine what project soils disturbing activities shall be archeologically monitored. The AMP shall be submitted first and directly to the ERO for review and comment (with a copy to SFPUC) and shall be considered a draft subject to revision until final approval by the ERO. The archeologist shall implement the monitoring as specified in the approved AMP during construction. The archeological monitor(s) shall be present on the project site according to a schedule agreed upon by the archeological consultant and the ERO until the ERO has, in consultation with the archeological consultant, determined that project construction activities could have no effects on significant archeological deposits.</p> <p>The AMP shall identify the property types of the expected archeological resource(s) that potentially could be adversely affected by the project, lay out what scientific/ historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions.</p> <p><b>Collection During Archeological Monitoring.</b> The monitor is authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis. Ecofacts are biological or geological objects or deposits related to human activity, but not manufactured by humans. Examples of ecofactual materials include animal bones, charcoal, plants, and pollen that can tell us about past diet or environments.</p>				

Adopted Mitigation Measure	Implementation Responsibility	Monitoring and Mitigation Schedule	Reporting Program Monitoring/Reporting Responsibility	Monitoring Actions/Completion Criteria
<p><b>Paleoenvironmental Analysis of Paleosols.</b> When a paleosol is identified during monitoring, irrespective of whether cultural material is present, samples shall be extracted and processed for dating, flotation for paleobotanical analysis, and other applicable special analyses pertinent to identification of possible cultural soils and for environmental reconstruction. The results of analysis of collected samples shall be reported on in results reports.</p>				
<p><b>Additional Applicable Measures.</b> An Archeological Findings Report shall be prepared to document the required monitoring (even in the absence of discoveries), and if archeological resources are discovered during monitoring the following items identified in <b>Mitigation Measure M-CR-2a: Accidental Discovery</b> shall be implemented as specified in that measure:</p> <ul style="list-style-type: none"> <li>● Discovery Identification, Evaluation, and Treatment Determination</li> <li>● Consultation with Descendant Communities (as applicable)</li> <li>● Archeological Data Recovery Program (as applicable)</li> <li>● Coordination of Archeological Data Recovery Investigations (as applicable)</li> <li>● Human Remains and Funerary Objects (as applicable)</li> <li>● Archeological Findings Report</li> <li>● Cultural Resources Public Interpretation (as applicable)</li> <li>● Curation (as applicable)</li> </ul>				

<p><b>Mitigation Measure M-CR-2c: Archeological Testing</b></p> <p>Prior to the start of construction of each phase of the project, the SFPUC shall submit an Archeological Testing Program as applicable for the geographic areas below. In addition, if the records review completed for this project is five years or older, then the SFPUC shall consult with the planning department cultural resources staff to determine if an updated records search and/or other action like an updated pedestrian survey is needed to identify if new archeological sites were discovered after the publication of this MND that may require archeological testing in addition to locations required below.</p> <p>Archeological testing is applicable to areas identified as within or in close proximity to known Native American and/or historic era archeological sites at the following locations.</p> <ul style="list-style-type: none"> <li>• Lake Merced Boulevard between Middlefield Drive and Winston Drive. Testing focusing on Native American resources.</li> <li>• Clement Street between 38th Avenue and 32nd Avenue. Testing focusing on resources associated with City Cemetery.</li> </ul> <p><b>Archeological Testing Program.</b> The purpose of the archeological testing program will be to determine to the extent possible the presence or absence of archeological resources and to identify and to evaluate whether any archeological resource encountered on the site constitutes an historical resource under CEQA. The SFPUC shall retain the services of an archeological consultant approved by the Planning Cultural Resources Team.</p> <p>The archeological consultant shall undertake an archeological testing program as specified herein. The archeological consultant’s work shall be conducted in accordance with this measure at the direction of the Environmental Review Officer (ERO). All plans and reports prepared by the consultant as specified herein shall be submitted first and directly to the ERO for review and comment and shall be considered draft reports subject to revision until final approval by the ERO. In addition, the consultant shall be available to conduct an archeological monitoring and/or data recovery program if required pursuant to this measure. Archeological monitoring and/or data recovery programs required by this measure could suspend construction of the project for up to a maximum of four weeks. At the direction of the ERO, the suspension of construction can be extended beyond four weeks only if such a suspension is the only feasible means to</p>	<p>1. SFPUC CM Team (qualified archeologist)</p> <p>2. SFPUC CM Team</p> <p>3. SFPUC CM Team (qualified archeologist)</p> <p>4. SFPUC CM Team (qualified archeologist)</p> <p>5. SFPUC CM Team (qualified archeologist)</p>	<p>1. Preconstruction</p> <p>2. Construction</p> <p>3. Preconstruction</p> <p>4. Preconstruction</p> <p>5. Construction</p>	<p>1. SFPUC EMG</p> <p>2. SFPUC EMG, ERO</p> <p>3. SFPUC EMG, ERO</p> <p>4. SFPUC EMG, ERO</p> <p>5. SFPUC EMG, ERO</p>	<p>1. Prepare testing plan, submit to ERO, implement approved Testing Plan.</p> <p>2. Confirm that Native American monitor is present at required locations, at their discretion.</p> <p>3. Collect samples where warranted.</p> <p>4. Prepare results reports, including results of paleobotanical analysis, and submit to ERO for review and approval.</p> <p>5. Consult ERO as to additional appropriate measures are to be implemented and implement as needed, including submitting any associated reports, etc. to the ERO for review and approval.</p>
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	Monitoring and Reporting Program		Monitoring and Reporting Program	
Adopted Mitigation Measure	Implementation Responsibility	Mitigation Schedule	Monitoring/Reporting Responsibility	Monitoring Actions/Completion Criteria
<p>reduce to a less than significant level potential effects on a significant archeological resource as defined in CEQA Guidelines Sect. 15064.5 (a)(c). A local Native American representative shall be present during archeological testing on Lake Merced Boulevard between Middlefield Drive and Winston Drive, at their discretion, because this testing is being conducted in close proximity to a recorded Native American archeological site.</p>				
<p><b>Archeological Testing Plan.</b> The archeological testing program shall be conducted in accordance with the approved Archeological Testing Plan (ATP). The archeological consultant and the ERO shall consult on the scope of the ATP, which shall be approved by the ERO prior to any project-related soils disturbing activities commencing. The ATP shall be submitted first and directly to the ERO for review and comment and shall be considered a draft subject to revision until final approval by the ERO. The archeologist shall implement the testing as specified in the approved ATP prior to and/or during construction.</p> <p>The ATP shall identify the property types of the expected archeological resource(s) that potentially could be adversely affected by the project, lay out what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. The ATP shall also identify the testing method to be used, the depth or horizontal extent of testing, and the locations recommended for testing and shall identify archeological monitoring requirements for construction soil disturbance as warranted.</p>				
<p><b>Paleoenvironmental Analysis of Paleosols.</b> When a submerged paleosol is identified, irrespective of whether cultural material is present, samples shall be extracted and processed for dating, flotation for paleobotanical analysis, and other applicable special analyses pertinent to identification of possible cultural soils and for environmental reconstruction. The results of analysis of collected samples shall be reported on in results reports.</p>				
<p><b>Additional Applicable Measures.</b> If archeological resources are discovered during monitoring the following items identified in <b>Mitigation Measure M-CR-2a: Accidental Discovery</b> shall be implemented as specified in that measure:</p>				

