National Park Service
U.S. Department of the Interior

Yosemite National Park
Yosemite, California

Bridalveil Fall Rehabilitation

Environmental Assessment

Appendices

February 2018

APPENDIX A
DRAFT WILD AND SCENIC RIVERS ACT SECTION 7 DETERMINATION
BRIDALVEIL FALL REHABILITATION PROJECT

This document evaluates the proposed action (Alternative 3) in the *Bridalveil Fall Rehabilitation Environmental Assessment* (*Bridalveil Fall EA*) in terms of Section 7 of the Wild and Scenic Rivers Act (WSRA), a key provision that aims to protect the free-flowing condition of designated rivers. The authority for this determination is found in Public Law 90-542, as amended, 16 United States Code (USC) 271-1278. WSRA Section 7 requires managing agencies to conduct a rigorous and consistent process to protect the free-flowing condition of the Merced River when a proposed *water resources project*[1] triggers a review.

Two actions under Alternative 3 of the Bridalveil Fall EA would be located within the bed and banks of Bridalveil Creek, a tributary to the Merced Wild and Scenic River. These actions are: (1) enlarge a viewing platform to 1,500 square feet (sq ft), and (2) add a new accessible loop trail from the parking lot to a viewing platform. This document evaluates these actions for their potential to invade the Merced Wild and Scenic River corridor or diminish scenic, recreational, fish, or wildlife values present on the day of designation (WSRA§7(b). These standards apply to tributaries of a wild and scenic river per WSRA§7(b).

PROJECT DESCRIPTION

A complete description of Alternative 3 (Preferred Alternative) is presented in Chapter 2 of the *Bridalveil Fall EA*. The following section summarizes the key features of the preferred alternative within the bed and banks of Bridalveil Creek, a tributary to the Merced Wild and Scenic River.

Actions within the Bed and Banks of Bridalveil Creek

Existing Viewing Platform. The park would expand the existing viewing platform from about 400 sq ft to about 1,500 sq ft to reduce crowding as directed in the *Merced Wild and Scenic River Comprehensive Management Plan Environmental Impact Statement* and *Record of Decision* (*Merced River Plan*)(NPS 2014). Part of the existing platform is located within the bed and banks of Bridalveil Creek (about 175 sq ft) (Figure 2-9 in the *Bridalveil Fall EA*). The existing portion of the platform would be overlaid with smooth material. The overlay would be 4 to 18 inches deep, depending on the contours of the existing platform surface. Bridalveil Creek does not reach the viewing platform at low flows. The new expanded portion of the viewing platform would occur outside of the bed and banks of Bridalveil Creek.

New Accessible Pedestrian Loop Trail. The park would construct a new accessible pedestrian loop trail from the parking lot to a viewing platform (Figure 2-3 in the *Bridalveil Fall EA*). Most of the trail would be located in upland areas. Portions of the pedestrian trail would be elevated to cross an intermittent wetland stream channel and the piers to support the elevated portions would likely need to be placed within the intermittent wetland channel. The park considered options to hang the elevated portions of the trail from nearby boulders rather than install support piers, but rejected the idea because of concerns that the trail would not be compatible with the Yosemite Valley Historic District and Yosemite Design Guidelines (NPS 2011). The park's traditionally associated American Indian tribes and groups also did not support the idea of hanging the trail from boulders. The park

[1] A water resources project is any dam, water conduit, powerhouse, transmission line, or other works project under the Federal Power Act, or other developments, that would affect the free-flowing character of a wild and scenic or congressionally authorized study river. In addition to projects licensed by the Federal Energy Regulatory Commission, water resources project may include dams, water diversions, fisheries habitat and watershed restoration, bridges and other roadway construction/reconstruction projects, bank stabilization projects, channelization projects, levee construction, boat ramps, fishing piers, and activities that require a section 404 permit from the U.S. Army Corps of Engineers (Clean Water Act Section 404).

also considered a completely ground-based trail alternative with causeways through the drainage channel. The park rejected this option was because it would divert natural water flows and direct them through culverts, and a large amount of ground disturbance would be required in a relatively pristine environment.

Actions Outside the Bed and Banks of Bridalveil Creek

Comfort Station and Parking Lot. The existing comfort station with four vault toilets at the parking lot would be replaced with a new comfort station with flush toilets (14 stalls) in the same general area. Utilities to service the comfort station would connect to the main lines at Northside Drive near Pohono Bridge, requiring approximately 1 mile of trenching or directional drilling in Wawona Road/Southside Drive. The northeast end of the parking lot would be raised a maximum of 18 inches and damaged culverts and headwalls would be reconstructed.

The existing parking lot footprint would be reorganized to gain 20 to 24 parking spaces (about 80 total spaces including four accessible spaces). There would be a separate entrance and exit road into the parking lot

Trails, Bridges, and Viewing Areas. Crews would selectively clear trees from new and existing viewpoints to enhance views. All new trails and pathways would be constructed to meet accessibility standards. . The existing trailhead at the parking lot would be moved a short distance to minimize ponding during high water events. A short boardwalk on the east side of the parking lot would be constructed over the drainage area to connect with the new gathering and viewing area.

Bridalveil Straight. The park would designate a commercial tour bus parking area on the south side of Southside Drive between the intersection of Wawona Road and the east end of Bridalveil Straight. This area was formerly ad hoc tour bus and private vehicle parking. A gathering area with views of Bridalveil Fall and El Capitan, approximately 2,700 sq ft in size, would be added on the south side of Southside Drive. Less than 10 trees would be selectively removed to enhance the view of El Capitan.

ANALYSIS

The effects of the proposed water resources actions within the Merced River corridor are outlined in Table A-1.

TABLE A-1 EFFECTS OF PROPOSED WATER RESOURCES ACTIONS UNDER THE PREFERRED ALTERNATIVE (ALT 3)

Expanded Viewing Platform	Elevated Portions of New Pedestrian Trail
Potential for Actions to Invade the Merced Wild and Scenic River	
The new expanded portion of the viewing platform would not extend into the bed and banks of Bridalveil Creek, which is a tributary to the Merced River, but a small portion of the *existing* platform extends into the Bridalveil Creek channel. Creek flows do not reach the existing platform at low flows. During moderate and high flows, the platform would not substantially impact flows in Bridalveil Creek more than the existing boulders and trees in the very rough alluvial fan environment. Impacts to flows of the Merced River would be imperceptible.	The insertion of piers into an intermittent stream channel to support elevated portions of the new pedestrian trail will have no effect on the main Merced River. The channel is part of the braided Bridalveil Creek drainage system that flows during moderate to high flows. Water displacement caused by support piers will be insignificant in Bridalveil Creek as well as the Merced River.
Effects on Scenic Values - Scenic values, as specified for Segment 2B in the *Merced Wild and Scenic River Comprehensive Management* Plan (MRP)(NPS 2014), are views of the world's most iconic scenery, with the river and meadows forming a placid foreground to towering cliffs and waterfalls (ORV 16) (MRP page 5-4) . To protect and enhance scenic values in this river segment, new development should harmonize with its surrounding landscape (MRP pages 5-111 to 5-116).	
The viewing platform would be compatible with the Yosemite design guidelines (NPS 2011) and the surrounding landscape. The expanded viewing platform would not result in reduced viewing quality as it will not silhouette or block views of Bridalveil Fall.	The elevated portions of the new pedestrian trail would be compatible with the Yosemite design guidelines (NPS 2011) and the surrounding landscape. The trail would not would not silhouette or block views of Bridalveil Fall or result in reduced scenic quality.
Effects on Recreational Values – Recreational values in Segment 2B of the Merced River corridor are a wide variety of river-related recreational activities in the Valley's extraordinary setting along the Merced River (ORV 20 Merced River Plan pg. 5-4). In Segment 2B, recreational values include the ability for people of all ages and abilities to immerse themselves in their surroundings and take in the sights, sounds, and feel of the river and its dramatic backdrop (MRP page 5-130). To protect and enhance recreational values, the park must provide for a diversity of high quality river-related recreational opportunities that allow visitors to directly connect with the river and its environs amidst the spectacular scenery of Yosemite Valley (MRP page 5-130). The MRP commits to redesign access and provide less crowded conditions (MRP page 5-138).	
Expansion of the viewing platform will address crowded conditions and high "site displacement values" described in the MRP (page 5-137 to 5-138). Viewing Bridalveil Fall, often surrounded by mist from the fall, embodies the goal of providing recreational opportunities that directly connect with the river and its environs.	Addition of an accessible trail with elevated portions follows direction in the *Merced River Plan* to redesign access and improve crowded conditions in the Bridalveil Fall area (MRP page 5-138). The trail route will allow visitors to immerse themselves and directly connect with the natural beauty of the Bridalveil Fall environment.

TABLE A-1 EFFECTS OF PROPOSED WATER RESOURCES ACTIONS UNDER THE PREFERRED ALTERNATIVE (ALT 3)

Expanded Viewing Platform	Elevated Portions of New Pedestrian Trail
Effects on Wildlife and Fish Values – Wildlife and fisheries values fall under the biological values specified in segment 2B of the Merced River (MRP page 3 5-3). Biological values include the meadows and riparian communities of Yosemite Valley that comprise one of the largest mid-elevation meadow-riparian complexes in the Sierra Nevada (ORV 2)**.**	
Expansion of the viewing platform would have short-term construction related effects on wildlife related to noise and equipment. Mitigation measures would protect Bridalveil Creek from erosion-related issues. In the long-term, the action would not affect the meadows and riparian communities of Yosemite Valley and there would be no riparian resources affected by expansion of the platform.	Construction of elevated portions of a new pedestrian trail would have short-term construction related effects on wildlife related to noise and equipment. The action would not affect the meadows and riparian communities of Yosemite Valley, and riparian resources would not be affected by trail construction. There would be no effect on fisheries as the intermittent channel is completely dry for most of the year with no ponding.

SECTION 7 DETERMINATION

The *Bridalveil Fall EA* includes actions to: (1) enlarge the existing viewing platform to 1,500 sq. feet, and (2) add a new accessible loop trail from the parking lot to the existing platform. These actions are consistent with management goals to protect and enhance the Merced Wild and Scenic River. These actions would not invade the Merced Wild and Scenic River or diminish the scenic, recreational, fish, or wildlife values present on the day of Merced Wild and Scenic River designation.

_____

Superintendent Date

_____

Regional Director Date

References

IWSRCC
2004 Wild and Scenic Rivers Act: Section 7 Technical Report.

NPS
2011 A Sense of Place: Design Guidelines for Yosemite National Park.

2014 *Merced Wild and Scenic River Final Comprehensive Management Plan and Environmental Impact Statement* (MRP).

APPENDIX B
MITIGATION MEASURES

The National Park Service places a strong emphasis on avoidance, minimization, and mitigation of impacts. To help ensure that field activities protect natural, cultural, and social resources and the quality of the visitor experience, mitigation measures have been developed. The following section discusses mitigation measures that would occur prior to, during, and after construction of specific management actions.

The majority of the project area is in the Merced Wild and Scenic River corridor (with the exception of the existing viewing platform). This table consists of relevant mitigation measures from the Merced River Plan Final Environmental Statement and Finding of No Significant Impact as well as additional mitigation measures added for this specific project. Added mitigation measures are in italics.

Topic	Mitigation Measure	Responsibility
GENERAL CONSTRUCTION MANAGEMENT MEASURES		
MM-GCM-1 General Construction Management	All Contractor and subcontractor employees shall receive a brief orientation about working in Yosemite National Park and the El Portal Administrative Site prior to performing work. The orientation describes the efforts to be taken by the Contractor and subcontractor employees to protect the natural, cultural, and physical resources of YNP while working on this and other projects. This orientation also describes mitigation and other environmental protection measures that must be adhered to at all times while in the Park. All contractor and subcontractor employees shall view a government provided orientation video to ensure each is fully aware of the natural and cultural resource protection and mitigation requirements of work at YNP, or in the El Portal Administrative Site. Government staff will provide the initial orientation. Subsequent on-going awareness orientation for new employees and when site conditions change shall be performed by contractor and integrated into construction operation procedures. The Contractor shall maintain a manifest tracking all contractor personnel, when they received their orientation training, and when they started work. Contractor personnel shall be field identifiable as having received their orientation training by means of a readily visible sticker on their hard hat. Prior to entry into the park, Contractor shall steam-clean heavy equipment to prevent importation of non-native plant species, tighten hydraulic fittings, ensure hydraulic hoses are in good condition and replace if damaged, and repair all petroleum leaks. Inspect the project to ensure that impacts stay within the parameters of the project area and do not escalate beyond the scope of the environmental assessment, as well as to ensure that the project conforms with all applicable permits or project conditions. Store all construction equipment within the delineated work limits. Contractor shall also confine work areas within creek channels to the smallest area necessary. If deemed necessary, demolition/construction work on weekends or federal government holidays may be authorized, with prior written approval of the Superintendent. Contractor shall remove all tools, equipment, barricades, signs, surplus materials, and rubbish from the project work limits upon project completion. Contractor shall repair any asphalt surfaces that are damaged due to work on the project to original condition. Contractors shall also remove all debris from the project site, including all visible concrete, timber, and metal pieces. The park shall develop a Communications Strategy Plan to alert necessary park and Concessioner employees, residents and visitors to pertinent elements of the construction work schedule. The Contractor shall provide protective fencing enclosures around construction areas, including utility trenches to protect public health and safety.	Yosemite National Park; Contractor

Topic	Mitigation Measure	Responsibility
MM-GCM-1 General Construction Management (cont.)	The NPS will apply for and comply with all federal and state permits required for construction-related activities. Contractor and NPS shall implement compliance monitoring to ensure that the project remains within the parameters of National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA) compliance documents. Develop an emergency notification plan that complies with park, federal, and state requirements and allows contractors to properly notify park, federal, and/or state personnel in the event of an emergency during construction activities. This plan will address notification requirements related to fire, personnel, and/or visitor injury, releases of spilled material, evacuation processes, etc. The emergency notification plan will be submitted to the park for review/approval prior to commencement of construction activities. Identify locations of existing utilities prior to removal activity to prevent damage to utilities. The Underground Services Alert and NPS maintenance staff will be informed 72 hours prior to any ground disturbance. Construction-related activities will not proceed until the process of locating existing utilities is completed (water, wastewater, electric, communications, and telephone lines). An emergency response plan will be required of the contractor.	
MM-GCM-2 Design	In accordance with the National Park Service's Denver Service Center's Workflows, the standard business practices outlining the requirements for general, predesign, schematic design, design development, and construction documents shall be followed (www.nps.gov/dscw/design.htm)	National Park Service
MM-GCM-3 Construction	In accordance with the most current version of Yosemite National Park's Division 1 Specifications (also referred to as General Requirements for Construction), the standard business practices outlining the requirements for Summary of Work; Seismic Requirements; Definition of Bid Items; Project Meetings; Critical Path Method Construction Schedule; Project Schedules (small and large projects); Submittal Procedures; Submittals; Natural, Cultural, and Physical Resources Protection; Storm Water Pollution Prevention Measures; Accident Prevention; Reference Standards; Contractor Quality Control; Temporary Services and Controls; Field Support Offices; Traffic Control; Product Substitutions and Variations; Material and Equipment Handling and Storage; Field Engineering; Project Closeout; Operation and Maintenance Data; and, System Start, Demonstration and Training shall be incorporated into all construction requirements documents (plans and specifications).	National Park Service
MM-GCM-4 Yosemite National Park Design Guidelines	*A Sense of Place: Design Guidelines for Yosemite National Park* shall be followed to ensure that park facilities are designed to be compatible with the existing resources.	National Park Service
MM-GCM-5 Design Approvals	All final construction documents (plans and specifications) will be approved by the Park Superintendent prior to implementation.	National Park Service
MM-GCM-6 Pre-Construction	In accordance with the National Park Service's Denver Service Center's Workflows, the standard business practices outlining the requirements for a SharePoint Project Website, Permits, Accident Prevention & Blasting Safety Plans, Division 01 Management Plans, Baseline Construction Schedule, the Schedule of Values and the Pre-Construction Conference shall be followed (www.nps.gov/dscw/design.htm).	National Park Service
MM-GCM-7 Construction	In accordance with the National Park Service's Denver Service Center's Workflows, the standard business practices outlining the requirements for Submittals, Coordination, Documentation, Tracking, Modifications, Beneficial Occupancy & Milestone Inspections, Closeout Submittals, and Substantial Completion shall be followed (www.nps.gov/dscw/design.htm).	National Park Service
MM-GCM-8 Post-Construction	In accordance with the National Park Service's Denver Service Center's Workflows, the standard business practices outlining the requirements for the Construction Contractor's Performance Evaluation, Draft Completion Reports (Fixed Assets), and Demobilizing Field Office (s) shall be followed (www.nps.gov/dscw/design.htm).	National Park Service
MM-GCM-9 Pre-Construction and Construction	Design the utility trench and directional drilling to allow subsurface flows to continue unimpeded, without creating an underground dam. Do not allow asphalt as backfill material.	National Park Service
MM-GCM-10 Construction timing	The National Park Service will limit the operating period for construction to daylight hours.	Yosemite National Park; Contractor

Topic	Mitigation Measure	Responsibility
SOILS AND GEOHAZARDS		
MM-GEO-1 Soils Management	The Contractor shall confine all earth moving activities to within the work limits as defined in the site plans. The displacement of soil or other materials outside the defined limits shall be approved by the contracting officer. Landscape: Land forms and other landscape features indicated and defined on the drawings to be preserved shall be clearly identified by marking, fencing, or other approved techniques. The Contractor shall restore landscape features damaged or destroyed during construction operations outside the limits of the approved work area. Topsoil shall be salvaged and placed in a separate location from sub-soils and replaced on top of other soils as the trench is backfilled. The location for stock piling soils and other woody materials shall be approved by the contracting officer. Fungal Pathogens In Soil (Root Rot): Fungal pathogens that have negative impacts on oaks and conifers are present in certain areas in Yosemite Valley. Soil infected with these pathogens shall not be imported into areas that are free of the pathogens. If construction drawings indicate that infected soil is present in the work site, the following procedures must be followed: • Ensure that infected soil is stored within the construction zone. Should infected soils be stockpiled outside of the construction zone, ensure that stockpiles are placed outside of areas that do not have the fungal pathogen. Protect stockpiles of infected soil to prevent transport by wind, water, animal, or human traffic. • Clean equipment buckets and tires or hand tools used in areas containing fungal pathogens before moving to or working in unaffected areas. • Whenever possible, all stumps shall be removed from excavations and disposed of in a legal manner outside of the Yosemite National Park boundary. • Stump treatment when stumps cannot be removed: The treatments following tree removal must be universal throughout the park to avoid inadvertently spreading infection. Eradication of the disease is not possible, but spread can be managed. • Conifers: Treat all stumps (>6 inches in diameter in recreational use areas, >12 inches diameter in undeveloped areas) with Sporax within a few days of felling the tree. If a stump is ground, it must be treated with Sporax, and then covered with soil. If the stump is removed, no chemical treatment is required. Remove all of the root material >3 inches in diameter. Standing trees that have been dead for less than one year must have stumps treated with Sporax once they are removed. • Deciduous oaks should be left whenever possible; if the tree must be cut, the entire stump and root system must be removed from the Park. • Disturb no more than 15 percent of the roots for any given tree. • Do not over-water oak trees. • Do not compact soil within drip lines of the tree. • Treatment of infected soils: Remove root material by sifting or sorting soil before backfilling. • Treatment of soils in an annosus zone. Only infected *Hederobisidion annosum* areas need to be treated for removal of root material. Standard specification for roots to be removed from disturbed soil: >3 inches diameter or >20 inches in length. Remove ALL stumps from excavation. • Do not move soil from infected areas. • Topsoil shall be salvaged and reused in the same place from which it was excavated. If the soil is to be windrowed and used later, it should be sorted for root chunks prior to storage. Conserve and salvage topsoil for reuse. Materials will be reused to the maximum extent possible • All disturbed soil and fill slopes shall be stabilized in a manner consistent with the provisions of Mitigation Measure MM-HYD-1 (see below).	Yosemite National Park; Contractor