Adopted Mitigation Measure	Implementation Responsibility	Monitoring and Reporting Program		
		Mitigation Schedule	Monitoring/Reporting Responsibility	Monitoring Actions/Completion Criteria
<ul style="list-style-type: none"> <li>Discovery Identification, Evaluation, and Treatment Determination</li> <li>Consultation with Descendant Communities (as applicable)</li> <li>Archeological Data Recovery Program (as applicable)</li> <li>Coordination of Archeological Data Recovery Investigations (as applicable)</li> <li>Human Remains and Funerary Objects (as applicable)</li> <li>Archeological Findings Report (as applicable)</li> <li>Cultural Resources Public Interpretative Plan (as applicable)</li> <li>Curation (as applicable)</li> </ul>				
<b>TRIBAL CULTURAL RESOURCES</b>				
<p><b>Mitigation Measure M-TCR-1: Tribal Cultural Resources Program</b></p> <p><u>Preservation in Place.</u> In the event of the identification or discovery of a tribal cultural resource, the ERO, the SFPUC, and California Native American tribes traditionally and culturally affiliated with a geographic area of the project, shall consult to determine whether preservation in place would be feasible and effective. If it is determined that preservation-in-place of the tribal cultural resource would be both feasible and effective, then the SFPUC in consultation with local Native American representatives and the Environmental Review Officer (ERO) shall prepare a tribal cultural resource preservation plan (TCRPP). If the tribal cultural resource is an archeological resource of Native American origin, the archeological consultant shall prepare an archeological resource preservation plan (ARPP) in consultation with the local Native American representative, which shall be implemented by the SFPUC during construction. The consultant shall submit a draft ARPP to Planning and the SFPUC for review and approval. If the ERO, in consultation with local Native American representatives and SFPUC determines that preservation-in-place of the tribal cultural resource is not a sufficient or feasible option, then archeological data recovery shall be implemented as required by the ERO and in consultation with affiliated Native American representatives if the tribal cultural resource is an archeological resource of Native American origin.</p> <p><u>Interpretive Program.</u> The SFPUC, in consultation with California Native American tribes traditionally and culturally affiliated with a geographic</p>	<ol style="list-style-type: none"> <li>SFPUC CM Team</li> <li>SFPUC CM Team, in consultation with Native American representative</li> <li>SFPUC CM Team (qualified archeologist), in consultation with Native American representative</li> <li>SFPUC EMG (qualified archeologist), in consultation with Native American representative</li> </ol>	<ol style="list-style-type: none"> <li>Construction - after potential tribal cultural resource discovery</li> <li>Construction - after ERO determination that preservation in place is feasible</li> <li>Construction - after ERO determination that preservation in place is feasible</li> <li>Construction and Post-construction</li> </ol>	<ol style="list-style-type: none"> <li>SFPUC EMG, ERO</li> <li>SFPUC EMG, ERO</li> <li>SFPUC EMG, ERO</li> <li>SFPUC EMG, ERO</li> </ol>	<ol style="list-style-type: none"> <li>SFPUC to notify ERO of a find and consult with ERO and Native American representative.</li> <li>Prepare tribal cultural resource preservation plan (TCRPP), submit to ERO for approval, and implement approved TCRPP.</li> <li>Prepare archeological resource preservation plan (ARPP), submit to ERO for approval, and implement approved ARPP.</li> <li>Prepare Tribal Cultural Resources Public Interpretation Plan (TCRPIP), submit to ERO for approval, and</li> </ol>

Adopted Mitigation Measure	Monitoring and Reporting Program		Monitoring/Reporting Responsibility	Monitoring Actions/Completion Criteria
	Implementation Responsibility	Mitigation Schedule		
<p>area of the project, shall prepare a Tribal Cultural Resources Public Interpretation Plan (TCRPIP) to guide the Tribal Cultural Resource interpretive program. The TCRPIP may be prepared in tandem with the Cultural Resources Public Interpretative Plan if required. The TCRPIP shall be submitted to ERO for review and approval prior to implementation of the program. The plan shall identify, as appropriate, proposed locations for installations or displays, the proposed content and materials of those displays or installation, the producers or artists of the displays or installation, and a long-term maintenance program. The interpretive program may include artist installations, preferably by local Native American artists, oral histories with local Native Americans, cultural displays, educational panels, or other interpretive elements agreed upon by the ERO, SFPUC, and local Native American representatives. Upon approval of the TCRPIP and prior to project occupancy, the interpretive program shall be implemented by the SFPUC. The ERO and SFPUC shall work with the Native American representative to identify the scope of work to fulfill the requirements of this mitigation measure, which may include participation in preparation and review of deliverables (e.g., plans, interpretive materials, artwork). Tribal representatives shall be compensated for their work as identified in the agreed upon scope of work.</p>				implement approved TCRPIP.
<b>NOISE</b>				
<p><b>Mitigation Measure M-NO-1a: Construction Noise Control</b>  This measure applies to the following project construction activities:</p> <ol style="list-style-type: none"> <li>1) vibratory pile driving within 170 feet of noise-sensitive receptors for a period of two weeks or longer;</li> <li>2) use of impact pile driving for any duration of time;</li> <li>3) all nighttime trenchless construction within 500 feet of noise-sensitive receptors;</li> <li>4) all nighttime work that would occur for more than three consecutive nights or up to nine nights within a 90-day period within 500 feet of noise-sensitive receptors; and,</li> <li>5) soil improvements within 50 feet of schools.</li> </ol> <p>Prior to the start of construction of each phase of the project, the SFPUC</p>	<ol style="list-style-type: none"> <li>1. SFPUC EMB</li> <li>2. SFPUC CM Team (qualified acoustical engineer or consultant)</li> <li>3. SFPUC CM Team</li> </ol>	<ol style="list-style-type: none"> <li>1. Design</li> <li>2. Construction</li> <li>3. Construction</li> </ol>	<ol style="list-style-type: none"> <li>1. SFPUC EMG</li> <li>2. SFPUC EMG, ERO</li> <li>3. SFPUC EMG</li> </ol>	<ol style="list-style-type: none"> <li>1. Ensure contract documents require preparation and implementation of noise control plan and the listed minimum noise control measures.</li> <li>2. Submit noise control plan to ERO or ERO's designee for review and approval.</li> </ol>

Adopted Mitigation Measure	Implementation Responsibility	Monitoring and Reporting Program		Monitoring Actions/Completion Criteria
		Mitigation Schedule	Monitoring/Reporting Responsibility	
<p>shall submit a project-specific construction noise control plan to the ERO or the ERO’s designee for approval if any of the above construction activities would occur. The construction noise control plan shall be prepared by a qualified acoustical engineer, with input from the construction contractor, and include all feasible measures to reduce construction noise. The construction noise control plan shall discuss the contractor’s planned construction activities and identify noise control measures to meet a performance target of construction activities resulting in a noise level less than 90 dBA 1-hour <math>L_{eq}</math>, 10 dBA above the ambient noise level, or an interior level of 45 dBA during nighttime hours at noise-sensitive receptors (residences, hospitals, convalescent homes, schools, churches, and hotels and motels); and daytime construction noise to the performance target of 100 dBA exterior noise level at commercial receptors. The SFPUC shall ensure that the requirement for the construction contractor to submit a noise control plan prepared by a qualified acoustical engineer is included in contract specifications along with the measures listed below.</p> <p>Where nighttime construction is required, the plan shall include specific measures to reduce nighttime construction noise. The plan shall also include measures for notifying the public of construction activities, complaint procedures, and a plan for monitoring construction noise levels in the event complaints are received.</p> <p>The construction noise control plan shall include the following measures to the degree feasible, or other effective measures (as determined by the ERO), to reduce construction noise levels:</p> <ul style="list-style-type: none"> <li>• Use construction equipment that is in good working order, and inspect mufflers for proper functionality;</li> <li>• Select “quiet” construction methods and equipment (e.g., improved mufflers, use of intake silencers, engine enclosures);</li> <li>• Use construction equipment with lower noise emission ratings whenever possible, particularly for air compressors;</li> <li>• Prohibit the idling of inactive construction equipment for more than five minutes;</li> <li>• Locate stationary noise sources (such as compressors) as far from nearby noise sensitive receptors as possible, muffle such noise</li> </ul>	4. SFPUC CM Team	4. Construction	4. SFPUC EMG, ERO	<p>3. Perform required public notifications. Notify ERO of any noise complaints within one week of receiving a complaint.</p> <p>4. Monitor noise levels as required.</p>