Topic	Mitigation Measure	Responsibility
HYDROLOGY AND WATER QUALITY		
MM-HYD-1 Stormwater Pollution Prevention Plan	Contractor shall prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) that designates construction best management practices to be used to control the sources of fine sediment and to capture and filter it before entering the river. The SWPPP shall define the characteristics of the site, identify the type of construction that will be occurring, and describe the practices that will be implemented to control erosion and the release of pollutants in stormwater. At a minimum, the SWPPP shall address the following, as applicable: ***Stabilization Practices*** • The stabilization practices to be implemented shall specify the intended stabilization practices, which may include one or more of the following: temporary seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, erosion control mats, protection of trees, preservation of mature vegetation, etc. On the daily Contractor Quality Control (CQC) Report, the Contractor shall record the dates when the major grading activities occur, (e.g., clearing and grubbing, excavation, embankment, and/or grading); when construction activities temporarily or permanently cease on a portion of the site; and when stabilization practices are initiated. Unless otherwise directed by the Contracting Officer for the reasons below (i.e., unsuitable conditions or no activity for less than 21 days), stabilization practices shall be initiated as soon as practicable, in any portion of the site where construction activities have temporarily or permanently ceased, but no more than 14 calendar days after the activities cease. • Unsuitable Conditions - Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceases is precluded by unsuitable conditions caused by the weather, stabilization practices shall be initiated as soon as practicable after conditions become suitable. No Activity for Less Than 21 Days - Where construction activity will resume on a portion of the site within 21 days from when activities ceased (e.g., the total time period that construction activity is temporarily ceased is less than 21 days), then stabilization practices do not have to be initiated on that portion of the site by the 14th day after construction activity temporarily ceased. ***Structural Practices*** • The Contractor shall implement structural practices to divert flows from exposed soils, temporarily store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Structural practices shall be implemented in a timely manner during the construction process to minimize erosion and sediment runoff. Location and details of installation of structural practices shall be depicted on the construction drawings. ***Silt Fences*** • The Contractor shall provide silt fences as a temporary structural practice to minimize erosion and sediment runoff. Silt fences shall be properly installed to effectively retain sediment immediately after completing each phase of work where erosion would occur in the form of sheet and rill erosion (e.g. clearing and grubbing, excavation, embankment, and grading). Silt fences shall be installed in the locations indicated on the drawings or as needed based on Contractor operations. Final removal of silt fence barriers shall be upon approval by the Contracting Officer. Silt fences shall extend a minimum of 16 inches above the ground surface and shall not exceed 34 inches above the ground surface. Filter fabric shall be from a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are unavoidable, filter fabric shall be spliced together at a support post, with a minimum 6-inch overlap, and securely sealed. A trench shall be excavated approximately 4 inches wide and 4 inches deep on the upslope side of the location of the silt fence. The 4-inch by 4-inch trench shall be backfilled and the soil compacted over the filter fabric. Silt fences shall be removed upon approval by the COR. ***Straw Bales*** • Straw bales are not authorized for use in storm water control at YNP. They have the potential to introduce exotic species into the Park environment.	Contractor

<table>
<tr><th>Topic</th><th>Mitigation Measure</th><th>Responsibility</th></tr>
<tr><td>MM-HYD-1
Stormwater Pollution Prevention Plan (cont.)</td><td>
Diversion Dikes
Diversion dikes shall have a maximum channel slope of 2 percent and shall be adequately compacted to prevent failure. The minimum height measured from the top of the dike to the bottom of the channel shall be 18 inches. The minimum base width shall be 6 feet and the minimum top width shall be 2 feet. The Contractor shall ensure that the diversion dikes are not damaged by construction operations or traffic. Diversion dikes shall be located as shown on the drawings or as needed based on Contractor operations. Location of diversion dikes shall be fully coordinated with cultural and natural environmental protection requirements described in Section 01355, Natural, Cultural, and Physical Resources Protection.
Filter Fabric
The geotextile shall comply with the requirements of ASTM D 4439, and shall consist of polymeric filaments that are formed into a stable network such that filaments retain their relative positions. The filament shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of ester, propylene, or amide, and shall contain stabilizers and/or inhibitors added to the base plastic to make the filaments resistance to deterioration due to ultraviolet and heat exposure. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life at a temperature range of 0 to 120 degrees F. The filter fabric shall meet the following requirements:
FILTER FABRIC FOR SILT SCREEN FENCE
<table>
<tr><th>Physical Property</th><th>Test Procedure</th><th>Strength Requirement</th></tr>
<tr><td>Grab Tensile</td><td>ASTM D 4632</td><td>100 lbs. min.</td></tr>
<tr><td>Elongation (%)</td><td></td><td>30 % max.</td></tr>
<tr><td>Trapezoid Tear</td><td>ASTM D 4533</td><td>55 lbs. min.</td></tr>
<tr><td>Permittivity</td><td>ASTM D 4491</td><td>0.2 sec^{-1}</td></tr>
<tr><td>AOS (U.S. Std Sieve)</td><td>ASTM D 4751</td><td>20-100</td></tr>
</table>
Silt Fence Stakes and Posts
The Contractor may use either wooden stakes or steel posts for fence construction. Wooden stakes utilized for silt fence construction, shall have a minimum cross section of 2 inches by 2 inches when hardwood is used and 4 inches by 4 inches when softwood is used, and shall have a minimum length of 5 feet. Steel posts (standard "U" or "T" section) utilized for silt fence construction, shall have a minimum weight of 1.33 pounds per linear foot and a minimum length of 5 feet.
Identification Storage and Handling
Filter fabric shall be identified, stored and handled in accordance with ASTM D 4873.
Maintenance
The Contractor shall maintain the temporary and permanent vegetation, erosion and sediment control measures, and other protective measures in good and effective operating condition by performing routine inspections to determine condition and effectiveness, by restoration of destroyed vegetative cover, and by repair of erosion and sediment control measures and other protective measures. The following procedures shall be followed to maintain the protective measures.
Silt fences shall be inspected in accordance with the below paragraph, Inspections. Any required repairs shall be made promptly. Close attention shall be paid to the repair of damaged silt fence resulting from end runs and undercutting. Should the fabric on a silt fence decompose or become ineffective, and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits shall be removed when deposits reach one-third of the height of the barrier. When a silt fence is no longer required, it shall be removed with approval of COR. The immediate area occupied by the fence and any sediment deposits shall be shaped to an acceptable grade.
Diversion dikes shall be inspected in accordance with the below paragraph, Inspections. Close attention shall be paid to the repair of damaged diversion dikes and necessary repairs shall be accomplished promptly. When diversion dikes are no longer required, they shall be shaped to an acceptable grade.
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Topic	Mitigation Measure	Responsibility
MM-HYD-1 Stormwater Pollution Prevention Plan (cont.)	***Inspections*** • The Contractor shall inspect disturbed areas of the construction site, areas used for storage of materials that are exposed to precipitation that have not been finally stabilized, stabilization practices, structural practices, other controls, and area where vehicles exit the site at least once every 7 calendar days and within 24 hours of the end of any storm that produces 0.5 inches or more rainfall at the site. Where sites have been finally stabilized, such inspection shall be conducted at least once every month. • Disturbed areas and areas used for material storage that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the Storm Water Pollution Prevention Plan shall be observed to ensure that they are operating correctly. Discharge locations or points shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles exit the site shall be inspected for evidence of offsite sediment tracking. For each inspection conducted, the Contractor shall prepare a report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the Storm Water Pollution Prevention Plan, maintenance performed, and actions taken. The report shall be furnished to the COR within 24 hours of the inspection as a part of the Contractor's daily CQC Report. A copy of the inspection report shall be maintained on the job site.	
MM-HYD-2 Non-Hazardous Liquid Waste Management	Waste water from construction activities, such as onsite material processing, concrete curing, foundation and concrete clean-up, water used in concrete trucks, forms, etc. shall not be allowed to enter water ways or to be discharged prior to being treated to remove pollutants. The Contractor shall dispose of the construction related wastewater off Government property in accordance with all Federal, State, Regional and Local laws and regulations. Water contaminated with silt, grout, or other construction by-product must be pumped to a holding tank. Location of the holding tank will be proposed by Contractor and approved by Contracting Officer.	Contractor
MM-HYD-3 Hazardous Materials and Wastes	• Identify potentially hazardous substances to be used on the job site. • Identify handling procedures to ensure that hazardous substances are not released into the air, water, or ground. • Comply with Federal, State, and local laws and regulations for storage, handling, and disposal of these materials. • Storage of hazardous or flammable chemicals in the staging area or elsewhere on the site is prohibited except as approved by the Contracting Officer. • Hazardous materials shall not be discarded into the jobsite debris or waste-disposal facilities. • Empty containers shall be removed from the site and disposed of in a manner prescribed by law. • Used lubricants and used oil to be discarded shall be stored in marked corrosion-resistant containers and recycled or disposed in accordance with 40 CFR 279, State, and local laws and regulations. • A copy of the Material Safety Data Sheets (MSDS) and the maximum quantity of each hazardous material to be on site at any given time is to be maintained on site and submitted to the Contracting Officer. • Before new hazardous materials are brought on site or removed from the site, the MSDS file shall be updated and submitted to the Contracting Officer.	Contractor
MM-HYD-4 Spill Prevention and Response Plan (SPRP)	The California Regional Water Quality Control Board has issued a Cleanup and Abatement Order and Time Schedule Order to Yosemite National Park ordering that no sewage spills occur. The Contractor shall be required to follow the requirements of the Order and shall prepare a Spill Prevention and Response Plan (SPRP) and take appropriate spill prevention measures during all phases of the work. The California Regional Water Quality Control Board requires a minimum of 10 days to review the SPRP. All recommendations by the Board will be implemented at no additional cost to the NPS.	Contractor

Topic	Mitigation Measure	Responsibility
MM-HYD-4 Spill Prevention and Response Plan (SPRP) (cont.)	The primary purpose of the SPRP is to prevent sewage spills from occurring by proper planning and protection of the project area, and then to respond to any sewage spills that may occur during the course of this project including appropriate notification of staff. The Plan will be general in nature and typical to all phases of the work with site specific plans required for each area involving trenching or any work with the possibility of accessing the existing system. The sewer lines are located throughout Yosemite Valley and in close proximity to waterways and stream channels such that spilled sewage could possibly reach the Merced River. The SPRP is structured in two parts – first a Spill Prevention Plan and then a Spill Response Plan. The Spill Prevention Plan (SPP) includes evaluation of specific conditions, set-up of containment for actual construction work as well as for bypass pumping. Sewer bypasses must be constructed to tie existing lines into the new system and to tie the new system into the existing system. The Spill Response Plan (SRP) includes the initial response to stop and contain a spill, notification of staff, clean-up, and follow-up documentation. The SPP and the SRP together comprise the entire SPRP. A template of a plan follows at the end of this Section. An electronic version of this template will be provided to the successful bidder. All Contractor employees are required to be trained in the Spill Prevention Control in accordance with this SPRP.	
MM-HYD-5 Hazardous Materials Spill Prevention and Response Plan	Contractor shall provide a Hazardous Materials Spill Prevention and Response Plan to address spill prevention and response measures for hazardous substances used on site, including fuels. Prior to the start of work, the Contractor shall submit a plan that complies with YNP, Federal and State requirements and allows contractors to properly notify officials in the event of an emergency occurring during construction activities. YNP requirements include, and the plan shall state, at a minimum: • During non-work operations, stationary equipment shall be parked over specially prepared containment pads designed to trap any leaking oil, fuel, or hydraulic fluids. • Inspect construction site daily for proper storage of hazardous materials, proper parking of equipment on containment pads, and for hydraulic and oil leaks of equipment, tighten hoses, and ensure they are in good condition. • Routine oiling and lubrication shall be conducted in areas with secondary containment using Best Management Practices (BMPs) at all times. Refueling of equipment in wetlands or stream channel areas is not allowed at any time. • Contractor shall maintain secondary containment for all equipment operating with fluids (such as drilling) or when direct discharge of leakage, spills, or other source of construction or equipment fluids can flow directly to any streambed, whether flowing with water or dry. Containment shall be designed and installed so as to prevent accidental spills into streambeds in the event of mechanical failure or hose breakage. • Contractor shall maintain spill response materials on the project site when using heavy equipment to ensure rapid response to small spills. These materials shall include absorbent pads, booms, or other materials as appropriate to contain oil, hydraulic fluid, solvents, and hazardous material spills. A list of the spill response materials to be kept on site shall be submitted to the Contracting Officer. • Contractor shall provide names and phone numbers of appropriate contractor's personnel to be contacted at any time (24 hours per day) regarding accidental release of hazardous substances to air, soil or water. This list shall be submitted to the Contracting Officer and a copy visibly displayed in work areas on site. Contractor shall have the Contracting Officer's and other appropriate Government emergency numbers posted and shall immediately notify the Contracting Officer or other Government representative on any accidental release of hazardous substances to air, soil, or water. • Hazardous or flammable chemicals shall be prohibited from storage in the staging area, except for those substances identified in the Oil and Hazardous Materials Spill Prevention, Control, and Countermeasure Plan. Hazardous waste materials shall be immediately removed from project site in approved containers. Comply with all applicable regulations and policies during the removal and remediation of asbestos, lead paint, and polychlorinated biphenyls.	Contractor
MM-HYD-6 Establish Boundary of Riparian Buffer Zone	Prior to developing construction design documents for projects within the river corridor, the contractor shall survey the ordinary high water mark; the determination of the high water mark will be in accordance with U.S. Army Corps of Engineers guidance. Survey(s) of the ordinary high water mark will be used to determine the boundary of the riparian buffer. All new development shall be located outside of the riparian buffer, which encompasses the area within 150 feet of the ordinary high water mark on both sides of the river.	Contractor

Topic	Mitigation Measure	Responsibility
VEGETATION AND WETLANDS		
MM-VEG-1 Protection from Exotic Plant Species	The park and contractor shall undertake measures to prevent the introduction of exotic species in the project area and staging areas. All earth moving equipment must enter the Park free of dirt, dust, mud, seeds, or other potential contaminant. Equipment exhibiting any dirt or other material attached to frame, tires, wheels, or other parts shall be thoroughly cleaned by the Contractor before entering the Park. All equipment will be directed to the El Portal Maintenance Facility for inspection prior to commencing work. Areas inspected shall include, but not be limited to, tracks, track guard/housings, belly pans/under covers, buckets, rippers, and other attachments. Equipment that does not pass inspection will be turned around to the nearest cleaning facility outside the park. If vehicles are unable to drive to El Portal due to size or load restrictions, vehicles will be inspected at a mutually agreed site by the Contracting Officer prior to entering the Park. The Contractor shall notify the Construction manager at least two work days (not including weekends) prior to bringing any equipment into the Park. Equipment found to have entered the Park with potential contaminants will be removed from the Park at the direction of the Contracting Officer at Contractor's sole expense. Contractor shall minimize ground disturbance to the greatest extent possible. The contractor shall get approval in writing from the Contracting Officer for fill material that must be used in a way or stored in a location not clearly specified in the contract. Fill materials used within the top 12 inches of finished grade are required to be free of exotic and noxious weed species and shall have the source locations approved by the Contracting Officer. The Contractor shall submit to the Contracting Officer a list of proposed sources for imported fill materials requiring certification 30 calendar days in advance of importing material. The presence of noxious weed species is grounds for rejection of the source. If exotic weed species are found or suspected, the Contractor may be required to strip the top 12 inches of source material and only import sub-surface material and/or sterilize the material, at the Contracting Officer's discretion. The presence of the following particularly noxious weed species are grounds for rejection of the source: spotted knapweed, yellow star-thistle, perennial pepperweed, broom species, and other species on the California State List of Noxious Weeds. If spraying is required, the Contractor shall provide a licensed operator to spray according to applicable state regulations and park management guidelines (e.g., the Invasive Species Management Plan). The Contractor shall not spray any herbicides until approved in writing by the Contracting Officer. Drain and flush all pumps, tanks, live wells, buckets and other containers that might carry water contaminated with exotic plants and animals, such as the zebra mussel, prior to bringing equipment into the park. Thoroughly wash all hauling tanks and equipment using a hard spray from a garden hose. If equipment was used in infested waters, use the following steps to clean the equipment: • Wash with hot water (140 F or 40 C) or a high pressure washer (250 pounds per square inch). Remove all aquatic weeds -- they can carry zebra mussels. • Disinfect equipment. Recent research shows that disinfection of nets and equipment with benzalkonium chloride at typical treatment rates (10 milligrams per liter for 24 hours, 100 milligrams per liter for 3 hours, or 250 milligrams per liter for 15 minutes) will effectively eliminate most exotic animals. Two other commonly used disinfectants, calcium hypochlorite and iodine, are ineffective against zebra mussels. Adult zebra mussels can live more than a week out of water in moist, shaded areas. Dry pumps, nets and other equipment used in infested waters in the sun for two to four days after cleaning. If adult mussels are present, dry equipment for two weeks.	Yosemite National Park; Contractor
MM-VEG-2 Vegetation Inventory and Assessment	Plant Condition Inventory: The Contractor and the Contracting Officer or designated representative, shall perform an on-site inventory of trees and other overall vegetation features within or near to the work limits. A print of the contract drawings showing tree locations and a photo record will be used to note condition of trees and vegetation. This annotated drawing will be retained by the Contracting Officer for use during the final walk-through and tree/vegetation assessment. This walk through shall be a part of the project closeout requirements (see Section 01770, Project Closeout). On-site inventory shall be scheduled in coordination with the pre-construction conference.	Yosemite National Park; Contractor

Topic	Mitigation Measure	Responsibility
MM-VEG-2 Vegetation Inventory and Assessment (cont.)	Avoid construction, trenching, grading, paving, and staging within the drip line of valley oaks (*Quercus lobata)* and black oaks (*Quercus Keloggii*). If removal, damage or such activity cannot be avoided, contractor shall consult with the Park Botanist to develop a mitigation strategy prior to construction in addition to the measures outlined below. Access to work sites requiring travel through undeveloped areas outside the work limits must be approved by the contracting officer. Provide temporary barriers (e.g., orange construction fence) to protect existing trees, plants and critical root zones that are designated to remain, but are: (1) within the construction limits; 2) on or just outside the construction limits; (3) within the clearing limits (i.e., the zone extending 5 feet beyond the staked construction limits); or (4) on, or just outside the clearing limit line. Barriers shall be in place before construction begins. Trees, shrubs, vines, grasses, and other vegetative features indicated and defined on the construction drawings to be preserved shall be clearly identified by marking, fencing, or any other approved techniques. The Contractor shall restore vegetative features damaged or destroyed during construction operations outside the limits of the approved work area. Except in areas indicated on the drawings or specified to be cleared, the Contractor shall not remove, cut, deface, injure, or destroy resources including trees, shrubs, vines, grasses, topsoil, and landforms without approval. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. Removal of trees will be performed by YNP in advance of Contractor's work. Should it be determined during the course of work that additional trees or tree roots require removal, Contractor shall notify the Contracting Officer who will coordinate an inspection and determination by the appropriate authorities whether to remove the tree or not. After tree removal, large roots may remain in the ground. Contractor shall be responsible for carefully removing in-ground tree roots of removed trees to permit excavation, drilling, or other ground penetrating construction activities. During tree root removal, do not use backhoes, chains, or other equipment in a manner that will harm roots of adjacent trees. Minimize disturbance to tree trunks and root zones to prevent damage to trees. Adjust trenches and other excavations to keep them beyond the drip line wherever possible. Attempt to maintain the following minimum clearances between the edges of tree trunks and excavation**:** • for trees more than 30-inch-in-diameter - 10 feet • for trees between 15-inch and 30-inch-in-diameter - 8 feet • for trees less than 15-inch-in-diameter - 5 feet Adjust the survey line, as necessary to maintain required clearances. Notify the Contracting Officer of any proposed trenches or other excavations within the drip line of trees. Steps to Mitigate Damage to Roots Due to Excavation: Take steps (as called for below) to mitigate damage to tree roots due to excavation, wherever the following circumstances apply: • Wherever excavation must take place within the drip line of oak trees regardless of diameter. • Wherever excavation must take place within the drip line of trees other than oaks, for all trees 12 inches or larger in diameter. Adjustments in trench alignment or other factors may result in variations in which trees are affected. The Contractor shall accommodate these variations at no additional expense to the Government. Following are the steps which are required to mitigate damage to roots due to excavation: • Excavate carefully where tree roots might be encountered. Where roots 2 inches and larger are encountered, hand excavate as required to prevent damage to roots. Tunnel under roots to be saved, hand excavating as necessary. • Do not cut roots over 2-inch-in-diameter without approval of Contracting Officer. • Cleanly saw-cut roots between 1-inch and 2-inch-in-diameter where they interfere with work; do not cut roots except as necessary. Roots between 1-inch and 2-inch-in-diameter which must be cut shall be cleanly saw-cut near the edge of trench closest to the tree to prevent roots from being dislodged from soil by equipment. • Avoid soil compaction within plant root zones with heavy equipment and vehicles within the project work limits. • Do not cut wheels or make sharp turns with wheeled or tracked equipment in root zones.	