	Monitoring and Reporting Program		Monitoring and Reporting Program	
Adopted Mitigation Measure	Implementation Responsibility	Mitigation Schedule	Monitoring/Reporting Responsibility	Monitoring Actions/Completion Criteria
<p>sources, and construct barriers around such sources and/or the construction site.</p> <ul style="list-style-type: none"> <li>• Avoid placing stationary noise-generating equipment (e.g., generators, compressors) within noise-sensitive buffer areas (as determined by the acoustical engineer) immediately adjacent to neighbors.</li> <li>• Enclose or shield stationary noise sources from neighboring noise-sensitive properties with noise barriers to the extent feasible. To further reduce noise, locate stationary equipment in pit areas or excavated areas, if feasible; and</li> <li>• Install temporary barriers, barrier-backed sound curtains and/or acoustical panels around working powered impact equipment and, if necessary, around the project site perimeter. When temporary barrier units are joined together, the mating surfaces shall be flush with each other. Gaps between barrier units, and between the bottom edge of the barrier panels and the ground, shall be closed with material that completely closes the gaps, and dense enough to attenuate noise. The temporary noise barriers in the analysis assumes a noise reduction of 15 dB.</li> </ul> <p>The construction noise control plan shall include the following measures for notifying the public of construction activities, complaint procedures and monitoring of construction noise levels:</p> <ul style="list-style-type: none"> <li>• Designation of an on-site construction noise manager for the project;</li> <li>• Notification of neighboring noise sensitive receptors within 300 feet of the project construction area at least 30 days in advance of high-intensity noise-generating activities (e.g., pier drilling, pile driving, and other activities that may generate noise levels greater than 90 dBA at noise sensitive receptors or 100 dBA at commercial receptors) about the estimated duration of the activity;</li> <li>• A sign posted on-site describing noise complaint procedures and a complaint hotline number that shall always be answered during construction;</li> <li>• A procedure for notifying the planning department of any noise complaints within one week of receiving a complaint;</li> <li>• A list of measures for responding to and tracking complaints</li> </ul>				

Adopted Mitigation Measure	Implementation Responsibility	Monitoring and Reporting Program		Monitoring Actions/Completion Criteria
		Mitigation Schedule	Monitoring/Reporting Responsibility	
<p>pertaining to construction noise. Such measures may include the evaluation and implementation of additional noise controls at sensitive receptors; and</p> <ul style="list-style-type: none"> <li>Conduct noise monitoring (measurements) at the beginning of major construction phases (e.g., demolition, grading, excavation) and during high-intensity construction activities to determine the effectiveness of noise attenuation measures and, if necessary, implement additional noise control measures.</li> </ul> <p>The construction noise control plan shall include the following additional measures during pile-driving activities:</p> <ul style="list-style-type: none"> <li>When pile driving is to occur within 260 feet of a noise-sensitive receptor, implement “quiet” pile-driving technology (such as pre-drilling of piles, sonic pile drivers, auger cast-in-place, or drilled-displacement, or the use of more than one pile driver to shorten the total pile-driving duration [only if such measure is preferable to reduce impacts to sensitive receptors]) where feasible, in consideration of geotechnical and structural requirements and conditions;</li> <li>Properly fit impact pile driving equipment with an intake and exhaust muffler and a sound-attenuating shroud, as specified by the manufacturer; and</li> <li>Conduct noise monitoring (measurements) before, during, and after the pile driving activity.</li> </ul>				
<p><b>Mitigation Measure M-NO-1b: Operational Noise Analysis and Attenuation of Stationary Noise Sources</b></p> <p>This measure applies to installation of noise-generating activities or equipment (heating, ventilation, and air conditioning equipment including exhaust fans) at emergency pump stations 1 and 2.</p> <p>Prior to construction at new emergency pump stations 1 and 2, the SFPUC shall submit documentation to the Environmental Review Office (ERO) or the ERO’s designee, demonstrating with reasonable certainty that the proposed design of the heating, ventilation, and air conditioning equipment meets the noise limits specified in section 2909 of the San Francisco Police Code (i.e., an 8 dB increase above the ambient noise level at the property plane for noise from commercial or industrial uses; and</p>	<p>1. SFPUC EMB</p> <p>2. SFPUC CM Team (qualified acoustical engineer or consultant)</p>	<p>1. Design</p> <p>2. Preconstruction</p>	<p>1. SFPUC EMG</p> <p>2. SFPUC EMG, ERO</p>	<p>1. Ensure design meets requirements for HVAC systems to comply with noise limits specified in section 2909 of the San Francisco Police Code.</p> <p>2. Submit final HVAC systems design to ERO or the ERO’s designee for review and approval.</p>

	Monitoring and Reporting Program		Monitoring and Reporting Program	
Adopted Mitigation Measure	Implementation Responsibility	Mitigation Schedule	Monitoring/Reporting Responsibility	Monitoring Actions/Completion Criteria
<p>interior noise limits of 55 dBA and 45 dBA for daytime and nighttime hours inside any sleeping or living room in a nearby dwelling unit on a residential property assuming windows open, respectively). The analysis shall be prepared by persons qualified in acoustical analysis and/or engineering. All recommendations from the acoustical analysis necessary to ensure that noise sources would meet applicable requirements of the noise ordinance and/or not result in substantial increases in ambient noise levels shall be incorporated into the building design and operations. Acoustical treatments required to meet the noise limits in the San Francisco Police code may include but are not limited to:</p> <ul style="list-style-type: none"> <li>• Enclosing noise-generating mechanical equipment;</li> <li>• Installing relatively quiet models of air handlers, exhaust fans, and other mechanical equipment;</li> <li>• Using mufflers or silencers on equipment exhaust fans;</li> <li>• Orienting or shielding equipment to protect noise sensitive receptors (residences, hospitals, convalescent homes, schools, churches, hotels and motels, and sensitive wildlife habitat) to the greatest extent feasible;</li> <li>• Increasing the distance between noise-generating equipment and noise-sensitive receptors; and/or</li> <li>• Placing barriers around the equipment to reduce noise.</li> </ul>				

**Mitigation Measure M-NO-2: Vibration Reduction during Construction**

Prior to the start of construction for each phase of the project, the SFPUC shall complete a screening-level analysis comparing vibration levels for various pieces of equipment with the distance to adjacent buildings or structures. If the minimum equipment setback distances for the use of vibratory equipment in the table below can be met and groundborne vibration would not result in building damage or sleep disturbance, then a Vibration Management and Monitoring Plan does not need to be prepared, and the remainder of this measure is not applicable. The screening-level analysis shall be submitted to the ERO or the ERO’s designee for approval. The construction contract specifications shall require contractors to avoid use of vibratory equipment within the following setback distances from buildings as well as during any nighttime trenchless construction within 80 feet of residential structures.

However, if vibratory equipment must be used within the vibration minimum setback distances or nighttime work must occur within the vibration setback distances noted below, then a Vibration Management and Monitoring Plan shall be required as described below.

Vibration Minimum Setback Distances –

Equipment	Reference PPV at 25 feet	Minimum Setback Distance to Historic Buildings - 0.25 in/sec PPV (continuous)	Minimum Setback Distance to Older Buildings (typ.) - 0.3 in/sec PPV (continuous)
Vibratory Pile Driver	0.170	18 feet	15 feet
Vibratory Roller (highway class size)	0.210	22 feet	19 feet
Vibratory Roller (12-ton)	0.067	8 feet	7 feet
Hoe Ram	0.089	10 feet	9 feet
Large Bulldozer /Excavator/Loader/Bac khoe (>20,000lb Operating Weight)	0.089	10 feet	9 feet
Drill Rig	0.089	10 feet	9 feet

1. SFPUC EMB	1. Design	1. SFPUC EMG	1. Ensure contract documents include requirements for preparation and implementation of vibration management and monitoring plan.
2. SFPUC CM Team (qualified acoustical/vibration engineer or consultant)	2. Construction	2. SFPUC EMG, ERO	2. Submit vibration management and monitoring plan to ERO or ERO’s designee for review and approval.
3. SFPUC CM Team (qualified acoustical/vibration engineer or consultant with historic preservation professional if needed)	3. Construction	3. SFPUC EMG, ERO	3. If triggered, conduct preconstruction survey prior to use of vibration generating construction equipment and submit to ERO or ERO’s designee for review and approval .
4. SFPUC CM Team (qualified acoustical/vibration engineer with historic preservation professional if needed)	4. Construction	4. SFPUC EMG, ERO	4. Monitor to ensure that contractor implements plan, report noncompliance, ensure corrective action.
5. SFPUC CM Team (qualified acoustical/vibration engineer with historic preservation)	5. Construction, after damage	5. SFPUC EMG, ERO	5. In the event of damage, notify ERO, submit a report documenting damage, and determine and implement appropriate treatment,