Topic	Mitigation Measure	Responsibility
MM-VEG-2 Vegetation Inventory and Assessment (cont.)	• Do not pile excavated soil against tree trunks. • Do not mechanically compact soils in undeveloped areas except to meet minimum compaction requirements as approved by the contracting officer. • Maintain original soil topography in plant root zones whenever possible. • Preserve tree snags where feasible as potential bat or bird habitat.	
MM-VEG-3 Plant Appraisal	If the Contractor destroys or injures trees and vegetation designated for protection or outside the work limits, the Contractor will be assessed damages prior to final progress payment. Replacement costs for damaged vegetation will be computed according to the method described in the International Society of Arborculture's 1992 Guide for Plant Appraisal. This method is based on the cost of the largest commonly available tree or shrub, with modifications based on species value, condition, and location. A trained arborist or professional plant appraiser from the California region will be hired by the NPS to make the damage appraisal. The arborist's fees will be included in the damage assessment. This damage appraisal process will be triggered by any of the following types of damage to vegetation outside the work limits or unauthorized disturbance of vegetation within the work limits. • Removal of any tree or shrub. • Pruning or removal of more than 30 percent of a tree or shrub canopy. • Removal or fracture of any limb or trunk that is one of the major structural entities of the damaged plant. • Removal or fracture of any limb greater than 12 inches in diameter. • Bark damage or removal around more than 30 percent of the trunk circumference. • Trenching or soil disturbance within the critical root zone that is deeper than 1-foot unless shown on the Drawings. If the damaged vegetation is protected under the Endangered Species Act or other special legislation, additional penalties may be assessed as per consultation with the U.S. Fish & Wildlife Service. Pruning or removal of vegetation shall be supervised by Contracting Officer. The designated personnel may designate plant species for salvage. When authorized and supervised by the Contracting Officer, the Contractor is exempted from any penalties that might be assessed due to damage to vegetation. • Acceptable disturbance to roots is limited to 15 percent of the area under the drip line being either cut or filled. Any tree with more than 50 percent of its roots disturbed should be removed during construction at the direction of the Contracting Officer. • Wounds occurring from construction activity may be possible entry sites for disease spores. If a tree is accidentally injured during construction, it may need to be removed at the direction of the Contracting Officer. Trench alignments or other factors may result in variations in which trees are affected. The Contractor shall accommodate these variations at no additional expense to the Government. Minor cuts and damaged areas shall be assessed by the Contracting Officer. Repair to the plant will be at the recommendation of the YNP personnel and approval of the Contracting Officer.	Yosemite National Park; Contractor
MM-VEG-4 Wetlands Delineation	Delineate wetlands and apply protection measures during construction. Wetlands shall be delineated by qualified National Park Service staff or certified wetland specialists and clearly marked prior to work. Perform activities in a cautious manner to prevent damage caused by equipment, erosion, siltation, etc. Use non-toxic materials for decking and sealants where possible.	Yosemite National Park; Contractor

Topic	Mitigation Measure	Responsibility
MM-VEG-5 Wetlands Regulation	The Contractor shall adhere at all times to the conditions of U.S. Army Corps of Engineers Nationwide Permit No. 33, Temporary Construction, Access and Dewatering, with the following conditions as a minimum: • All work will be subject to the Standard and Technical Conditions of the Certification of the California Regional Water Quality Control Board, a copy which will be provided to the Contractor. • Work in streambeds is to be performed in periods of low water conditions. Contractor shall monitor stream flow conditions and weather forecasts at all times during the course of the work. During thunderstorms or other intense rain conditions, streambeds at Yosemite can fill rapidly. • Re-grade and restore disturbed areas to preexisting contours to maintain drainage patterns.	Contractor
MM-VEG-6 Wetlands Protection	The Contractor shall fence construction areas adjacent to aquatic habitats to prohibit the movement of aquatic species into the construction area and to control siltation and disturbance in aquatic habitats. The Contractor shall salvage and reuse wetland soils as fill to the maximum extent possible. The Contractor shall use trench plugs where designated on the drawings in wetland areas to prevent changes to natural flow patterns. During dewatering, intakes shall be completely screened with wire mesh not larger than 5 millimeters to prevent aquatic species from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Access routes to and through work locations in the meadows and wetlands shall be planked with 1 1/8" plywood, stabilization mats or other method approved by the contracting officer.	Yosemite National Park, Project Manager; Contractor
MM-VEG-7 Subsequent Wetland Statements of Finding	As site-specific information becomes available at a level of detail needed to fully and accurately disclose anticipated impacts on wetland habitats, processes, functions, and values, subsequent WSOFs for all other actions will be developed.	National Park Service
MM-VEG-8 Special Status Plant Species	If special-status plant species are identified within the construction disturbance zone, in particular within restoration and revegetation areas, avoid special-status plant populations to the extent feasible during construction activities. If it is not feasible for construction activities to avoid special status plant species, species conservation measures will be developed in coordination with Yosemite National Park natural resources staff. Measures may include salvage of special-status plants for use in revegetating disturbed areas and transplantation of special-status plants wherever possible using methods and monitoring identified in the revegetation plan, monitoring to ensure successful revegetation, protection of plantings, and replacement of unsuccessful plant materials if practicable.	Yosemite National Park; Contractor
WILDLIFE AND SPECIAL STATUS SPECIES		
MM-WL-1 Fish and Wildlife Protection	The Contractor and Contractor's employees shall not feed any animals within Yosemite National Park. The Contractor shall make all reasonable efforts in accordance with the plans and specifications for the protection of threatened or endangered or candidate species including their habitat in accordance with Federal, State, Regional, and local laws and regulations. Contractor shall schedule construction activities with seasonal consideration of wildlife lifecycles to minimize impacts during sensitive periods (i.e., after bird nesting seasons, when bats are neither hibernating nor have young, etc.); limit the effects of light and noise on adjacent habitat through controls on construction equipment; and provide adequate education and enforcement to limit construction worker activities that are destructive to wildlife and habitats. Contractor shall maintain animal escape routes from excavated pits and trenches. During construction, Contractor personnel shall maintain vigilance for animals caught in excavations and take appropriate action to free them. • Excavation pits shall have a ramp or incline at either end to allow for human and wildlife escape. • Each morning prior to commencing work activities, Contractor shall inspect the site for trapped wildlife in excavation pits and carefully remove, except for California red-legged frog (CRLF), which shall not be captured or handled.	Yosemite National Park; Contractor

Topic	Mitigation Measure	Responsibility
MM-WL-2 Bear Precautions	Bears may be present at any location within the YNP boundaries, including at the project site. The Contractor shall incorporate the following precautions in all activities within the YNP boundary. All food, toiletries, and scented items (i.e., bug spray) shall be placed in bear boxes at the construction site provided by the Contractor. Bear boxes must remain closed and latched at all times, unless items are being retrieved. No food, toiletries, or scented items shall be stored in vehicles or left out. • All food waste and food-related waste shall be disposed of in accordance with Non-Hazardous Solid Wastes requirements described elsewhere within this section. • All vehicles shall be checked daily to ensure that no items that may attract bears remain inside an unattended vehicle. Items that shall not be left in vehicles include canned food, drinks, soap, cosmetics, toiletries, domestic trash, recyclable food containers, ice chests, grocery bags, and unwashed items used for preparing or eating meals. • All windows and doors in recreational vehicles or trailers used for lodging or office space shall be closed and latched when not occupied. • The Contractor shall walk the job site at the end of each day and check for trash, food, and food-related items remaining at the site and dispose of the items in a bear-proof receptacle. • Proper food storage is important to the welfare of the Yosemite bear population and is required by law. The Contractor shall receive and all Contractor personnel shall read a brochure entitled, The Bears are not to Blame, provided by NPS staff as a courtesy. Contractor staff shall call the Save-a-Bear hotline (209) 372-0322 to report overflowing trash containers, improperly stored food, or bear sightings.	Contractor
MM-WL-3 Construction Timing	Schedule construction activities with seasonal consideration of wildlife lifecycles to minimize impacts during sensitive periods (i.e., after bird nesting seasons, when bats are neither hibernating nor have young, etc.).	Yosemite National Park; Contractor
MM-WL-4 Bat Habitat Protection Guidelines	A qualified bat biologist will conduct surveys prior to construction to evaluate whether habitat that will be affected by the proposed action provide hibernacula or nursery colony roosting habitat for bat species. If bats are detected during reproduction or hibernation periods, disturbance of potential habitat will be delayed until the bats can be excluded from the area in a manner that does not adversely affect their survival or that of their young. If bats are detected during reproduction or hibernation periods, disturbance of potential habitat will be delayed until the bats can be excluded from the area in a manner that does not adversely affect their survival or that of their young. If surveys conducted immediately prior to construction do not reveal any bat species present within the project area, then the action will begin within three days to prevent the destruction of any bats that could move into the area after the survey.	Yosemite National Park; Contractor
MM-WL-5 Bird Habitat Protection Guidelines	Beginning in early spring, a park wildlife biologist will conduct bird surveys and review current owl reports to determine whether special status species are present and may be mating, nesting, or foraging in the project vicinity. If nesting birds are observed (e.g., discovered by workers) that are not special status species, the project manager will notify the park wildlife biologist who will recommend steps to avoid undesirable impacts to the nest or young.	Yosemite National Park, Project Manager
MM-WL-6 Fish and Wildlife Protection	The NPS will brief the contractor regarding wildlife concerns at project initiation and periodically throughout the project to avoid activities that are destructive to wildlife and habitats.	Yosemite National Park
MM-WL-7 Fish and Wildlife Protection	If deemed appropriate by the NPS aquatic or terrestrial ecologist, a NPS biologist will conduct a once-a-month survey throughout the active season for special status species, including CRLF. If the biologist finds evidence of the species, ground disturbance and construction activities will be flagged for avoidance and a biological monitor may be needed to oversee construction. If a special status species is encountered within work areas, work crews will stop all activities in the surrounding area with the potential to harrass, injure, or cause death of the individual. For special status species other than CRLF, NPS biologist will assess the situation and select a course of action that will avoid adverse effects to the individual. If a CRLF is encountered, the NPS will contact the Fish and Wildlife Service for further guidance prior to commencing activities in the surrounding area.	Yosemite National Park

Topic	Mitigation Measure	Responsibility
MM-WL-8 Fish and Wildlife Protection	A NPS biologist shall inspect the area and evaluate the necessity of fencing, signage, or other measures to protect the animal. If appropriate, the special status species shall be allowed to move out of the hazardous situation on their own volition to a safe location. The animal may not be picked up and moved based on it not moving fast enough or it is an inconvenience for activities associated with rehabilitation or operation. Special status species (other than CRLF) shall be captured and moved by hand only when there is no other option to prevent harassment, injury, or death. If appropriate habitat is located immediately adjacent to the capture location, this is the preferred option for relocation. The special status species should not be moved outside of the radius it would have traveled on its own. Under no circumstances shall special status species be relocated off NPS property.	Yosemite National Park
MM-WL-9 Construction timing	Contractor would encourage employees to drive slowly on rainy, warm nights (nights where California red-legged frog dispersal is likely).	Contractor
MM-WL-10 Fish and Wildlife Protection	If a CRLF is encountered in the project area, all activity in the surrounding area shall stop and the CRLF shall be allowed to move out of the project area on its own volition. Prior to commencing project activities, the NPS will contact the Fish and Wildlife Service to reinitiate consultation. Under no circumstance shall Contractor personnel nor NPS staff capture, handle, or relocate CRLF.	Yosemite National Park
LIGHTSCAPES		
MM-LITE-1 Yosemite Lighting Guidelines	All new sources of lighting, or substantial modifications to structures with existing sources of exterior lighting, shall conform to the standards set forth in the Yosemite Lighting Guidelines, available on the park's website at: http://www.nps.gov/yose/naturescience/dark-night-sky.htm.	Yosemite National Park; Contractor
MM-LITE-2 Night Lighting During Construction	Minimize night lighting during work. If night lighting is necessary, design lighting to be minimal, directed downward, and shielded.	Yosemite National Park; Contractor
MM-LITE-3 Yosemite National Park Lighting Guidelines	*Yosemite National Park Lighting Guidelines* shall be followed to ensure that all exterior lighting in the park is designed to mitigate light pollution and to preserve the natural darkness as much as possible.	National Park Service
SOUNDSCAPES		
MM-NOI-1 Construction Work Plan and Schedule	Contractor shall submit to the park for review and approval prior to commencement of construction a construction work plan/schedule that specifies the ways in which the contractor will minimize construction-related noise in noise-sensitive areas. At a minimum, the plan shall state the following: • Ensure that all construction equipment has functional exhaust muffler systems. • Use hydraulically or electrically powered construction equipment, when feasible. • Locate stationary noise sources as far from sensitive receptors as possible. • Limit the idling of motors except as necessary (e.g., concrete mixing trucks). • A construction schedule that minimizes impacts to adjacent noise-sensitive activities. • Engine braking ("jake" brakes) shall not be used in lodging, camping, or residential areas. Engine brakes that are used shall be muffled. • Continuous noise abatement is required to prevent disturbance and nuisance to Park visitors and workers and to the occupants of adjacent premises and surrounding areas. • If the Contracting Officer determines excessive noise is emanating from the construction site, the Contractor may be required to provide sound barriers to deflect noise transmission from visitor areas or other areas impacted by noise.	Contractor

<table>
<tr><th>Topic</th><th>Mitigation Measure</th><th>Responsibility</th></tr>
<tr><td>MM-NOI-1
Construction Work Plan and Schedule
(cont)</td><td>• Construction noise shall be minimized through use of best available noise control techniques wherever feasible. Sound levels must be kept to a minimum at all times. Equipment and machinery shall not exceed 85 dB when measured at 100 linear feet distance. Contractor shall use sound attenuated compressors and generators that comply with the most recent California Department of Transportation standards.</td><td></td></tr>
<tr><td>MM-NOI-2
Noise Management Levels</td><td>Contractor shall ensure that all construction equipment and practices adhere to the following noise limitations:
Repetitive and/or intermittent, high-level noise: Permitted only during Daytime.
Do not exceed the following dB(A) limitations at 50 feet:
<u>Sound Level in dB(A)</u> — <u>Time Duration of Impact Noise</u>
70 — More than 12 minutes in any hour
80 — More than 3 minutes in any hour
Maximum permissible construction equipment noise levels at 50 feet:
<u>Earthmoving</u> | <u>dB(A)</u> | <u>Materials Handling</u> | <u>dB(A)</u>
Front Loaders | 75 | Concrete Mixers | 75
Backhoes | 75 | Concrete Pumps | 75
Dozers | 75 | Cranes | 75
Tractors | 75 | Derricks Impact | 75
Scrapers | 80 | Pile Drivers | 95
Graders | 75 | Jack Hammers | 75
Trucks | 75 | Rock Drills | 80
Pavers, Stationary | 80 | Pneumatic Tools | 80
Pumps | 75 | Saws | 75
Generators | 75 | Vibrators | 75
Compressors | 75
Ambient Noise:
Maximum noise levels (dB) for receiving noise area at property line shall be as follows:
Residential receiving area — Daytime: 65 dB; Nighttime: 45 dB
Commercial/Industrial receiving area — Daytime: 67 dB; Nighttime: 65 dB
In the event the existing local ambient noise level exceeds the maximum allowable receiving noise level (dB), the receiving noise level maximum for construction operations shall be adjusted as follows:
Residential receiving area: Maximum 3 additional dB above the local ambient as measured at property line.
Commercial/Industrial receiving area: Maximum 5 additional dB above the local ambient as measured at the property line.</td><td>Contractor</td></tr>
</table>

Topic	Mitigation Measure	Responsibility
MM-NOI-3 Field Quality Control	Contractor shall assess potential effects of construction noise on adjacent neighbors or facility occupants in accordance with ASTM E1686 and as follows: Ambient noise measurement: Measure at the property line at a height of at least four (4) feet above the immediate surrounding surface. Average the ambient noise level over a period of at least 15 minutes. Ambient noise measurement at urban sites: Conduct during morning peak traffic hour between 7 A.M. and 9 A.M. and afternoon peak traffic hour between 4 P.M. and 6 P.M. In addition, conduct a 24-hour measurement at the proposed project site to document the noise pattern throughout the day. Adjust and weight for seasonal and climatic variations. Monitor noise produced from construction operations in accordance with ASTM E1780.	Contractor
AIR QUALITY		
MM-AIR-1 Dust Abatement Program	The Yosemite National Park and/or a contractor (as appropriate) shall prepare, implement, and comply with a dust abatement program during construction. Measures include, but are not limited to, the following: • Water or apply soil stabilizers to disturbed areas; • When hauling dry materials, securely cover truck beds to prevent blowing dust or loss of debris; • Limit speeds to a maximum of 15 mph within construction areas. Slower speeds shall be maintained if necessary to reduce dust formation. • Minimize vegetation clearing; • Re-vegetate disturbed areas post construction; • At construction zone access points, prevent paved areas from accumulating mud, soils, and other organic materials.	Yosemite National Park; Contractor
MM-AIR-2 Equipment Exhaust Controls	The Yosemite National Park and/or a contractor (as appropriate) shall prepare, implement, and comply with equipment exhaust controls program during construction. Measures include, but are not limited to, the following: • Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to two minutes. Clear signage shall be provided for construction workers at all access points; • Require that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOx and PM; • Require all contractors use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines; • Require all equipment operations to occur during daytime hours to minimize effects of local inversions; • Equipment operations shall be in accordance with all Federal and State air emission and performance laws and standards. • Vehicles or equipment with excessive emissions or discharging black smoke will be removed from operation immediately and may not be used until appropriate maintenance and repairs have corrected the emissions problem.	Yosemite National Park; Contractor
VISITOR EXPERIENCE		
MM-VEX-1 Non-Hazardous Solid Waste Management Measures	Waste, trash, and debris shall be controlled at all times and disposed in authorized containers in the Contractor's staging area. All sanitary waste (garbage) must be disposed of in approved, bear-proof disposal bins. Provide lockable, bear-proof dumpsters with lids for waste (garbage) storage. Lids shall be equipped with carabineers/heavy wire lid locks. Verify that dumpster lids are secure at close of work each day. Construction debris (rubbish) may be stored in unlidded dumpsters or construction debris truck/trailers and removed on a regular basis. Do not mingle sanitary or green waste with construction debris. All large, normally open top, waste bins or dumpsters shall be lidded and clearly marked "No Food or Trash". All construction personnel shall adhere to park regulations concerning food storage and refuse management.	Yosemite National Park; Contractor