Adopted Mitigation Measure	Implementation Responsibility	Monitoring and Reporting Program		Monitoring Actions/ Completion Criteria
		Mitigation Schedule	Monitoring/Reporting Responsibility	
<p><u>Vibration Management and Monitoring Plan</u> – Prior to construction, the SFPUC shall submit a project-specific Vibration Management and Monitoring Plan to the ERO or the ERO’s designee for approval if required per above. The plan shall identify all feasible means to avoid damage to potentially affected buildings. The Vibration Management and Monitoring Plan shall be prepared by a qualified vibration engineer, with input from the construction contractor, and the contract specifications shall include the requirement for this plan, as necessary, along with the measures below. The Vibration Management and Monitoring Plan shall include, at a minimum, the following components, as applicable:</p> <ul style="list-style-type: none"> <li> <b>Pre-construction Survey.</b> Prior to the start of any ground-disturbing activity, the SFPUC or its contractor shall engage a consultant to undertake a pre-construction survey of potentially affected buildings where vibratory equipment must be used at and within the vibration minimum setback distances and shall document existing damage, such as cracks and loose or damaged features (as allowed by property owners. The survey shall be done by a qualified professional (e.g. a licensed engineer or acoustical consultant) who shall document and photograph the existing conditions of the potentially affected buildings and/or structures. The SFPUC shall submit the survey to the ERO or the officer’s designee for review and approval prior to the start of vibration-generating construction activity.           <p>If nearby affected buildings are potentially historic, the survey shall additionally include descriptions and photograph of all identified historic buildings (such as the existing Central Pump Station) prepared by a qualified historic preservation professional including all facades, roofs, and details of the character-defining features that could be damaged during construction, and shall document existing damage, such as cracks and loose or damaged features (as allowed by property owners). The report shall also include pre-construction drawings that record the pre-construction condition of the buildings and identify cracks and other features to be monitored during construction. The qualified historic preservation professional shall be the lead author of the pre-construction survey if historic buildings and/or structures could be affected by the project. The SFPUC shall</p> </li> </ul>	<p>professional if needed)</p> <p>6. SFPUC CM Team (qualified acoustical/ vibration engineer with historic preservation professional</p>	<p>6. Construction</p>	<p>6. SFPUC EMG, ERO</p>	<p>including consultation with the planning department’s preservation staff if the affected building is a historic resource.</p> <p>6. Prepare and submit Vibration Monitoring Results Report to ERO or ERO’s designee, including discussion of any damage and actions taken to repair damage, for review and approval.</p>

	Monitoring and Reporting Program		Monitoring and Reporting Program	
Adopted Mitigation Measure	Implementation Responsibility	Mitigation Schedule	Monitoring/Reporting Responsibility	Monitoring Actions/Completion Criteria
<p>submit the survey for review and approval prior to the start of vibration-generating construction activity.</p>				
<ul style="list-style-type: none"> <li>● <b>Maximum Vibration Level.</b> Based on the anticipated construction and condition of the affected buildings and/or structures on adjacent properties, a qualified acoustical/vibration consultant in coordination with a structural engineer (or professional with similar qualifications) and, in the case of potentially affected historic buildings/structures, a qualified historic preservation professional, shall establish a maximum vibration level that shall not be exceeded at each building/structure on adjacent properties, based on existing conditions, character-defining features, soil conditions, and anticipated construction practices (common standards are a peak particle velocity [PPV] of 0.25 inch per second for historic and some old buildings, a PPV of 0.3 inch per second for older residential structures, and a PPV of 0.5 inch per second for new residential structures and modern industrial/commercial buildings).</li> <li>● <b>Vibration-generating Equipment.</b> The plan shall identify all vibration-generating equipment to be used during construction at applicable locations and identify potential alternative equipment and techniques that could be implemented if construction vibration levels are observed to meet or exceed the established criterion based on soil conditions. Such methods may include one or more of the following: <ul style="list-style-type: none"> <li>○ Use a smaller 12-ton or 8-ton roller, a vibratory roller with reduced vibration amplitude settings, or hand-held “jumping jack” compactor</li> <li>○ Incorporate non vibratory shoring methods and/or “quiet” pile-driving technologies into project construction (such as pre-drilled shafts drilled shafts, hydraulic pile driving methods, sonic pile drivers, auger cast-in-place, variable speed vibratory, micro-piling, or drilled-displacement), as feasible; and/or as needed to meet established criteria.</li> <li>○ Ensure appropriate excavation shoring methods to prevent the movement of adjacent structures.</li> </ul> </li> <li>● <b>Alternative Construction Equipment and Techniques.</b> The plan shall identify potential alternative equipment and techniques that</li> </ul>				

	Monitoring and Reporting Program		Monitoring and Reporting Program	
Adopted Mitigation Measure	Implementation Responsibility	Mitigation Schedule	Monitoring/Reporting Responsibility	Monitoring Actions/Completion Criteria
<p>could be implemented if construction vibration levels are observed in excess of the established standard (e.g., drilled shafts [caissons] could be substituted for driven piles, if feasible, based on soil conditions, or smaller, lighter equipment could be used in some cases).</p> <ul style="list-style-type: none"> <li>● <b>Pile Driving Requirements.</b> If pile driving is deemed necessary, the SFPUC shall incorporate into construction specifications for the project a requirement that the construction contractor(s) use all feasible means to avoid or reduce damage to potentially affected buildings). Such methods may include one or more of the following: <ul style="list-style-type: none"> <li>○ Incorporate non vibratory shoring methods and/or “quiet” pile-driving technologies into project construction (such as pre-drilled shafts drilled shafts, hydraulic pile driving methods, sonic pile drivers, auger cast-in-place, variable speed vibratory, micro-piling, or drilled displacement), as feasible; and/or as needed to meet established criteria.</li> <li>○ Ensure appropriate excavation shoring methods to prevent the movement of adjacent structures.</li> </ul> </li> <li>● <b>Vibration Monitoring.</b> The plan shall identify the method and equipment for vibration monitoring to ensure that construction vibration levels do not exceed the established standards identified in the plan. <ul style="list-style-type: none"> <li>○ Should construction vibration levels be observed to meet or exceed the criteria established in the plan, the contractor(s) shall halt the vibration-generating construction activity causing the exceedance and put alternative construction techniques identified in the plan into practice.</li> <li>○ If vibration has damaged nearby buildings and/or structures that are not historic, a qualified professional shall prepare a damage report documenting the features of the building and/or structure that has been damaged.</li> <li>○ If vibration has damaged nearby buildings and/or structures that are historic, the historic preservation consultant shall immediately notify the ERO and prepare a damage report documenting the features of the building and/or structure that has been damaged.</li> </ul> </li> </ul>				

Adopted Mitigation Measure	Implementation Responsibility	Monitoring and	Reporting Program	Monitoring Actions/ Completion Criteria
		Mitigation Schedule	Monitoring/Reporting Responsibility	
<ul style="list-style-type: none"> <li>• <b>Repair Damage.</b> The plan shall also identify provisions to be followed should damage to any building and/or structure occur due to construction-related vibration. The building(s) and/or structure(s) shall be remediated to their preconstruction condition (as allowed by property owners) at the conclusion of vibration-generating activity on the site and, for historical buildings, remediated in compliance with Secretary of the Interior’s Standards for the Treatment of Historic Properties, in consultation with the qualified historic preservation professional and planning department preservation staff.</li> <li>• <b>Vibration Monitoring Results Report.</b> After construction is complete, SFPUC shall submit to the ERO or the ERO’s designee a final report documenting the monitoring records, building and/or structure condition summaries, descriptions of all instances of vibration level exceedance, identification of damage incurred due to vibration, and corrective actions taken to restore damaged buildings and structures.</li> </ul>				
<b>PALEONTOLOGICAL RESOURCES</b>				
<p><b>Mitigation Measure M-GE-6: Inadvertent Discovery of Paleontological Resources during Construction</b></p> <p><b>Worker Awareness Training.</b> Prior to commencing construction, and ongoing throughout ground-disturbing activities (e.g., excavation, utility installation), the SFPUC shall engage a qualified paleontologist meeting the standards specified by the Society of Vertebrate Paleontology (Society of Vertebrate Paleontology 2010) to train all project construction workers regarding how to recognize paleontological resources and on the contents of the paleontological resources alert sheet, as provided by the planning department. The paleontological resources alert sheet shall be prominently displayed at the construction site during ground-disturbing activities for reference regarding potential paleontological resources. In addition, the SFPUC shall inform the contractor and construction personnel of the immediate stop work procedures and other procedures to be followed if bones or other potential fossils are unearthed at the project site. Should new workers that will be involved in ground-disturbing construction activities begin employment after the initial training has occurred, the construction supervisor shall ensure that they receive the worker awareness training as described above.</p>	<p>1. SFPUC EMB</p> <p>2. SFPUC CM Team (qualified paleontologist and/or materials prepared by qualified paleontologist)</p> <p>3. SFPUC CM Team</p>	<p>1. Design</p> <p>2. Construction, prior to ground-disturbing activities</p> <p>3. Construction</p>	<p>1. SFPUC EMG</p> <p>2. SFPUC EMG</p> <p>3. SFPUC EMG, ERO</p>	<p>1. Ensure contract documents include requirements for all construction personnel to attend training measures applicable to inadvertent discoveries.</p> <p>2. Monitor that personnel attend training prior to beginning work and sign training sign-in sheet. Maintain file of signature sheets.</p> <p>3. In the event of a potential discovery, ensure contractor</p>