Topic	Mitigation Measure	Responsibility
MM-VEX-1 Non-Hazardous Solid Waste Management Measures (cont)	The Contractor shall designate an employee to police the work site daily for waste, wrappers, food packaging and the like. All waste shall be picked up and disposed of in lidded bear-proof dumpsters. Green waste shall be segregated from other non-green waste for processing at disposal site. Burying or burning of trash and debris on-site is not permitted. All un-used materials, trash, and debris shall be the property of the Contractor and shall be transported outside of the YNP boundary for disposal in accordance with law. Remove debris from permanently closed spaces prior to enclosing them. Properly secure trash during the workday and remove all trash from site at the end of each workday	
MM-VEX-2 Scenic Resource Protection	Fence construction staging areas and construction activity areas to visually screen construction activity and materials. Consolidate construction equipment and materials to the staging areas at the end of each work day to limit the visual intrusion of construction equipment during nonwork hours.	Yosemite National Park; Contractor
TRANSPORTATION		
MM-TRA-1 Traffic Control Plan	Contractor shall prepare a Traffic Control Plan. This plan shall include but not be limited to the following: • Maps showing how any detour routes will be signed and controlled. • Submission of specific street closure and detour plans for each segment of the project no less than 3 weeks prior to beginning construction on any segment. • Description of how Contractor shall provide for the protection of pedestrians and bicyclists, and safe vehicle passage through the use of signs and flag persons. In addition, address how access for emergency vehicles, chain-up areas and snow plow turn around areas, police, rangers, fire and disaster units shall be maintained at all times. • Show how any detour routes will be signed and controlled. Furnish and install all signs. Provide flag persons as required. • Revise and update the Traffic Control Plan to reflect changes in the project schedule or sequence of work, as required. • Show measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Plan shall include measures to minimize the amount of mud and dust transported onto paved public roads by vehicles or runoff. • Revise and update specific Traffic Control Plan to reflect changes in the project schedule as required, or to accommodate the traffic control plans of other projects concurrently under construction in the project vicinity or the Yosemite Valley. • The YNP Project Manager will provide temporary traffic routing and control information from other on-going or planned projects that may affect the Contractor's Traffic Control Plan. The Contractor shall accommodate the information from these other traffic control plans as necessary and bring any conflicts to the attention of the COR immediately.	Contractor
MM-TRA-2 Road Closure Traffic Control and Detour Plans contents	Prepare and submit specific Road Closure Traffic Control and Detour Plans for each area of the project not less than 3 weeks before beginning construction on any segment. Provide for the following: • Temporary closure of both lanes of traffic (subject to the requirements listed herein) shall be limited to periods of 20 minutes maximum. Requests for additional closure periods shall be submitted in writing to the Contracting Officer a minimum of 7 days prior to any planned road closures. • Single lane traffic diversions shall comply with the detail in "Traffic Control System for Two Lane Conventional State Highways" in California Department of Transportation Standard Specifications, Section 02201, Paragraph 1.1 D.	Contractor

Topic	Mitigation Measure	Responsibility
MM-TRA-3 Traffic Control Devices	Traffic control devices shall be provided in sufficient quantities and types as required to provide safe and adequate traffic control. During hours of darkness, approved lights and/or flares shall be included, in proper working order, to illuminate signs and hazards and alert approaching traffic. Barricades shall be furnished and maintained along all open trenches in contact with traffic. No work may begin on any day or at any time before traffic control devices have been placed, test driven and, if required, adjusted and revised. All traffic control devices shall be placed in accordance with the Manual of Traffic Controls and favorably reviewed Traffic Control Plan. Locations of devices shall be adjusted to suit the conditions and circumstances of each detour situation. In all cases, signs shall be placed to most effectively convey their messages to approaching traffic. Immediately after traffic control devices have been placed, the detour shall be test driven by the COR and Contractor's representative. Test drive shall include approach to the detour from each possible direction and traversing full length of each detour route. The Contractor shall adjust and revise all traffic control devices as determined to be required by test drive through and shall repeat test drive if determined necessary by the COR. The Contractor shall provide additional traffic control devices if required to maintain flow of traffic through construction operation. The Contractor shall maintain all traffic control devices, at proper locations and in proper working order, at all times during construction operations and whenever a hazard resulting from Contractor's operations exists. The Contractor shall adjust and revise traffic control devices, placement, etc., to suit changing conditions around construction operations. Traffic control devices shall remain in place at all times required to alert approaching traffic of upcoming hazards. After hazard has been removed, all traffic control devices shall be removed. Signs shall be removed or their messages covered.	Contractor
MM-TRA-4 Traffic Control Flaggers	The Contractor shall employ flaggers: • As required for each specific detour. • At all locations on a construction site where barricades and warning signs cannot control the moving traffic. Where flaggers are required, they shall be logically placed in relation to the equipment or operation so as to give adequate warning and shall be placed approximately 100 feet ahead of impact point. A warning sign shall be placed ahead of the flagger reading: "Flagger Ahead." The distance between the sign and the flagger should be based on the average traffic speed, allowing approximately 50 feet for each 10 miles per hour. During hours of darkness, flagger stations shall be illuminated such that the flagger will be clearly visible to approaching traffic. Lights for illuminating the flagger station shall receive favorable review by the COR. The flagger shall be provided with and wear a red or orange warning garment when flagging. Flaggers shall be provided with approved hand signs and two way radios for communication. When flagging during hours of darkness, the flagger shall signal with a red light or flare and shall have a belt and suspender harness outside his garment fitted with reflectors or made from reflectorized cloth, unless the garment is well reflectorized in one of these ways.	Contractor
MM-TRA-5 Traffic Control and Maintenance	Traffic control and construction operations shall conform to the requirements of California Department of Transportation Standard Specifications, Section 12, except as modified herein. The Contractor shall provide, install, and maintain all necessary signs, lights, flares, barricades, markers, cones, flagmen, and other protective facilities and shall take all necessary precautions for the protection and for the convenience and safety of Park employees, public traffic, and Yosemite Concession Service operations. All such protective facilities and precautions to be taken shall conform to the U. S. Department of Transportation, Federal Highway Administration Manual on Uniform Traffic Control Devices for Streets and Highways, Part VI-Traffic Control for Highway Construction and Maintenance Operations, latest edition, and as amended. Provide for the protection of pedestrians, bicyclists, and equestrians at all times. Provide adequate, safe, non-skid bridging material over trenches, including shoring when trenching in pavement areas to handle all types of vehicular traffic.	Contractor

Topic	Mitigation Measure	Responsibility
MM-TRA-5 Traffic Control and Maintenance (cont)	Whenever the Contractor's operations create a hazardous condition, the Contractor shall furnish flag persons and guards as necessary to give adequate warning of any dangerous conditions to be encountered, and shall furnish, erect, and maintain such fences, barricades, lights, signs, and other devices as necessary to prevent accidents and avoid damage or injury to persons. Employ flag persons to direct traffic as required to ensure safe vehicular travel. While on duty, flag persons and guards shall be equipped with orange safety wearing apparel and a paddle-type signal, which shall be clean and in good repair. Provide two-way programmable radios to flag persons if they are not in sight of each other at all times, or if necessary to ensure safe passage of vehicles. Provide, install, and maintain all signs, barricades, posts, guards and notices whenever a road or trail must be completely closed. Note that if posts are installed in ground, Contractor must contact USA-Dig and Archaeological Monitor for clearance to avoid culturally-sensitive areas. Remove or cover signs in conflict with traffic control requirements. Provide for passage and access of emergency vehicles, police, rangers, fire and disaster units at all times. Contractor assumes any and all liability for any damages resulting from failure to provide said access. Replace permanent pavement markings and traffic signs upon completion of each phase of work. At the end of each day's work or as soon as the work is completed remove all traffic control devices no longer needed to permit free and safe passage of traffic. Removal shall be in reverse order of installation. The traveled way shall not be obstructed with material, bedding, trench soil, nor with barricades or excavations. Excavations shall be backfilled, covered with steel traffic plate covers, or otherwise suitably protected so that traffic can pass unobstructed, as required, at night or over weekends and holidays. Temporary road repairs shall include road base and cold mix as specified to maintain a smooth, hard surface. The Contractor shall provide weekend and holiday road maintenance and repairs as necessary. All roads shall be kept open for public travel at all times unless specific written permission to close or restrict the use of a particular road is given by the COR. The Contractor is responsible for snow and ice control within the project limits utilizing NPS approved methods. Permission shall be granted upon approval of the specific Street Closure Traffic Control and Detour Plan for the intended closure. In the event that closing of a particular road is approved, it shall be the responsibility of the Contractor to notify the COR to reconfirm the hours and dates of the street closure and routes of detours at least 7 calendar days in advance of their occurrence, and again to notify the COR when the travel restriction is discontinued. No materials or equipment shall be stored where it will interfere with the free and safe passage of public traffic, and at the end of each day's work and at other times when construction operations are suspended for any reason, the Contractor shall remove all equipment and other obstructions from that portion of the roadway to be opened for use by public traffic. No material or other obstructions shall be placed within 20 feet of fire hydrants, which shall at all times be readily accessible to the fire department, nor within 10 feet of United States mailboxes. Off-loading of materials at staging area shall be coordinated with the Contracting Officer as necessary. Traffic delays due to Contractor's activities and associated traffic control shall not exceed 20 minutes, unless prior written approval has been received from the Contracting Officer. Alternative access for Park visitors to all major features and facilities in the Park shall be maintained using the existing road system. Full access shall be provided year-round to the public for all operating Park facilities (hotels, campgrounds, bike paths, trails, stores, restaurants, museums, restrooms, etc.), unless the project includes closing, rehabilitating or reconstructing those facilities, except trail closures for equipment and material transfer or transport described in Section 01110, Summary of Work.	
CULTURAL RESOURCES		
MM-CR-1 Evaluation of Revetment Removal Sites	Prior to any ground disturbing activities associated with revetment, further analysis and possible documentation at each site would be required in order to assess potential adverse effects to historic resources.	Yosemite National Park; Contractor

Topic	Mitigation Measure	Responsibility
MM-CR-2 Evaluation of Revetment Removal Sites	As per Section 106 of the NHPA, prior to construction or demolition activities, the Park shall survey the project area for potential impacts to historic buildings, structures, and districts within the project area of potential effect (APE). This will include a review of existing known historic resources for their continued integrity and eligibility for listing in the National Register, identification of currently unknown historic properties within the APE, determination of potential adverse effects and resolution of those effects in compliance with 36 CFR Part 800 – Protection of Historic Properties. Every effort shall be made to avoid adverse impacts. These efforts may include screening and/or sensitive design that would be compatible with cultural landscape resources.	Yosemite National Park; Contractor
MM-CR-3 Submittals	Historic Preservation Treatment Program: The contractor shall submit a written plan for each phase or process including protection of surrounding materials during operations. Contractor shall describe in detail materials, methods, and equipment to be used for each phase of work. If alternative methods and materials to those indicated are proposed for any phase of work, contractor shall provide a written description including evidence of successful use on other, comparable projects, and program of testing to demonstrate effectiveness for use on this Project. The contractor shall document, through videotape or photograph and submit to the Contracting Officer prior to commencement of work, existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by historic treatment operations.	Yosemite National Park; Contractor
MM-CR-4 Removed and Salvaged Historic Materials:	Contractor shall handle removed and salvaged historic materials in accordance with the following: • Clean salvaged historic items. • Pack or crate items after cleaning. Identify contents of containers. • Store items in a secure area until delivery to the NPS. • Transport items to storage area approved by Contracting Officer. • Protect items from damage during transport and storage. • Do not dispose of items removed from existing construction without prior written consent of Contracting Officer.	Yosemite National Park; Contractor
MM-CR-5 Removed and Reinstalled Historic Materials	Contractor shall handle removed and reinstalled historic materials in accordance with the following: • Clean and repair historic items to functional condition adequate for intended reuse. • Pack or crate items after cleaning and repairing. Identify contents of containers. • Protect items from damage during transport and storage. • Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.	Yosemite National Park; Contractor
MM-CR-6 Existing Historic Materials to Remain	The contractor shall protect construction indicated to remain against damage and soiling during historic treatment. When permitted by Contracting Officer, items may be removed to a suitable, protected storage location during historic treatment, and cleaned and reinstalled, as appropriate, to their original locations after historic treatment operations are complete.	Yosemite National Park; Contractor
MM-CR-7 Storage and Protection	When removed from their existing location, contractor shall store historic materials within a weather-tight enclosure where they are protected from wetting by rain, snow, or ground water, and temperature variations. Contractor shall secure stored materials to ensure protection from theft. • Identify removed items with an inconspicuous mark indicating their original location. • Develop a key plan when many similar items are scheduled for removal and reinstallation.	Yosemite National Park; Contractor

Topic	Mitigation Measure	Responsibility
MM-CR-8 Exterior Cleaning and Repairing	Contractor shall conduct exterior cleaning and repair of historic structures in accordance with the following: • Proceed with the work only when forecasted weather conditions are favorable. • Not attempt repairs during rainy or foggy weather. Not apply primer, paint, putty, or epoxy when the relative humidity is above 80 percent. Not remove exterior elements of structures when rain is forecast or in progress. • Not perform exterior wet work when the air temperature is below 40 deg F (5 deg C). • Not begin cleaning, patching, or repairing when there is any likelihood of frost or freezing. • Not begin cleaning when either the air or the surface temperature is below 45 deg F (7 deg C) unless approved means are provided for maintaining a 45 deg F (7 deg C) temperature of the air and materials during, and for 48 hours subsequent to, cleaning.	Yosemite National Park; Contractor
MM-CR-9 General Historic Resource Protection	Contractor shall undertake the following historic resource protection measures: • Comply with manufacturer's written instructions for precautions and effects of products and procedures on adjacent building materials, components, and vegetation. • Ensure that supervisory personnel are present when work begins and during its progress. • Protect existing materials during installation of temporary protections and construction. Not deface or remove existing materials. • Obtain Contracting Officer approval prior to Attaching temporary protection to existing construction. • Protect landscape work adjacent to or within work areas as follows: - Provide barriers to protect tree trunks. - Bind spreading shrubs. - Use coverings that allow plants to breathe and remove coverings at the end of each day. Do not cover plant material with a waterproof membrane for more than 8 hours at a time. - Set scaffolding and ladder legs away from plants. • Prior to the start of work or any cleaning operations, test drains and other water removal systems to ensure that drains and systems are functioning properly. • Notify Contracting Officer immediately of drains or systems that are stopped or blocked. Not begin Work of this Section until the drains are in working order. • Provide a method to prevent solids including stone or mortar residue from entering the drains or drain lines. Clean out drains and drain lines that become blocked or filled by sand or any other solids because of work performed on corresponding project. • Protect storm drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.	Yosemite National Park; Contractor

Topic	Mitigation Measure	Responsibility
MM-CR-10 Protection During Application of Chemicals	Contractor shall undertake the following during the application of chemicals: • Protect persons, motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm or damage resulting from applications of chemical cleaners and paint removers. • Comply with requirements in Division 01 Section "Temporary Facilities and Controls." • Cover adjacent surfaces with materials that are proven to resist chemical cleaners selected for Project unless chemicals being used will not damage adjacent surfaces. Use covering materials that contain only waterproof, UV-resistant adhesives. Apply masking agents to comply with manufacturer's written instructions. Do not apply liquid masking agent to painted or porous surfaces. When no longer needed, promptly remove masking to prevent adhesive staining. • Do not clean surfaces during winds of sufficient force to spread cleaning solutions to unprotected surfaces. • Neutralize and collect alkaline and acid wastes and dispose of outside park boundaries. • Dispose of runoff from chemical operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.	Yosemite National Park; Contractor
MM-CR-11 Protection During Use of Heat-Generating Equipment	Contractor shall comply with the following procedures while performing work with heat-generating equipment, including welding, cutting, soldering, brazing, paint removal with heat, and other operations where open flames or implements utilizing heat are used: • Obtain Contracting Officer's approval for operations involving use of open-flame or welding equipment. - Notification shall be given for each occurrence and location of work with heat-generating equipment. - Obtain the appropriate permit from the park as required. • As far as practical, use heat-generating equipment in shop areas or outside the building. • Before work with heat-generating equipment commences, furnish personnel to serve as a fire watch (or watches) for location(s) where work is to be performed. • Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe. • Remove and keep the area free of combustibles, including, rubbish, paper, waste, etc., within area of operations. - If combustible material cannot be removed, provide fireproof blankets to cover such materials.	Yosemite National Park; Contractor
MM-CR-12 Protection During Use of Heat-Generating Equipment	• Where possible, furnish and use baffles of metal or gypsum board to prevent the spraying of sparks or hot slag into surrounding combustible material. • Prevent the extension of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings. • Inspect each location of the day's work not sooner than 30 minutes after completion of operations to detect hidden or smoldering fires and to ensure that proper housekeeping is maintained. • Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to automatic sprinkler heads, shield the individual heads temporarily with guards.	Yosemite National Park; Contractor

Topic	Mitigation Measure	Responsibility
MM-CR-13 Historic Preservation Treatment Procedures	Contractor shall undertake the following historic preservation treatment procedures: • Retain as much existing material as possible; repair and consolidate rather than replace. • Use additional material or structure to reinforce, strengthen, prop, tie, and support existing material or structure. • Use reversible processes wherever possible. • Use traditional replacement materials and techniques if possible. New work shall be distinguishable from old work and original materials and techniques. • Record the existing condition before commencing with repair work; document with preconstruction photos, sketches and field notes. Record repair work during construction with periodic construction photos and daily inspection reporting. Photo documentation is specified in Division 01 Section "Photo Documentation For Historic Preservation Projects". • Prohibit smoking by personnel performing work on or near historic structures. • Notify Contracting Officer of visible changes in the integrity of material or components whether due to environmental causes including biological attack, UV degradation, freezing, or thawing; or due to structural defects including cracks, movement, or distortion. – Do not proceed with the work in question until directed by Contracting Officer. • Where Work requires existing features to be removed, cleaned, and reinstalled, perform these operations without damage to the material itself, to adjacent materials, or to the substrate. • Identify new or replacement materials and features with inconspicuous, permanent marks to distinguish them from original materials. Record the legend of identification marks and the locations of these marks on Record Drawings. • When cleaning, match samples of existing materials that have been cleaned and identified for acceptable cleaning levels. Avoid over-cleaning to prevent damage to existing materials during cleaning. Only the gentlest methods available should be attempted. Initiate cleaning using hand cleaning methods before introducing power cleaning methods and equipment.	Yosemite National Park; Contractor
MM-CR-14 Plan-Specific Programmatic Agreement	Following agreement on the assessment of adverse effect to historic properties, the NPS and relevant consulting parties have engaged in consultation to develop measures to minimize or mitigate adverse effects pursuant to 36 CFR Part 800.6. Where appropriate, the results of that consultation have been documented in the plan-specific Programmatic Agreement (see Appendix I). This agreement may include treatments established by the ACHP under 36 CFR Part 800.14(d) and may also defer to or build upon the 2008 Nationwide PA that streamlines the Section 106 process for actions not affecting or not adversely affecting historic properties. This agreement also diagrams the NHPA review process for actions requiring phased identification and/or phased assessment of adverse effects. Additional minimization and mitigation measures will be developed through this tiered compliance process.	Yosemite National Park
MM-CR-15 Archeological Resources	Train all members of the restoration/construction teams in proper handling of inadvertent discovery of archaeological resources. Training would involve information regarding the types of archeological materials that are likely present in the specific project area, how to identify archeological materials, and the procedures for contacting the appropriate parties in the event that archeological materials are encountered during restoration/construction activities. All restoration/construction personnel would be required to participate in the training, and written guidelines would be prepared and distributed to aid in identification of archeological materials and to inform workers of the procedures to follow in case of a discovery or potential discovery. If buried archeological resources such as flaked stone or groundstone, historic debris, building foundations, midden soils or human bone are inadvertently discovered during ground-disturbing activities, work shall stop in that area and within a 100-foot radius of the find until a qualified archeologist can assess the significance of the find.	Yosemite National Park; Contractor

Topic	Mitigation Measure	Responsibility
MM-CR-15 Archeological Resources (cont)	Inadvertent discoveries would be treated in accordance with 36 CFR 800.13 (Protection of Historic Properties: Post-review discoveries). The archeological resource would be assessed for its eligibility for listing on the National Register in consultation with the SHPO and representatives of traditionally associated American Indian tribes and groups (if it is an American Indian archeological site), and a determination of the project effects on the site would be made. If the site would be adversely affected, a treatment plan would also be prepared as needed during the assessment of the site's significance. Assessment of inadvertent discoveries may require archeological excavations and/or archival research to determine resource significance. Treatment plans would fully evaluate avoidance, project redesign, and data recovery alternatives before outlining actions proposed to resolve adverse effects. If human skeletal remains are encountered, protocols under federal and state law would apply. All work shall stop in the vicinity of the discovery, and the find would be secured and protected in place. The appropriate county coroner (Mariposa or Merced) and Park Archeologist would both be immediately notified. If a analyses determine that the remains are American Indian, and that no further coroner investigation of the cause of death is required, the coroner would then be required to contact the NAHC (pursuant to Section 7050.5[c] of the California Health and Safety Code) and the County Coordinator of Indian Affairs. The remains would also be treated in accordance with the Native American Graves Protection and Repatriation Regulations at 43 CFR 10.4 (Inadvertent discoveries).	
MM-CR-16 Ground Disturbance and Testing	Management actions involving moderate to severe ground disturbance (trail reroutes; formalization of social trails; excavations for subsurface utilities; development of campgrounds; removal of abandoned infrastructure and/or facilities, construction of buildings, structures, parking lots, and roads; topographic recontouring; decompaction and plant salvage; and actions that may focus visitor use at areas with sensitive surface resources) within or adjacent to the boundaries of known archeological sites shall be preceded by intensive surface survey and/or controlled subsurface testing, as determined appropriate given past studies and findings. Initial limited testing shall be conducted in the area(s) proposed for ground disturbance, to first determine if the presence of site components can be verified. If so, the methods of achieving the proposed action may be modified and/or relocated, if possible. If effects could not be avoided, archeological treatment measures would be site-specific and contingent on previous studies' results and the level of work proposed.	Yosemite National Park; Contractor
MM-CR-17 Ground Disturbance and Monitoring	A Government provided Archeological Monitor, and as necessary, Native American Monitor, will observe all ground-disturbing site work, including construction of temporary facilities at all culturally sensitive areas, from a safe location mutually agreed on by Contractor, Contracting Officer and Monitors. As new ground is broken, Monitors will examine excavated materials, using construction layout centerline and perimeter staking as a reference point to record locations of findings. Monitoring may also be included as part of a treatment plan for individual resources following initial testing as per MM-AR-2 Prior to construction, mark with flagging all sensitive cultural resources to be protected within the project area identified per the requirements of the plans and specifications. Proper placement of flagging shall be verified by the Contracting Officer. Upon verification, erect necessary fencing to identify and protect cultural resources from disturbance. Do not begin ground-penetrating work such as excavation, trenching, drilling, or stump and root removal in culturally sensitive areas without the presence of Archeological Monitor, and if required, Native American Monitor. The archeological monitor shall record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis. If the monitor determines that any portion of the proposed action could have an adverse effect on the site, alternative methods of accomplishing the action shall be discussed with the restoration personnel. Restoration activities within site boundaries shall be conducted using manual tools rather than mechanized equipment whenever possible, and no stock animals or wheeled vehicles used for transport of workers and tools shall be allowed within 10 meters of the known site boundary. If Archeological Monitor or Native American Monitor discovers resources, immediate relocation of the work to a non-sensitive area may be required to allow Monitors to take soil samples and record resources. While Monitors are documenting resources in sensitive areas, Contractor shall relocate work to non-sensitive areas.	Yosemite National Park; Contractor

Topic	Mitigation Measure	Responsibility
MM-CR-17 Ground Disturbance and Monitoring (cont.)	If an Archeological Monitor requires access to a construction area the contractor shall furnish safe access, free from recognized hazards, to enable the monitor to complete his/her duties. This will commonly involve trench access when soil sampling is deemed necessary by the Archeologist. If resources are discovered while Monitors are absent, stop work immediately and report the discovery to the Contracting Officer.	
MM-CR-18 Ground Disturbance and Monitoring	Stop Work: Cease all activities in the area of discovery and protect the resources discovered. In the event the discovery represents human remains or any objects subject to the Native American Graves Protection and Repatriation Act (NAGPRA), the NPS will follow procedures outlined in NAGPRA regulations. This will require a stoppage of work in the area of work for a minimum of 30 calendar days. In the event of an inadvertent discovery of Cultural Resources, be prepared to stop work and continue in other areas. The Contractor shall plan, schedule, and execute the work to prevent stoppages at one area from stopping all work at the construction site.	Yosemite National Park; Contractor
MM-CR-19 Daily work schedule	A Daily Work Schedule is required for all work occurring within archeologically sensitive areas. Include all work that is to occur within the area and key the schedule to the drawings to include the following: 1. Starting and ending dates of ground-disturbing construction. 2. Locations of temporary facilities, such as barriers, field offices, staging areas, sanitary facilities, borrow pits, and haul and access roads. 3. Types of construction, such as clearing, topsoil stripping, structure or trench excavation, landscaping, and post construction clean-up. 4. Methods and equipment used for each type of construction. 5. Plan for relocating work in the event of temporary work stoppages at each archeologically sensitive area 6. A permit is required for any archeological investigations (e.g. excavation, shovel testing, coring, pedestrian survey, underwater archeology, rock art documentation, or other types of reconnaissance including the archaeological monitoring of construction) carried out on parklands by non-NPS personnel, unless carried out under a contract or a cooperative agreement specifically written for archeological investigations. Permits are issued under the Archaeological Resources Protection Act of 1979 (ARPA). The NPS does not issue a permit for archeological investigations carried out by NPS archeologists, or to archeologists working on NPS archeological projects under a contract or cooperative agreement. 7. Applicants should submit a Permit Application (DI Form 1926 (Rev Sept 2004) OMB No. 1024-0037, approved through 1/31/2008 – the Permit Application form is available in pdf format) to the manager of the park in which they propose to work; or to the regional director, with a copy to the park manager.	Yosemite National Park; Contractor
MM-CR-20 Consultation with American Indians	The NPS and traditionally-associated American Indian tribes and groups will continue to collaborate on resources management and historic preservation activities guided by existing cooperative agreements to ensure that adverse effects to historic properties with traditional religious and cultural significance can be avoided.	National Park Service and traditionally-associated American Indian tribes and groups
MM-CR-21 Section 106 Compliance	Identification, evaluation, and assessment of effects to be determined for projects/actions assigned to Category 3 in Exhibit 6 of the 2014 *Programmatic Agreement Among the National Park Service at Yosemite National Park, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation regarding Compliance with Section 106 of the National Historic Preservation Act for the Merced Wild and Scenic River Comprehensive Management Plan*.	National Park Service
MM-CR-22 Inadvertent Discovery of Historic Properties or American Indian Human Remains	In accordance with the 2014 *Programmatic Agreement Among the National Park Service at Yosemite National Park, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation regarding Compliance with Section 106 of the National Historic Preservation Act* for *Merced Wild and Scenic River Comprehensive Management Plan;* protocols and requirements for Inadvertent Discovery of Historic Properties or American Indian Human Remains shall be incorporated into all construction requirements documents (plans and specifications).	National Park Service

APPENDIX C
CUMULATIVE ACTIONS

The Council on Environmental Quality describes a cumulative impact as the impact on the environment which results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of the agency (federal or nonfederal) or person taking the action. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Each impact topic in Chapter 3 of the *Bridalveil Fall Rehabilitation Environmental Assessment* considers the impacts of each alternative in conjunction with relevant impacts of past, present, and reasonably foreseeable future actions.

PAST ACTIONS

Install Restroom at the Church Bowl Picnic Area in Yosemite Valley

This project replaced four portable toilets with a flush toilet at the Church Bowl Picnic area in Yosemite Valley. The new restroom is about 16 feet x 22 feet with a men's and women's restroom. Each restroom has an accessible fixture and a second fixture (four fixtures total). This project meets current Architectural Barriers Act standards for accessibility. This area sustains moderately high visitor use.

Bridalveil Fall Vault Toilet Ventilation and Interior Lighting System Installation

This 2011 project intended to improve ventilation and interior lighting systems at the vault toilets at the Bridalveil Falls parking, as the existing solar powered system did not have enough sunlight to work efficiently. The park installed thermoelectric generator and 100 gallon propane tank behind the existing vault toilets to serve ventilation fans and LED dome lights for each toilet stall. Storage batteries and a charge controller were also installed. The park later concluded that this project did not substantially improve conditions at the site.

Reconstruct Critically Eroded Sections of El Portal Road

This project reconstructed critically eroded sections of El Portal Road at "the Narrows", the area between the Big Oak Flat Road intersection and Pohono Bridge. The road was at risk of failure where high-water events, including the Merced River flood of January 1997, undercut the road. The prompt reconstruction of the failing portions of El Portal Road protected travelers from a sudden road failure and maintained access to Yosemite Valley. The Finding of No Significant Impact for the project was signed in July 2007. In 2017, the park followed up with pavement rehabilitation and drainage improvements.

Parkwide Emergency Road Repairs

This project repaired storm damage on primary roads in Yosemite National Park in 19 locations. The majority of the damaged was on the El Portal, Big Oak Flat, Valley Loop, and Wawona Roads.The specific repairs included:

- Replacing damaged roadway/pavement.
- Reconstructing sections of the existing stone guardwall and curb.
- Cleaning or replacing culverts and repairing headwalls.
- Removing slide debris from drainages to re-establish the original drainage channels.
- Repaving and regrade road shoulders and stabilize with rock rip rap in multiple areas.

Wawona Road Rehabilitation

This 2009 project pulverized and repaved about 25 miles of the Wawona between Southside Drive in Yosemite Valley and the South Entrance to Yosemite National Park. The existing 24-foot-wide paved road was recycled (pulverized to a maximum depth of 12 inches) and overlaid with subgrade and shoulders as required. Culverts were replaced due to failure. Drainage work also included installation of an underdrain system at about 20 road locations where there is currently a road failure concern. Minimal work took place at pullouts and intersections, within the existing paved footprint.

PRESENT

Merced Wild and Scenic Comprehensive River Management Plan (2014)

The overall goal for the *Final Merced River Plan* is to provide for the public use and enjoyment of the Merced River while protecting and enhancing the values that led to its inclusion in the Wild and Scenic Rivers System. Specific goals of the plan are to:

- *Protect and Enhance Ecological and Natural Resource River Values*. Promote the ability of hydrological and geological processes associated with the Merced River to shape the landscape, restore floodplains and meadows, and protect water quality.
- *Provide Opportunities for Direct Connection to River Values*. Support opportunities to experience and develop direct connections to the Merced River and its unique values as a place of cultural association, education, recreation, reflection, and inspiration.
- *Establish a User Capacity Management Program*. Establish a user capacity management program that provides for public use and enjoyment of the Merced River while protecting and enhancing natural and cultural river values.
- *Determine Land Uses and Associated Developments*. Provide clear direction on land use, facilities, and services within the river corridor that are necessary for public use and provide for the protection of river values.

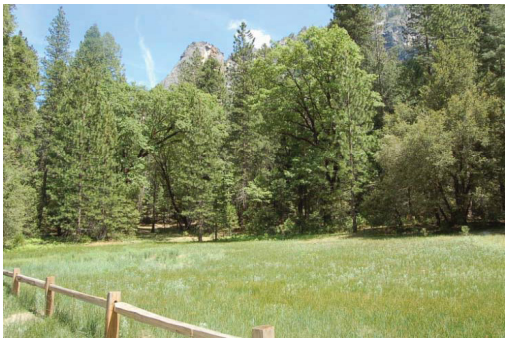
The selected alternative in the Merced River Plan prescribes a suite of actions to achieve these goals over the next 20 years, including the actions described in the *Bridalveil Fall Rehabilitation Project Environmental Assessment*. Actions in Yosemite Valley in the next five years include: improve parking and road circulation including a grade-separated crossing for pedestrians near Yosemite Lodge; improve lodging and parking at Half Dome Village; restore Merced River riverbanks in heavily impacted areas; restore and enhance meadows; enlarge the Camp 4 walk-in campground and Upper Pines campground; and demolish the Art Activity Center in Yosemite Village and restoration to wetland habitat.

The Merced River Plan also prescribes treatments (maintenance clearing) for the following six scenic vistas associated with Bridalveil Fall.

Bridalveil Fall Approach (Southside Drive). The Bridalveil Fall Approach is located on Southside Drive, 0.30 mile east of Pohono Bridge. Southside Drive heads directly to the falls before turning to the east at Bridalveil Meadow. This is one of the first waterfalls visitors see when entering the Yosemite Valley. The current view of the fall is very narrow and only visible along a brief segment of road. Further encroachment of mature trees from the sides of the road could block the view completely. This site contains a large number of cedar, fir, and ponderosa saplings/seedlings that the park would need to remove in the initial management of the site.

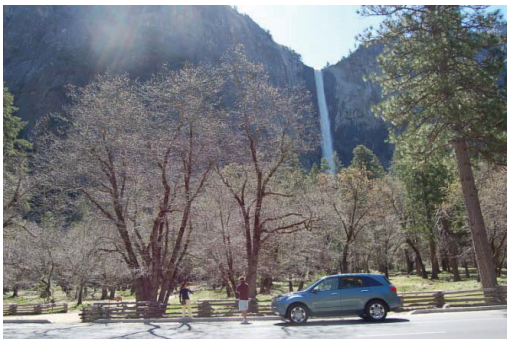
BRIDALVEIL FALL, POINT 1 (SOUTHSIDE DRIVE)

Roosevelt Turnout. The Roosevelt Turnout is located 0.45 mile east of Pohono Bridge. The focal point of the Roosevelt Turnout is Bridalveil Fall, with a portion of Bridalveil meadow in the foreground. This sign commemorates the general location of where John Muir and Theodore Roosevelt camped in 1903. Many conifers obscure the view Bridalveil Fall.



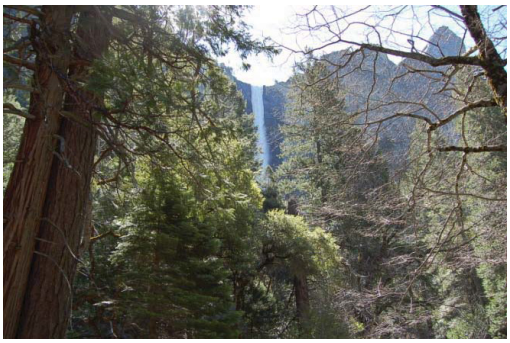
ROOSEVELT TURNOUT

Bridalveil Straight, Interpretive Sign. The Bridalveil Straight Interpretive Sign is located 0.25 mile east of the intersection of Southside Drive and Wawona Road. This vista is listed as a contributing feature to the Yosemite Valley Historic District. Bridalveil Fall to the south is the focal point of the vista. This location also has a spectacular view of El Capitan to the east, over California Black Oaks. Bridalveil Fall View, Hanging Valley Interpretive sign-work has started at this site, but is not complete.



BRIDALVEIL STRAIGHT, INTERPRETIVE SIGN

Bridalveil Fall Foot Bridge. The Bridalveil Fall Foot Bridge is located on the Bridalveil Fall Trail below the fall. This vista is from one of three bridges built in 1913 at the waterfall. These are the oldest remaining bridges in the valley. Bridalveil Fall footbridge-work has started at this site, but is not complete.



BRIDALVEIL FALL FOOT BRIDGE

Bridalveil Fall View, Hanging Valley Interpretive Sign. The Hanging Valley Viewpoint is on Northside Drive, approximately 1 mile west of El Capitan Crossover. The viewpoint gives visitors views across the Merced River to Bridalveil Fall and the Leaning Tower. This viewpoint is a contributing vista to the Yosemite Valley Historic District. The vista includes a stand of California Black Oaks. Valley View work has started at this site, but is not complete.

BRIDALVEIL FALL VIEW, HANGING VALLEY INTERPRETIVE SIGN
(PHOTO CREDIT: STEVE BUMGARDNER)

Valley View. Valley View is at the west end of Northside Drive, before Pohono Bridge. This is the vista on the 2010 quarter from the U.S. Mint's "America the Beautiful" series. The viewpoint is part of the Yosemite Road Guide (marker V11) which describes it as being a view of the "gates" of Yosemite with El Capitan on the left and Cathedral Rocks on the right. Reflected in the calm water of the Merced River is the landscape of the surrounding Yosemite Valley.

VALLEY VIEW

Invasive Plant Management Plan Update

There are over 150 non-native plant species in Yosemite National Park, which add up to about 10% of the park's total flora. High-priority species targeted for control in Yosemite include Himalayan blackberry, yellow star thistle, spotted knapweed, perennial pepperweed, French broom, tree-of-heaven, and black locust. Crews remove plants with a variety of techniques. Crews re-visit treated areas each year to assess the results and provide follow-up treatment. The park completed an updated plan and signed a Finding of No Significant Impact in 2011.

Rehabilitate the Yosemite Valley Loop Road

The purpose of this project is to repair and resurface existing roadways in Yosemite Valley. The park completed about 70% of the work on the Yosemite Valley Loop Road in the period from 2006 to 2008. The park is finishing remaining work in 2017/2018. The project will improve pavement, improve drainage, and define roadside parking throughout the project area. No widening or realignment of the roadway prism will take place. Areas with soft or poorly draining subgrade will be excavated and replaced with foundation materials. A Finding of No Significant Impact (FONSI) was signed by the Regional Director in February 2006.

Restoration of the Mariposa Grove of Giant Sequoias

Nearly 150 years after U.S. Congress passed landmark legislation preserving both the Mariposa Grove of Giant Sequoias and Yosemite Valley, the park is undertaking comprehensive suite of actions to ensure that the Mariposa Grove ecosystem continues to thrive and provide inspiration and enjoyment for future generations. The primary goals of this project are to restore degraded habitat and natural processes critical to the long-term health of the Grove and improve the overall experience for visitors.

Most public parking will move from the lower Grove to the park's South Entrance, which will serve as the primary transit hub and location for shuttle access. The park will provide new visitor services at the South Entrance including visitor information and restrooms. The park released a Final Environmental Impact Statement in October 2013 with a subsequent Record of Decision in December 2014.

Scenic Vista Management Activities

The purpose of the *Scenic Vista Programmatic Management Plan for Yosemite National Park* is to develop a systematic program to protect and restore Yosemite's important viewpoints, vistas, and the natural processes that sustain the views. The 2010 Finding of No Significant Impact for the *Scenic Vista Management Plan* did not include actions inside the Merced River corridor. Instead, the Merced River Plan included scenic vista clearing actions in the river corridor, which calls for removal of moderate to large conifers to enhance views.

REASONABLY FORESEEABLE FUTURE

Construct a Comfort Station West of Yosemite Lodge at the Yosemite Falls Parking Area

This project will construct one new visitor comfort station at the west end of the Yosemite Lodge, in a previously disturbed area. The proposed new comfort station will help accommodate the visitor needs associated with an adjacent shuttle bus stop and the Yosemite Falls parking area.

The square footage and design features of the comfort station are to include up to seven urinals, 22 toilets and 13 sinks split between the men and womens' sides; along with a family restroom with two toilets and two sinks. Each side will include at least one accessible toilet and sink. The building will

have up to three drinking fountains with water bottle filling capability. The construction will be completed on-site with sustainable materials, energy-efficient interior lighting, and shielded, downward exterior lighting to enhance night skies. All design work will be completed in accordance with the park's design guidelines for Yosemite Valley and Architectural Barriers Act Accessibility Standards. This action was identified in the *Merced River Plan* / *Record of Decision* (2014).