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<p><b>Paleontological Resource Discoveries.</b> In the event of the discovery of an unanticipated paleontological resource during project construction, ground-disturbing activities shall temporarily be halted within 25 feet of the find until the discovery is examined by a qualified paleontologist as recommended by the Society of Vertebrate Paleontology standards (Society of Vertebrate Paleontology 2010) and best practices in mitigation paleontology (Murphey et al. 2019). The paleontologist shall consult the ERO. Work within the sensitive area shall resume only when deemed appropriate by the qualified paleontologist in consultation with the ERO.</p> <p>The qualified paleontologist shall determine 1) if the discovery is scientifically significant; 2) the necessity for involving other responsible or resource agencies and stakeholders, if required or determined applicable; and 3) methods for resource recovery. If a paleontological resource assessment results in a determination that the resource is not scientifically important, this conclusion shall be documented in a paleontological evaluation letter to demonstrate compliance with applicable statutory requirements (e.g., Federal Antiquities Act of 1906, CEQA Guidelines section 15064.5, Public Resources Code Chapter 17, section 5097.5, Paleontological Resources Preservation Act 2009). The paleontological evaluation letter shall be submitted to the ERO for review within 30 calendar days of the discovery.</p> <p>If in consultation with the ERO the qualified paleontologist determines that a paleontological resource is of scientific importance, the qualified paleontologist shall make a recommendation as to what action, if any, is warranted and prepare a paleontological mitigation program. The mitigation program shall include measures to fully document the resource of scientific importance. It shall include: 1) procedures for construction monitoring at the project site; 2) fossil preparation and identification procedures; 3) curation of paleontological resources of scientific importance into an appropriate repository; and 4) preparation of a Paleontological Resources Report (report or paleontology report) at the conclusion of ground-disturbing activities. The qualified paleontologist shall submit the mitigation program to the ERO for review and approval within ten business days of the discovery.</p> <p>To avoid construction delays, fully exposed fossils will be immediately removed by the paleontologist to the extent feasible. Consistent with the</p>	4. SFPUC CM Team (qualified paleontologist)	4. Construction	4. SFPUC EMG, ERO	suspends activities within 25 feet are temporarily halted, notify the ERO, and mobilize a qualified paleontologist.
	5. SFPUC CM Team (qualified paleontologist)	5. Construction	5. SFPUC EMG, ERO	4. Qualified paleontologist to evaluate the find and advise ERO as to the significance of the discovery. If not significant, work may resume once approved by the ERO.
	6. SFPUC CM Team (qualified paleontologist)	6. Construction	6. SFPUC EMG	5. If the discovery is significant, Prepare and submit Paleontological Mitigation Program Plan to the ERO within 10 business days of the discovery for review and approval.
	7. SFPUC CM Team (qualified paleontologist)	7. Construction	7. SFPUC EMG, ERO	6. Monitor implementation of Paleontological Mitigation Program.
				7. Prepare and submit a Paleontological Mitigation Results Report to the ERO within 30 business of the conclusion of ground-disturbing activities, or as

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<p>Society of Vertebrate Paleontology 2010 guidelines, samples of the soil matrix where the discovery occurred may need to be removed from the project site and processed elsewhere. Mitigation required by this measure could suspend construction within an appropriate buffer zone around a discovered paleontological resource or area for up to a maximum of four weeks. At the direction of the ERO and in coordination with the SFPUC, the suspension of construction may be extended beyond four weeks for a reasonable time required to implement appropriate mitigation only if such a suspension is the only feasible means to reduce potential effects on a significant paleontological to a less-than-significant level.</p> <p>Upon approval by the ERO, ground-disturbing activities in the project area shall resume and be monitored as determined by the qualified paleontologist for the duration of such activities.</p> <p>The paleontology report shall include dates of field work, results of monitoring, fossil identifications to the lowest possible taxonomic level, analysis of the fossil collection, a discussion of the scientific significance of the fossil collection, conclusions, locality forms, an itemized list of specimens, and a repository receipt from the curation facility. The SFPUC shall be responsible for the preparation and implementation of the mitigation program, in addition to any costs necessary to prepare and identify collected fossils, and for any curation fees charged by the paleontological repository. The paleontology report shall be submitted to the ERO for review within 30 business days from conclusion of ground-disturbing activities, or as negotiated following consultation with the ERO.</p>				negotiated with the ERO for review and approval.

NOTES:

<sup>a</sup> Definitions of MMRP Column Headings:

*Adopted Mitigation and Improvements Measures:* Full text of the mitigation measure(s) copied verbatim from the final CEQA document.

*Implementation Responsibility:* Entity who is responsible for implementing the mitigation measure. In most cases this is the SFPUC and/or project's sponsor's contractor/consultant and at times under the direction of the planning department.

*Mitigation Schedule:* Identifies milestones for when the actions in the mitigation measure need to be implemented.

*Monitoring/Reporting Responsibility:* Identifies who is responsible for monitoring compliance with the mitigation measure and any reporting responsibilities. In most cases it is the planning department who is responsible for monitoring compliance with the mitigation measure. If a department or agency other than the planning department is identified as responsible for monitoring, there should be an expressed agreement between the planning department and that other department/agency. In most cases the SFPUC, their contractor, or consultant are responsible for any reporting requirements.

*Monitoring Actions/Completion Criteria:* Identifies the milestone at which the mitigation measure is considered complete. This may also identify requirements for verifying compliance.

Acronyms Used in Table:

ERO = SF Planning Department) Environmental Review Officer

SFPUC = San Francisco Public Utilities Commission

SFPUC EMB = Engineering Management Bureau

SFPUC CM Team = Construction Management Team

SFPUC EMG = Environmental Management Group

SFPUC PMB = Project Management Bureau

MM = Mitigation Measure

TCRPIP = Tribal Cultural Resources Interpretive Program

ARDP = Archeological Data Recovery Plan

ARR = Archeological Resources Report

TCRPP = Tribal Cultural Resources Preservation Plan

CRPIP = Cultural Resources Public Interpretation Plan

NAHC = Native American Heritage Commission

AMTRR = Archeological Monitoring or Testing Result Report

ARPP = Archeological Resource Preservation Plan

MLD = Most Likely Descendant

NWIC = Northwest Information Center