Implement a Day-Use Reservation System for Tour Buses in Yosemite

Tour bus operators with a Commercial Use Authorization to operate in Yosemite are free to bring in multiple tour buses, as long as they comply with the regulations in the special use permit. Currently, buses in Yosemite Valley are restricted to parking in 22 spaces at the Yosemite Falls parking lot. A reservation system for bus parking at this location is proposed for 2019. This reservation system will stagger tour bus arrivals at locations in Yosemite and provide a higher confidence for tour bus drivers that they will have a place to park.

Replace a Modular Comfort Station and Construct a New Comfort Station at Yosemite Village Parking Areas

This project will construct a comfort station at the Yosemite Village parking area (south) and in the vicinity of the Village Store parking area (north). The Yosemite Village Parking area (south) comfort station will replace a modular unit. The park redesigned and constructed the Yosemite Village Parking Area (south) in 2017, leaving a pad for the new comfort station. The permanent comfort station will have about 20 toilets on the womens' side and 5 toilets and 9 urinals on the mens' side. The north comfort station in the vicinity of the Visitor Store will not exceed 800 square feet with about half the number of fixtures as in the south lot. All design work will be completed according to Yosemite's "A Sense of Place" design guidelines for Yosemite Valley and Architectural Barriers Act Accessibility Standards.

Wawona Wastewater Treatment System Project

This project will upgrade the 30-year old wastewater treatment facility in Wawona and connect it to the Wawona Campground. The project will replace a single-stall vault toilet at the South Fork Picnic Area with a flushing toilet facility. The National Park Service initiated an environmental assessment for this project in 2017.

APPENDIX D
DRAFT FLOODPLAIN STATEMENT OF FINDINGS
BRIDALVEIL FALL REHABILITATION PROJECT
YOSEMITE NATIONAL PARK

INTRODUCTION

The National Park Service (NPS) has prepared the *Bridalveil Fall Rehabilitation Project Environmental Assessment* (*EA*) to improve visitor facilities and services at the base of Bridalveil Fall in Yosemite Valley. The purpose of this Floodplain Statement of Findings is to review the *Bridalveil Fall Rehabilitation Project EA* in sufficient detail to:

- Provide an accurate and complete understanding of the risks to human health and safety assumed by implementation of the preferred alternative.
- Provide an analysis of the risks to property in the project area and the comparative flood risk among the alternatives.
- Describe the effects on floodplain values associated with the preferred action.
- Provide a description and evaluation of mitigation measures to reduce impacts to the floodplain.

Floodplains and Floodplain Extent

Following NPS Guidelines (NPS Director's Order 77-2), the Regulatory Floodplain for the proposed action at this site is the 100-year floodplain (1% annual chance of inundation). Currently, there are no defined 100-year and 500-year floodplain boundaries in the Bridalveil Fall project area (including Bridalveil Creek and associated ephemeral and intermittent drainages). For the purposes of this document, the NPS assumes that current and proposed facilities are located in the 100-year floodplain, per NPS Procedural Manual 77-2: Floodplain Management (update 2004).

GENERAL CHARACTERISTICS OF FLOODING IN THE AREA

Flooding in the Bridalveil Fall project area can be categorized as one of two general types: (1) *Spring floods* that occur as a result of spring and summer snowmelt and associated runoff, and (2) *Winter floods* or *rain on snow events* that occur during the late fall and winter (September through April) as a result of intense rainfall or rainfall on snow. From 1916 through 1989, 124 of the 140 recorded high flows in Yosemite Valley were spring floods that occurred in response to spring or early summer snowmelt conditions (Madej et al. 1994). Only about 10% of total floods in the park are winter floods or rain on snow events. However, these events are responsible for the highest floods recorded, especially where warm heavy rains fall on snow in higher elevations. Frazil ice, while less common, occasionally forms at the base of Bridalveil Fall and is another cause of flooding within the park. Frazil ice forms when mist from the waterfall freezes in the air and accumulates at the base of a waterfall. Accumulations of frazil ice can be many feet thick, and when the ice is entrained in the flow, it can cause localized impoundments and other flooding.

At the beginning of the wet season the ground is extremely dry, and about 3 to 5 inches of precipitation is required to satisfy the retention storage capacity of the soil before any significant runoff occurs. Later in the season, when the ground may be very wet and there may be a moderate snow cover at the higher elevations, heavy rainfall over the basin can cause large flood runoff. An intense storm with a high freezing level may also result in flood runoff from almost the entire basin, with as much as 2 inches of snowmelt augmenting the rainfall by up to 20%, based on historic measurements. Most of the runoff from the Merced River basin occurs from November through July (Madej et al. 1994).

Floodplain Attributes of Bridalveil Creek and the Merced River in Yosemite Valley

Bridalveil Creek is a tributary to the Merced River in Yosemite Valley. Bridalveil Creek descends over Bridalveil Fall and flows northwest from the base of Bridalveil Fall through the project area. At the base of the fall, Bridalveil Creek forms multiple braided stream channels as it descends a steep debris flow fan. The stream system, including the perennial Bridalveil Creek, multiple intermittent and ephemeral channels, and associated floodplains, make up the core of the Bridalveil Fall project area.

The gradient of Bridalveil Creek decreases as it reaches the edge of the project area at Southside Drive. The project area does not include the confluence of Bridalveil Creek with the Merced River, which is approximately 600 feet downstream of the project area boundary (Figure 1). The northernmost tip of the Bridalveil Fall project area is located within the 100-year floodplain of the Merced River.

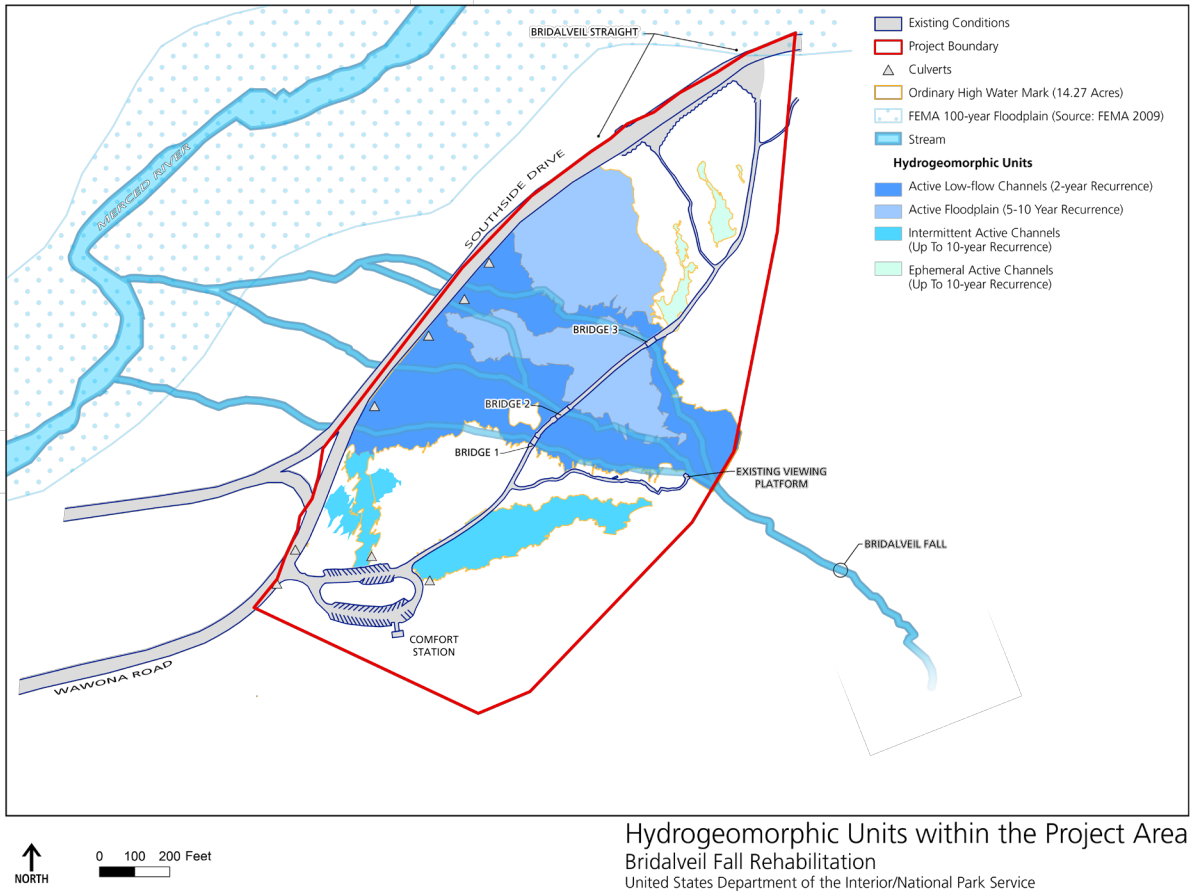


Figure 1. Hydrogeomorphic Units in the Bridalveil Fall Project Area

Most of the Merced River in Yosemite Valley has a well-developed, relatively wide floodplain with an average slope of 0.1%. In the Bridalveil Fall area near the confluence with Bridalveil Creek, the river channel is steeper and more confined, the floodplain is narrow, and flow velocities are high. The largest documented flood events occurred in 1937, 1950, 1955, and 1997, with peak discharges measured in the range of 22,000 to 25,000 cubic feet per second at Pohono Bridge. These floods were the result of rain-on-snow events. Several large undocumented events also occurred during the 1860s and 1870s.

The January 1997 flood was the largest recorded flood within the park with a peak discharge of 25,000 cubic feet per second at Pohono Bridge (Eagan 1998). The flood inundated roads, picnic areas, park offices, and lodging units. It caused extensive damage to NPS facilities, including roads, bridges, buildings, and Yosemite Valley's electric, water, and sewer systems. The flood also altered natural features and caused downed trees, movement of landslide talus into streams, channel erosion, and substantial changes in channel morphology (NPS 1997). This flood was estimated to have a recurrence interval of 90 years (NPS 1997), or about a 1.1% chance of occurring in any given year.

POTENTIAL RISKS TO HUMAN HEALTH AND SAFETY

Floods of consequence in the Bridalveil Fall area and Yosemite Valley always occur with some warning. Flooding within Yosemite Valley typically requires a prolonged period of intense rain for at least 24 hours to create extreme flood conditions. The NPS and other agencies have a comprehensive monitoring system in place to provide an early warning system for major flooding, which provides sufficient time for evacuation.

Pedestrian access to the Bridalveil Fall project area is subject to flooding due to extreme weather events. Flooding may also impact facilities such as roads, trails, bridges, and utilities that provide access to or service the project area. When necessary, the NPS will close areas within Yosemite including the Bridalveil Fall project area to mitigate risks to human life due to flooding. Early warning, evacuation, and closure of the area would mitigate risks to humans in the Bridalveil Fall area.

POTENTIAL RISKS TO PROPERTY

Since 1916, Yosemite National Park has experienced 11 winter floods large enough to cause damage to property. This section describes the existing and proposed new structures in the 100-year floodplain described under the preferred alternative in the Bridalveil Fall Rehabilitation project, and associated risks to property and potential new capital investment.

The NPS categorizes buildings and facilities into the following three categories to evaluate floodplain risks (per NPS Director's Order 77-2 and Procedural Manual 77-2):

- *Class I Actions* include the location or construction of administrative, residential, warehouse, and maintenance buildings and non-excepted (overnight) parking lots, if they lie within the 100-year floodplain.
- *Class II Actions* create "an added disastrous dimension to the flood event." Class II actions include the location or construction of schools, clinics, emergency services, fuel storage facilities, large sewage treatment plants, and structures such as museums that store irreplaceable records and artifacts, if they lie within the 500-year floodplain.
- *Class III Actions* include Class I or Class II Actions that are located in high hazard areas such as those subject to flash flooding.

The following existing or proposed new structures in the preferred alternative of the *Bridalveil Fall Rehabilitation EA* constitute Class I Actions (Figure 2) (see also Figure 2-3 in the *Bridalveil Fall EA*):

- **New accessible pedestrian path to a viewing platform.** The NPS would construct a new accessible path to the existing viewing platform. Most of the path would be at ground level, with the exception of elevated segments that cross small drainages. The park would construct the accessible pathway using robust building materials including natural stone, making it flood resistant.

  The path is located outside the 2-10 year floodplain. Flood depths at this location during a larger flood event are expected to be low, with high flood velocities due to the steepness of the grade as you approach the fall. Elevated segments of the path could sustain damage

during extreme flood events. The need to repair elevated portions of the path after extreme flood events is expected to be moderate.

- **Expanded viewing platform.** The NPS would expand the existing viewing platform from 400 square feet to approximately 1,500 square feet to accommodate more visitors. The platform is located near the base of Bridalveil Fall, on the edge of the ordinary high water mark and 10-year floodplain boundary. Flood velocities and depths at this location would be high during extreme flood events.
  The viewing platform would be replaced and expanded in its current location. The new viewing platform would be constructed of robust materials suitable for the site conditions. The finished elevation of the new viewing platform surface would be between 4 inches and 18 inches above the existing viewing platform elevation. The expanded portion of the platform would be outside of the bed and banks of Bridalveil Creek. The platform could sustain damage during extreme flood events, though the need for repair would be rare. The railing would be designed to be flood resistant, though it could be damaged from falling boulders during extreme events. The viewing platform would require maintenance clearing after high flood events.
- **Parking lot improvements.** The NPS would reconfigure the existing parking lot, without expanding the existing footprint. The parking lot location is outside of main floodways such as Bridalveil Creek. Flood depths in this location during a large flood event are expected to be low, with low flood velocities. The existing parking lot has withstood multiple large flood events with minor damage. Repairing the culvert in the northeast corner of the parking lot is expected to substantially improve drainage through the area and prevent future water-caused erosion. The parking lot provides critical services to that area and there will be no flood-related risks to capital investments for parking lot improvements in this location

Actions along Bridalveil Straight (reconfigured parking, construction of a visitor gathering and viewing area, and reconfigured or paved trails) are considered excepted actions and do not require evaluation in this Statement of Findings because they are outside or above the floodplain and Bridalveil Straight is a non-high hazard area. Improvements to the historic Carriage Road are considered excepted actions for the Floodplain Statement of Findings. The Carriage Road Trail is a cornerstone to visitor circulation within the project area. The trail will not be removed because it is an important contributing element to the Yosemite Village Historic District, and its removal or demolition would result in an adverse effect on this historic resource.

There are no Class II or Class III actions proposed in the Bridalveil Fall project under any of the alternatives.

Alternatives Considered

The *Bridalveil Fall Rehabilitation Project EA* considered one action alternative, Alternative 2, in addition to the preferred alternative considered in this Statement of Findings. Alternative 2 proposes additional facilities in the floodplain – a pedestrian bridge across Bridalveil Creek from the viewing platform near the base of the fall and an additional comfort station along Bridalveil Straight. The additional comfort station would be located in a non-high hazard area, outside deep flood flows and high velocities. The bridge across Bridalveil Fall would require additional Statement of Findings analysis to determine impacts on capital investment. The No Action alternative, Alternative 1, evaluated existing conditions in the area with no additional structures in the floodplain. The No Action alternative would not meet the purpose and need of the project.

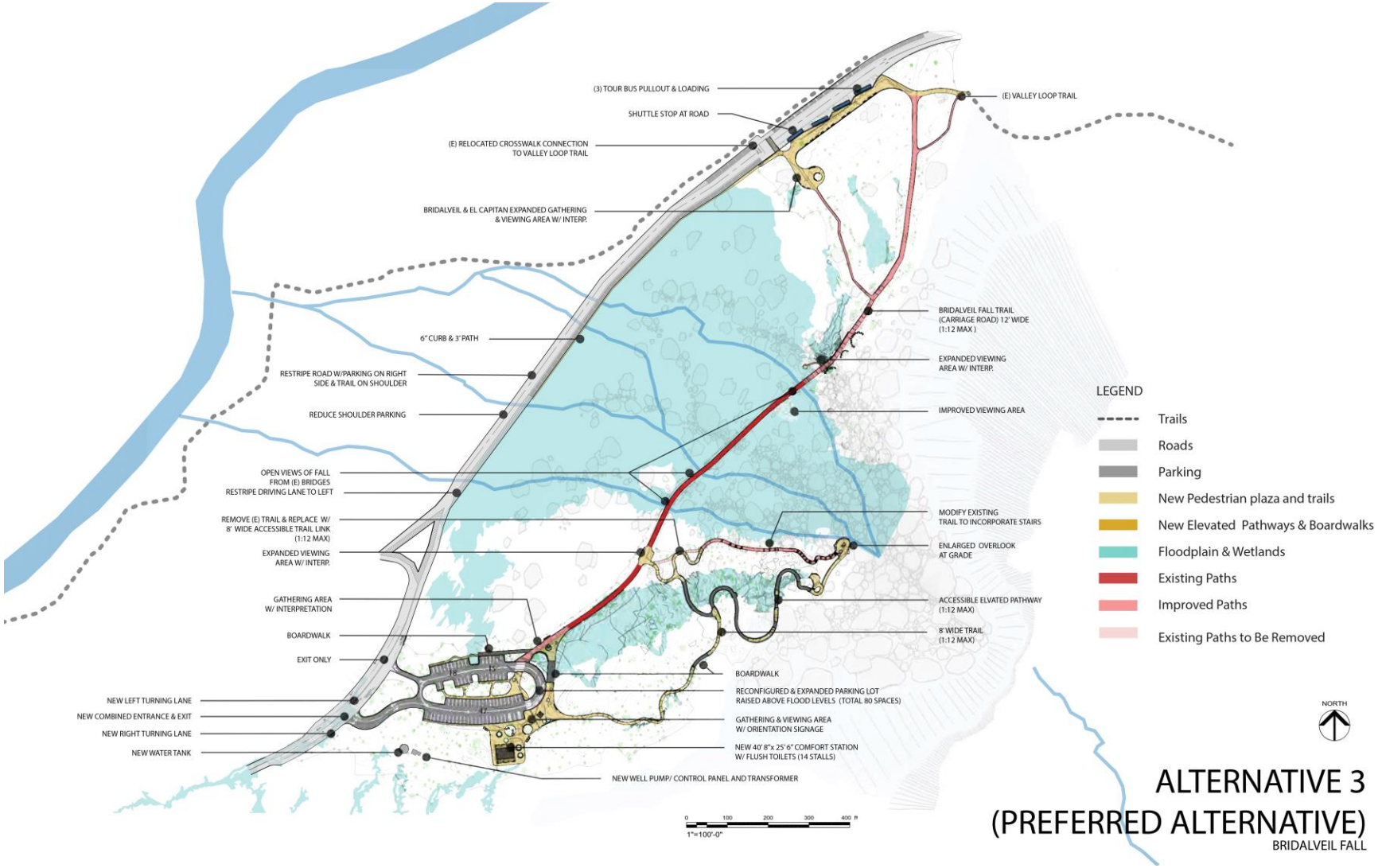


Figure 2. Preferred Alternative in Bridalveil Fall Rehabilitation Project EA

POTENTIAL RISKS TO FLOODPLAIN VALUES

Floodplains provide an array of natural and physical resource values within Yosemite. These values include habitat for vegetation and wildlife, periodic disturbance to habitats within floodplains, which can support ecological value and spatial diversity in habitat, dissipation of flood energy, and benefits to waterway hydrologic processes including fluvial transport mechanisms and river geomorphic processes. The floodplain also recharges groundwater in areas where soils are sufficiently pervious.

Construction of the new comfort station with flush toilets at the parking lot would substantially improve natural resource conditions and water quality in the parking lot area. Considerable human waste is present near the parking lot, as visitors search for alternatives to long lines and disagreeable conditions at the existing vault toilets. The park expects the presence of human waste to diminish greatly after construction of the new flush toilets.

Reconfiguration of the parking lot would have no impact on floodplain values, as the park would reconfigure the parking lot in roughly the same footprint. Culverts would be repaired in the northeast corner of the lot and the new trailhead boardwalk configuration will restore flows off the parking lot in a more natural pattern. Raising the northeast part of the parking lot about 18 inches would aid in moving flowing water back to natural water drainages.

The new accessible pedestrian path to a viewing platform would be raised over drainages, preserving natural flow patterns in the area and avoiding wetland vegetation. There is considerable off-trail foot traffic in this area, which tramples native vegetation and habitat. The trail will confine use to one path and may reduce off-trail use.

While the expanded portion of the viewing platform would not extend into the bed and banks of Bridalveil Creek, a small portion of the existing platform extends into the bed and banks. Creek flows do not reach the platform at low flows. During moderate and high flows, the platform would not substantially impact flows more than the existing boulders and trees in the very rough alluvial fan environment.

DESIGN OR MODIFICATIONS TO MINIMIZE HARM TO FLOODPLAIN VALUES OR RISKS TO LIFE AND PROPERTY

The design of all new structures or substantial improvements to existing structures will incorporate requirements and methods for minimizing flood damage. Park staff will maintain an active flood evacuation plan. The plan details responsibilities of individual park employees for advanced preparedness measures; removing or securing park property; records and utility systems; monitoring communication; and conducting rescue and salvage operations. Impacts on the site's resources will be minimized and avoided per Mitigation Measures in the environmental assessment.

Site-Specific Mitigation

- Active flood plans will be in place for timely and safe evacuation of people in times of rising water. Areas will be evacuated prior to major storm events that could potentially produce flooding, based on ongoing monitoring within the Park. Risks to humans will be mitigated by monitoring of storm or potential storm conditions, warning, and evacuation as warranted.

CONCLUSION

Implementation of the preferred alternative in the *Bridalveil Fall Rehabilitation Project EA* will take place in compliance with regulations and policies to prevent impacts to floodplain values and loss of human life or property. The park and contractors will strictly adhere to mitigation measures during

and after construction activities. Individual permits with other agencies will be obtained prior to construction activities. The NPS concludes that there will be no unacceptable risks to human health and safety, unacceptable impacts to property, or substantial long-term adverse impacts to floodplain values. Therefore, the NPS finds the preferred alternative in the *Bridalveil Fall Rehabilitation Project EA* to be acceptable under Executive Order 11988 and the NPS Directors Order 77-2 for the protection of floodplains.

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1994 Analysis of Bank Erosion on the Merced River, Yosemite Valley, Yosemite National Park, California, USA. Environmental Management Vol 18, Issue 2, pp 235-250. March.

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Appendix E
Table E-1. Special Status Wildlife Species Potentially Occurring in Yosemite Valley

Species	Federal Status	State Status	Habitat	Potential to Occur in the Project Area
Amphibians				
Yosemite toad (*Anaxyrus canorus*)	T	SSC	Thick meadow vegetation and patches of low willows, usually in shallow, warm water areas in habitats surrounded by lodgepole or whitebark pine from 6,400-11,300 feet elevation.	Not expected to occur in project area due to habitat requirements; Yosemite toad generally occur above 6,000 feet.
Mount Lyell salamander (*Hydromantes platycephalus*)	none	WL	Largely restricted to alpine or subalpine vegetation associations in outcrops of rocks and boulders with free surface water, such as a stream, waterfall, or melting snow nearby.	Known to occur in Yosemite Valley, and potential habitat occurs within the project area.
foothill yellow-legged frog (*Rana boylii*)	none	SSC	Primarily found in streams with riffles, rocky substrates, and open banks from sea level to 6,400 feet in elevation.	The species was historically present in the valley, but it is believed to have been extirpated from Yosemite National Park
California red-legged frog (*Rana draytonii*)	T	SSC	Found mainly near ponds in forests, woodlands, grasslands, coastal scrub, and streamsides with plant cover. Most common in lowlands or foothills. Breeding habitat is in permanent or ephemeral water sources; lakes, ponds, reservoirs, slow streams, marshes, bogs, and swamps.	The species is believed to have been extirpated from Yosemite National Park. However, efforts are currently underway to reintroduce the species to the park. NPS, in conjunction with the USFWS, is reintroducing 4,000 tadpoles and 500 adults between 2017 and 2019 into several sites in east Yosemite Valley. It is highly unlikely that individuals would travel to the Bridalveil Fall project area before construction is complete.
Sierra Nevada yellow-legged frog (*Rana sierrae*)	E	T, WL	Typically found along lakeshores and low gradient streams with irregular shores as low as 4,500 feet, but generally from 6,000 to over 12,000 feet in elevation.	Not expected to occur in project area due to habitat requirements; Sierra Nevada yellow-legged frog generally occur above 6,000 feet.

Table E-1. Special Status Wildlife Species Potentially Occurring in Yosemite Valley

Species	Federal Status	State Status	Habitat	Potential to Occur in the Project Area
Birds				
northern goshawk (*Accipiter gentilis*)	MBTA	SSC	Mature and late-seral forest; moderate to closed canopy with open understories; at least two canopy layers. Typically nests in mature conifer stands near streams.	Potential foraging, roosting, and nesting habitat may occur within or adjacent to project area.
golden eagle (*Aquila chrysaetos*)	BGEPA, BCC, MBTA	FP, WL	Found in a wide range of elevations in the park. Needs open terrain for hunting. Nests on cliffs and in large trees in open areas.	Possible roosting/nesting habitat in project area.
long-eared owl (*Asio otus*)	MBTA	SSC	Primarily inhabits riparian and live oak woodlands and thickets in association with open grassland, meadow, or agricultural foraging habitats. Also occasionally uses high elevation coniferous forests, but only in association with large open grasslands or scrublands.	No recent records exist. Unlikely to occur in project area.
Vaux's swift (*Chaetura vauxi*)	MBTA	SSC	A rare summer resident from 4,000 to 7,000 feet on west slope of the Sierra Nevada. Often associated with old-growth forests where standing, hollow snags afford suitable nesting and roosting sites.	Transient individuals may occur in project area.
northern harrier (*Circus cyaneus*)	MBTA	SSC	Nests on the ground. Favor open areas such as grasslands, meadows, wetlands, and agricultural clearings.	Rarely seen migrant in Yosemite Valley meadows. No habitat occurs in the project area.
olive-sided flycatcher (*Contopus cooperi*)	BCC, MBTA	SSC	Inhabits late-successional conifer forests with open canopies (e.g., 0–30% canopy cover); primarily in open mixed-conifer and red fir.	Common Yosemite resident, often observed in the Valley. Possible transient occurrence in project area.
black swift (*Cypseloides niger*)	BCC, MBTA	SSC	A fairly common summer resident from 4,000 to 7,500 feet and a rare transient at higher elevations on west slope of the Sierra Nevada. Nests behind waterfalls and on steep cliffs. Potentially more than a third (roughly 80 pairs) of the breeding population is in the Mariposa County portion of the park.	Known to occur in project area and potential nesting habitat exists.

Table E-1. Special Status Wildlife Species Potentially Occurring in Yosemite Valley

Species	Federal Status	State Status	Habitat	Potential to Occur in the Project Area
yellow warbler (*Dendroica petechia*)	BCC, MBTA	SSC	Breeds in wet, deciduous thickets, especially willows, also shrubby areas and old fields.	In recent decades, numbers of breeding pairs have declined dramatically in Yosemite National Park. Known to breed in the Valley. Transient individuals may occur in project area.
willow flycatcher (*Empidonax trailii*)	BCC, MBTA	E	Riparian thickets along streams, rivers, lakes, springs, wet meadows, mountainside seepages; often with standing or running water.	Last recorded in Yosemite Valley in 1974. No habitat occurs within the project area.
peregrine falcon (*Falco peregrinus*)	BCC, MBTA	FP	Can be found hunting over a variety of habitats. Nests on cliffs and steep, rocky habitats.	Known to occur in Yosemite Valley. Potential nesting habitat and transient occurrence in project area.
bald eagle (*Haliaeetus leucocephalus*)	BGEPA, BCC, MBTA	E, FP	Mature conifer forest near large bodies of water.	Nesting is known to occur in the park. Possible transient occurrence in project area.
harlequin duck (*Histrionicus histrionicus*)	MBTA	SSC	Breeding range includes Sierra Nevada. Breeds along clear, fast-flowing rivers and streams with substantial streamside vegetation.	No habitat occurs within project area. Unlikely to occur in project area.
great gray owl (*Strix nebulosa*)	MBTA	E	Conifer forest adjacent to montane meadows and other openings. Entire California population of this species is restricted to the Yosemite region, where it reaches southernmost extent of its North American range.	Not known to occur in Yosemite Valley. Unlikely to occur in project area.
California spotted owl (*Strix occidentalis occidentalis*)	BCC, MBTA	SSC	Breeds in oak and ponderosa pine forests upslope to lower elevation red fir forests (up to elevations of 7,600 feet), with mixed conifer the optimum type. Presence of California black oak in the forest canopy also enhances habitat suitability.	Sightings in Yosemite Valley have been sporadic. Potential habitat occurs in and in the vicinity of the project area.
Mammals				
pallid bat (*Antrozous pallidus*)	none	SSC	Primarily found below 6,000 feet in elevation, in a variety of habitats, especially oak, ponderosa pine, and giant sequoia habitats. Roosts in rock outcrops, caves, hollow trees, and man-made structures.	Roosting sites recorded within Yosemite Valley. Habitat may occur within or adjacent to project area.

Table E-1. Special Status Wildlife Species Potentially Occurring in Yosemite Valley

Species	Federal Status	State Status	Habitat	Potential to Occur in the Project Area
Sierra Nevada mountain beaver (*Aplodontia rufa californica*)	none	SSC	Generally found in association with moist meadows and montane riparian habitat and occasionally with open, brushy stages of most forest types in the Sierra Nevada.	Confirmed observations in the Merced River corridor and Yosemite Valley. No habitat occurs within project area.
Townsend's big-eared bat (*Corynorhinus townsendii*)	none	SSC	Majority of records are from low to moderate elevations, though the species has been found to almost 9,000 feet. Uses caves, mines, or buildings for roosting. Prefers mesic habitats where it gleans from brush or trees along habitat edges.	Habitat may occur within or adjacent to the project area.
spotted bat (*Euderma maculatum*)	none	SSC	Occurs in montane coniferous stands and roosts in caves, abandoned mines, buildings, cracks, and crevices in cliffs and canyons, often near wetlands or water.	Rare throughout range, but relatively abundant in Yosemite. Suitable roosting and/or foraging habitat may occur within or adjacent to project area.
western mastiff bat (*Eumops perotis californicus*)	none	SSC	Found in a variety of habitats to over 9,800 feet in elevation. Roosts primarily in crevices in cliff faces, and occasionally trees. Detected most often over meadows and other open areas, but will also feed above forest canopy; sometimes to high altitudes (10,000 feet).	High population in Yosemite Valley. Suitable foraging and roosting habitat may occur within and adjacent to project area.
North American wolverine (*Gulo luscus*)	PT	T, FP	Various habitat types used, coniferous forests, subalpine and alpine areas above 8,000 feet; requires areas with persistent, deep snow cover.	No known nearby extant populations, no recent records of occurrence, and not expected to occur due to existing levels of disturbance in the study area.
western red bat (*Lasiurus blossevillii*)	none	SSC	Roosts in foliage. Breeding females appear to be highly associated with low elevation riparian habitats and are most often observed in the Central Valley and southern coastal areas. Individuals (most likely males or non-reproductive females) have been documented up to 7,500 feet in the Sierra Nevada.	Suitable foraging habitat may occur within or adjacent to project area.

Table E-1. Special Status Wildlife Species Potentially Occurring in Yosemite Valley

Species	Federal Status	State Status	Habitat	Potential to Occur in the Project Area
Sierra Nevada snowshoe hare (*Lepus americanus tahoensis*)	none	SSC	Primarily found in montane riparian habitats with thickets of alders and willows, and in stands of young conifers. Early seral stages of mixed conifer, subalpine conifer, red fir, Jeffrey pine, lodgepole pine, and aspen are likely snowshoe hare habitats, primarily along edges and especially near meadows	Suitable habitat likely occurs in the project area, but low potential to occur as the species prefers dense streamside vegetation.
western white-tailed jackrabbit (*Lepus townsendii townsendii*)	none	SSC	Inhabits a variety of habitats, including sagebrush, perennial grasslands, alpine dwarf-shrub, and wet meadows to timberline and above, and early successional stages of a variety of conifer habitats including lodgepole pine, yellow pine, western juniper, dwarf juniper, red fir, and mixed conifers.	Not likely to occur because of lack of occurrence in the vicinity of the project area.
Sierra Nevada bighorn sheep (*Ovis canadensis sierrae*)	E	E, FP	Alpine and sub-alpine zones with steep, rocky terrain. Occurs primarily along the Sierra Crest in the northeast portion of the park. Most of the herd inhabits U.S. Forest Service land adjacent to the park.	Not likely to occur in project area.
fisher, West Coast DPS (*Pekania pennanti*)	PT	CT, SSC	Late seral, closed canopy coniferous forests. Solitary and apparently needs large areas of mature forests with a high percentage of canopy closure, free of human disturbance.	Potential habitat occurs, but no recent nearby records. Marginal potential to occur due to existing levels of disturbance in the study area.
Mount Lyell shrew (*Sorex lyelli*)	none	SSC	Observed only in the vicinity of Mount Lyell, within or near Yosemite. Favors moist areas near streams, in grass, or under willows.	Not expected to occur in the project area.
American badger (*Taxidea taxus*)	none	SSC	Open areas and brushlands with little groundcover. Usually found in relatively dry grasslands and open forests. May be active at any hour but are mainly nocturnal.	Low potential because of lack of preferred habitat.
Sierra Nevada red fox, Sierra Nevada DPS (*Vulpes vulpes necator*)	C	T	Subalpine forest and meadow. Found mostly above 7,000 feet and rarely below 5,000 feet elevation.	No confirmed observations in Yosemite Valley. Unlikely to occur within the project area.

Table E-1. Special Status Wildlife Species Potentially Occurring in Yosemite Valley

Species	Federal Status	State Status	Habitat	Potential to Occur in the Project Area
Reptiles				
western pond turtle (*Actinemys (Emys) marmorata*)	none	SSC	Ponds, marshes, rivers, streams, and ditches to an elevation of about 6,700 feet, but are uncommon anywhere above 5,000 feet. Prefers open, grassy south-facing slopes for nest sites.	The species was believed to have been extirpated from Yosemite Valley. Efforts are currently underway to reintroduce the species to the park. Reintroduced western pond turtles are being monitored using radio telemetry and are currently less than 1.5 miles from project area. It is possible that they could occur within the project area.

Sources: CDFW 2017a, b; NPS 2014a, b; USFWS 2017

Abbreviations: BCC = bird of conservation concern, BGEPA = Bald and Golden Eagle Protection Act, MBTA – Migratory Bird Treaty Act, C = candidate, CT = candidate threatened, DPS = distinct population segment, E = Endangered, FP = fully protected, PT = proposed threatened, SSC = species of special concern, T = threatened, WL = watch list.

APPENDIX F
DRAFT NATIONAL HISTORIC PRESERVATION ACT ASSESSMENT OF EFFECT FOR SITE-SPECIFIC ACTIONS BRIDALVEIL FALL REHABILITATION PROJECT YOSEMITE NATIONAL PARK

INTRODUCTION/PURPOSE OF THIS REPORT

The National Park Service (NPS) proposes to improve visitor facilities and services at the base of Bridalveil Fall in Yosemite Valley, California. The NPS prepared the *Bridalveil Fall Rehabilitation Project Environmental Assessment (Bridalveil Fall EA)* as consistent with the National Environmental Policy Act and coordinated the requirements of National Historic Preservation Act (NHPA) Section 106 with the NEPA process. This report provides a stand-alone analysis of the Bridalveil Fall Rehabilitation project as consistent with the NHPA Section 106 review process. The *Bridalveil Fall EA* evaluates three alternatives for the proposed action: Alternative 1 – No Action Alternative, Alternative 2 – Bridalveil Creek Pedestrian Bridge, and Alternative 3 – Expanded Viewing Platform. This report evaluates the proposed undertaking (Alternative 3, NPS preferred alternative) per NHPA Section 106.

36 CODE OF FEDERAL REGULATIONS § 800.3 INITIATION OF THE SECTION 106 PROCESS (STEP 1 OF STANDARD SECTION 106 REVIEW PROCESS)

Relationship of Undertaking to Merced River Plan

The proposed Bridalveil Fall Rehabilitation Project will implement actions prescribed in the *Merced Wild and Scenic River Comprehensive Management Plan Environmental Impact Statement* and *Record of Decision* (Merced River Plan) (NPS 2014) for the Bridalveil Fall area. Merced River Plan actions include the redesign of the Bridalveil Fall Area to improve the visitor experience, reduce congestion, and improve accessibility within the area. The 2014 Merced River Plan Programmatic Agreement (MRP PA) identifies the project as a "Category 3" project which requires additional identification, evaluation and/or assessment of effect determinations consistent with 36 CFR Part 800 (standard NHPA Section 106 review process). Implementation of Category 3 projects requires notification of the State Historic Preservation Officer (SHPO), the Advisory Council on Historic Preservation (ACHP), traditionally-associated American Indian tribes and groups, other consulting parties [e.g. The National Trust for Historic Preservation (NTHP) and the Historic Bridge Foundation (HBF)], and the public, of the opportunity to consult on the project.

Description of the Undertaking

The Bridalveil Fall Rehabilitation Project undertaking is Alternative 3 – Expanded Viewing Platform (preferred alternative) in the *Bridalveil Fall EA*. The undertaking will rehabilitate or repair visitor facilities or services at the base of Bridalveil Fall to reduce crowding and improve overall visitor experience, improve visitor safety and reduce congestion, enhance scenic vistas, protect natural and cultural resources, and correct long-standing maintenance issues. Table F-1 lists the actions in the proposed undertaking (Alternative 3) and Figure F-1 illustrates these actions (see also Figure 2-3 in the *Bridalveil Fall EA*).

Table F-1. Summary of Actions under Alternative 3

Project Components	Alternative 3
Parking Lot	• Reconfigure the parking layout within the existing footprint to increase to add 20-24 parking spaces for a total of about 80 spaces (including four accessible parking spaces). • Regrade/raise the northeast east end of the parking lot to reduce flooding. • Add right-hand and left-hand turn lanes from Wawona Road into the parking lot. • Construct an additional entrance/exit driveway into the parking lot. • Construct a plaza/gathering lot with wayfinding and interpretation at the southeast corner of the parking lot. • Move the trailhead a short distance from the parking lot (to avoid high water) and build short boardwalks to connect the trailhead with plaza to the south and parking lot to the east. • Delineate the historical alignment of the carriage road (Bridalveil Fall Trail) as it continues to the parking lot with stones or other materials to retain a visual connection to the historic alignment. • Add a formal trail from the north side to the south side of the parking lot island. • Add bear boxes and additional animal-proof trash and recycling receptacles or dumpsters.
Vault Toilets at the Parking Lot	• Replace the existing four vault toilets at the parking lot with a new comfort station with flush toilets (14 fixtures). • Install necessary infrastructure for the flush toilets (new sewer, electrical lines, transformer, well pump, control panel, water tank, and sewer lift station). The trenching associated with the potential utility corridor would be approximately 4 feet deep and the manholes would be between 5 and 6 feet deep. Most of the trenched soil is approximately 75 percent or more of fill and the other 25 percent or less would be within native soils. Directional drilling may be used rather than trenching for utility installation. • Connect sewer and electrical lines to the main lines in Northside Drive. This will require about one mile of trenching or directional drilling in Wawona Road/Southside Drive up to Pohono Bridge, where the line will cross as part of the bridge (within the bridge deck).
Southside Drive at Bridalveil Straight	• Designate parking for up to three tour buses and one shuttle bus on the south side of Bridalveil Straight. Restrict bus parking to the south side of the road. • Remove approximately 8 parking spaces along Bridalveil Straight and approximately 10 spaces on the west end of El Capitan El Capitan Meadow on Northside Drive to meet capacity prescriptions of the *Merced River Plan* (MRP FEIS page 6-13) and balance additional parking proposed in the Bridalveil parking lot. • Install slightly angled parking for three tour buses on the south side of road. • Construct a visitor gathering and viewing area on the south side of Southside Drive. Selectively remove about 10 conifers to enhance views of El Capitan. Install benches and interpretive/wayfinding information. • Formalize a trail from the gathering/viewing area to the Bridalveil Fall Trail with an accessibility acceptable hardened surface. • Install one crosswalk in the center of Bridalveil Straight.

Table F-1. Summary of Actions under Alternative 3

Project Components	Alternative 3
Trails, Bridges, and Viewing Lots	• Add a new accessible loop trail from the parking lot to the existing viewing platform. The majority of the trail would be 8- to 10-feet wide, at-grade, and hardened with an accessibility acceptable surface. Portions of the trail would be elevated to reduce impacts to sensitive areas. Trail would be located to avoid archeological and ethnographic sites. • Repair the Bridalveil Fall Trail from the third bridge to the east, where it meets the Valley Loop Trail with an accessibility acceptable hardened surface. • Expand the intersection of the Bridalveil Fall Trail and trail to the existing viewing platform for interpretation and gathering. • Improve the viewing area to the northeast side of Bridge 3, adjacent to the Bridalveil Fall Trail (approximately 760 square feet in size). • Improve and delineate the access to the viewing area at the southwest side of Bridge 3 (760 sq. feet). Improvements would be minor - no blasting, rock removal, or heavy grading. • Rework the existing trail from the Bridalveil Fall Trail to the viewing platform. The trail will be a minimum of 8-feet wide with stairs as needed. Rework the stairs to meet code. • Expand the existing viewing platform from 400 square feet to 1,500 square feet. Install safety railing. • Construct an approximately 700-square foot overlook on the new accessible loop trail 120 linear feet south of the existing platform. • Add wayfinding and interpretive signage throughout the project area. • Remove small conifer trees (<20 inches dbh) from within the dripline of selected mature California black oaks to improve oak habitat (<50 small trees).
Accessibility	• Ensure that all new trails and pathways are accessible. The only trail in the project area that would not be accessible is a portion of the existing trail that leads from the Bridalveil Fall Trail to the viewing platform (the new loop trail would provide an accessible route to the viewing platform).

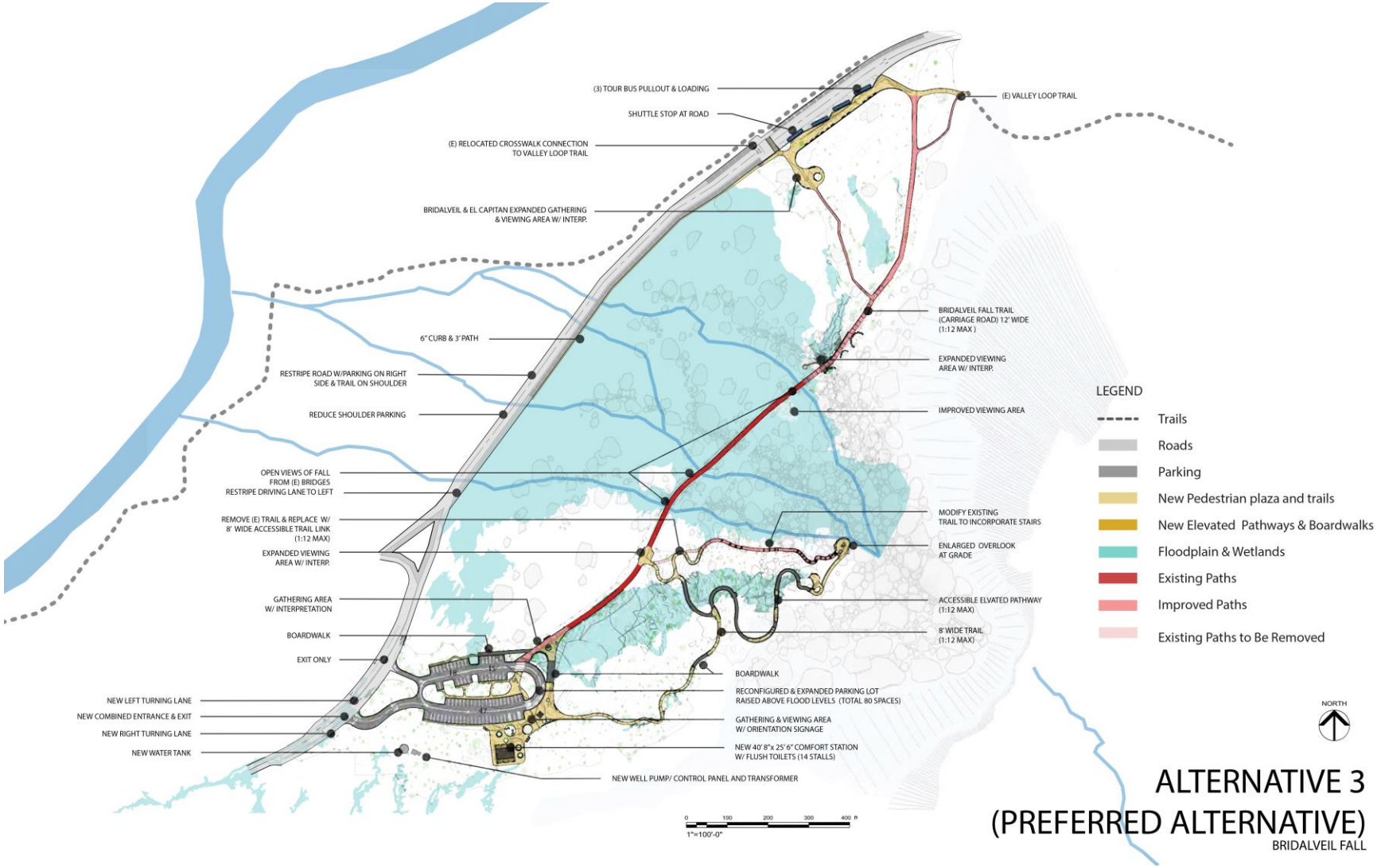

Figure F-1. Alternative 3

Public and Consulting Party Identification and Participation

In accordance with 36 CFR§ 800.8(a)(1), the NPS coordinated the NEPA compliance process with the Section 106 process for the Bridalveil Fall Rehabilitation Project. On April 24–25, 2017, the park invited the SHPO, ACHP, NTHP, and the HBF, to consult on this project per the stipulations of the MRP PA. The NPS provided the SHPO and the ACHP with notification that the park was preparing the Bridalveil Fall EA and intended to coordinate the NEPA and Section 106 compliance processes consistent with 36 Code of Federal Regulations (CFR) Section (§) 800.8(a)(1). The NPS initiated tribal consultation in May 2017. On May 31, 2017, the SHPO sent correspondence acknowledging the initiation of consultation for this project. The ACHP, NTHP, and HBF declined to participate in the consultation specific to this project. Additional information on consultation status with the NHPA Section 106 consulting parties is provided below.

The park conducted a 30-day public scoping period for the Bridalveil Fall Rehabilitation Project from April 26, 2017, through May 26, 2017. The NPS provided information to the public through an electronic newsletter; press releases; media interviews; posting to the NPS Planning, Environment, and Public Comment (PEPC) website; and at a public open house on May 10, 2018. The public scoping report is posted online under the document list at https://parkplanning.nps.gov/bridalveil. A few public comments recommended that the park consult with tribes and agencies responsible for historic properties to address concerns about the cultural sensitivity of the area (e.g., when considering any new construction or realignments of facilities and in considering the visitor experience and contemplation of the area's cultural significance) and that the park monitor for potential impacts to cultural resources. In addition, there was a suggestion to provide a place of quiet reflection to honor the cultural significance of the area.

Traditionally Associated American Indian Tribes and Groups

The Yosemite National Park American Indian Consultation Program facilitates regulatory compliance with statutes, Executive Orders, policies, and guidance related to American Indian resources, issues, and concerns. The NPS consulted with both federally recognized and federally non-recognized American Indian tribes and groups with ancestral connections to Yosemite National Park lands and resources throughout the design and development of the project and environmental analysis.

The park currently maintains consultative relationships with seven American Indian tribes and groups, including five federally recognized American Indian tribes (Bridgeport Indian Colony, Bishop Paiute Tribe, North Fork Rancheria of Mono Indians of California, Picayune Rancheria of the Chukchansi Indians, and the Tuolumne Band of Me-Wuk Indians), and two federally non-recognized American Indian groups (American Indian Council of Mariposa County, Inc. [also known as the Southern Sierra Miwuk Nation] and the Mono Lake Kutzadika[a]). Consultation with federally recognized American Indian tribes takes place on a government-to-government basis.

On May 5, 2017, the park requested tribal participation in the scoping and development of the Bridalveil Fall Rehabilitation Project and formally requested identification of historic properties with religious and cultural significance that might be affected by the project. The park and tribes met to discuss the project on June 8, 2017, and conducted a site visit on August 1, 2017. The NPS considered comments received from traditionally associated American Indian tribes and groups throughout the planning process. The NPS will continue to consult with traditionally associated American Indian tribes and groups throughout project design and implementation to ensure that historic properties with religious and cultural significance are not adversely effected.

Tribal comments received through letters, consultation meetings, site visits, and conference calls include:

- Alternative 2 will have more of an effect on archeological and ethnographic resources than Alternative 3. However, the tribes and groups would prefer a second comfort station (proposed under Alternative 2) to minimize the use of the natural areas as toilets.
- Tribal representatives expressed concerns of the proposed construction of a trail bridge across the creek beneath the fall, which would impact cultural views in an area with spiritual significance. There is already development on the south side of the creek from the existing trail and an existing water pipeline, so tribal representatives are not as concerned about the new proposed loop trail from the parking lot to the existing viewing platform.
- Generally, the tribes have concerns about elevating trails above the ground plane (e.g. attachment of trail structures to boulders) but if a trail has to be elevated to cross a drainage , then the tribes have requested the opportunity to review and comment on any draft design plans. The tribes are not supportive of drilling into the boulders, preferring more traditional construction methods for trails (e.g. retaining walls, use of stone masonry).

California State Historic Preservation Officer (SHPO)

The NPS notified the SHPO of the Bridalveil Fall undertaking by written correspondence dated April 25, 2017, in accordance with 36 CFR § 800.3. This report provides the information needed for the SHPO to assess the effects of the proposed project, consistent with Steps 2 and 3 of the process (36 CFR §§ 800.4 -.5) Through this Section 106 Report, the NPS is seeking review and SHPO concurrence with its finding of no adverse effect associated with the proposed undertaking. The park will summarize how the Section 106 compliance and consultation was concluded in the decision document for the project.

Advisory Council on Historic Preservation (ACHP)

Consistent with guidance established in the MRP PA, the NPS invited the ACHP to consult on the MRP PA regarding the Bridalveil Fall Rehabilitation Project through the ACHP's Electronic Section 106 Documentation Submittal System (*e*106) on April 25, 2017. The ACHP did not request to be a consulting party as a result of the e-notification.

National Trust for Historic Preservation (NTHP)

Chartered by Congress in 1949, the NTHP is now a privately funded nonprofit organization that works to acquire and administer historic places, provide education and outreach, and support direct action to identify and save threatened historic places throughout the United States. Consistent with guidance established in the MRP PA, the NPS notified the NTHP of the Bridalveil Fall Rehabilitation Project by written correspondence dated April 25, 2017. The NTHP did not request to be a consulting party.

Historic Bridge Foundation (HBF)

The HBF is a nonprofit organization that advocates for the preservation of historic bridges in the United States by sharing information, supporting education, and participating in consultation with public officials to devise reasonable alternatives to demolishing or adversely affecting historic bridges. Consistent with guidance established in the MRP PA, the NPS notified the HBF of the Bridalveil Fall Rehabilitation Project by written correspondence dated April 25, 2017. The HBF did not request to be a consulting party.

36 CFR § 800.4 IDENTIFICATION OF HISTORIC PROPERTIES (STEP 2 OF STANDARD SECTION 106 REVIEW PROCESS)

Area of Potential Effects

The area of potential effects (APE) defined for this undertaking is located in the east end of Yosemite Valley and extends from Southside Drive up to Bridalveil Fall along the base of the talus slope. The western boundary for the APE includes approximately 400 feet of Wawona Road and its intersection with Southside Drive. The APE also includes the utility corridor that would extend from the new comfort station to Southside Drive and head west along the road for approximately 6,500 feet, up to and including Pohono Bridge. The vertical APE extends approximately 4 to 6 feet below surface to encompass the trenching associated with the potential utility corridor (approximately 4 feet deep) and the manholes (between 5 and 6 feet deep). To minimize ground disturbance, the NPS will use directional drilling, where possible, in lieu of trenching. In accordance with NHPA Section 106, this APE accounts for potential direct and indirect effects to historic properties.

Historic Properties within the APE

The assessment of effects to historic properties presented in this report includes all historic properties located within the APE that are either listed or eligible for listing in the National Register of Historic Places (NRHP). Table F-2 lists the historic properties in the APE and summarizes their NRHP status and significance, level of significance, period of significance, and contributing resources. A map of select historic properties potentially affected by the undertaking is included as Exhibit 1 of this report. Photos of select individual properties are included as Exhibit 2. Due to their sensitive nature, this public report does not depict the locations of archeological and ethnographic properties.

Built Environment (Historic Structures and Landscapes)

The Historic Resource Study *Yosemite: The Park and Its Resources* (Greene 1987) is the park's primary baseline document for identifying historic buildings, structures, and sites at a park-wide scale. Other major resource studies and documentation efforts provide more detailed, resource-specific data for identifying historic properties in the APE for the Bridalveil Fall Rehabilitation Project. These include historic property nominations, Historic American Engineering Report (HAER) records, determinations of eligibility, and historic structure/cultural landscape inventories. As a result of the efforts associated with these earlier resource studies and documents, a range of historic structures, sites, and landscape characteristics have been identified within the APE. Specifically, several Yosemite Valley Historic District contributing structures and landscape features are within the APE (refer to Table F-2). One of the contributing structures, the Pohono Bridge, is also included in the Yosemite Valley Bridges district nomination.

Table F-2. Identification of Historic Properties within the APE Affected by the Proposed Undertaking (Alternative 3) of the Bridalveil Fall Rehabilitation Project

Historic Property	Property Type	National Register Status	Level of Significance	Significance Summary	Contributing Resources within the APE
Yosemite Valley Historic District	District	Listed 2006	National	The historic development in Yosemite Valley as a whole is nationally significant in the themes of outdoor recreations, tourism, and conservation. Since 1864, Yosemite has been an archetype for the preservation of scenic places through their development as public parks. The district's period of significance is 1855–1942.	Pohono Bridge Bridalveil Fall Access Road Bridalveil Fall Trail Bridalveil Fall Bridges Numbers 1–3 Valley Loop Trail Southside Drive View from pull-off on Southside Drive to Bridalveil Fall and Leaning Tower View from Northside Drive to Bridalveil Fall
Yosemite Valley Bridges	District	Listed 1977	National	These Valley bridges are unique for their architectural design and aesthetic considerations. The use of native granite in the form of rough boulders reflects the tenets of the Rustic style. They represent rare early examples of projects completed under the partnership between the NPS and the Bureau of Public Roads. The district's period of significance is 1922–1933. The bridges also contribute to the Yosemite Valley Historic District.	Pohono Bridge
Yosemite Valley Archeological District	District	Listed 1976	Regional, Local	Contributing sites are significant in their ability to yield important information about prehistoric life ways. Individual sites in the district vary by type, size, depth, complexity, length of occupation, diversity of cultural material, and potential to yield important scientific information. The district has been formally evaluated for eligibility under Criterion D in the National Register of Historic Places. Many of the sites listed in the district have not been formally investigated to establish their physical integrity, age, and materials constituents.	7 prehistoric sites
Archeological Resources	Potentially eligible to archeological district	Not evaluated for NRHP	Unknown	The site was recorded after the 1976 NRHP nomination. This site may yield additional scientific data and/or represent resources of religious or cultural significance. As a resource type, historic-era archeological sites have generally not been evaluated for eligibility.	1 historic site

Archeological Resources

Efforts to identify archeological properties included review of data of previously surveyed areas and known archeological resources within the APE. Sources included, but were not limited to, archeological site records, project reports, and the cultural Geographic Information System database. Based on the records search, multiple archeological fieldwork projects have occurred in the area, but a formal reconnaissance survey had not been performed since the archeological surveys conducted by the California State University, Stanislaus, in 1974 (Napton and Greathouse 1976). In the spring of 2015, Yosemite National Park re-surveyed the area of the APE that extends from Southside Drive up to Bridalveil Fall (Curtis 2015). The NPS surveyed the entire utility corridor extending to Pohono Bridge in 2006 (Gavette 2006). There are eight archeological sites within the APE, seven of which are contributors to the Yosemite Valley Archeological District. These sites were nominated based on their surface components because no formal excavation had occurred. In October 2017, the park conducted an archeological investigation of one site located near the Bridalveil Fall parking lot to verify its boundary, which had been first recorded in 1974 and updated in 2015. One site was recorded after the original nomination form was drafted in 1976 and remains unevaluated for the NRHP.

Historic Properties with Religious and Cultural Significance to Traditionally Associated American Indian Tribes and Groups

Many historic properties within the APE hold religious and cultural significance to traditionally associated American Indian peoples. Through professional ethnographic studies and government-to-government consultation with American Indian tribes, the NPS has identified the presence of historic properties with religious and cultural significance to American Indian tribal groups that, in some cases, are separate and distinct from the Yosemite Valley Archeological District. The NPS is committed to continuing consultation with tribes and groups in regard to this project as design progresses and as the project is implemented.

Throughout the Bridalveil Fall Rehabilitation Project planning process, the NPS has made a concerted effort to identify traditional cultural properties through numerous consultation workshops, site visits, and distribution of working drafts of the plan's components. During these consultation efforts, the park worked with groups and individuals who have special knowledge and interests in the history and culture of the Bridalveil Fall area. Specifically, tribal partners and park staff visited many locations within the APE to discuss actions and the potential impacts to resources or effects to historic properties with or without religious and/or cultural significance.

The NPS has a consultative relationship with traditionally associated American Indian tribes and groups independent of the consultation required on historic properties under the NHPA. The park has numerous cooperative agreements with tribes and groups that articulate the commitments the respective parties have made regarding consultation activities, annual traditional events and ceremonies in the park, and monitoring requirements during archeological investigations and/or construction projects.

36 CFR § 800.5 ASSESSMENT OF ADVERSE EFFECTS (STEP 3 OF STANDARD SECTION 106 REVIEW PROCESS)

Under Section 106 of the NHPA, once historic properties have been identified in an undertaking's APE, and it has been determined that those historic properties may be affected by a proposed undertaking, the agency official shall assess the effects on those resources in accordance with 36 CFR § 800.5, *Assessment of adverse effects*. An adverse effect is found when an "undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's

location, design, setting, materials, workmanship, feeling, or association" [36 CFR § 800.5(a)(1)]. The criteria of adverse effect are applied to all historic properties (listed, eligible, or identified) within the APE, with consideration given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the NRHP.

This report presents the initial NPS assessment of effect for the undertaking. The NPS will work with consulting parties to determine if the assessment reflects all relevant or applicable concerns, and whether the park has developed and evaluated modifications to the Bridalveil Fall Rehabilitation Project that could avoid, minimize, or mitigate adverse effects [36 CFR § 800.6(a)].

Criteria of Adverse Effect

Actions that result in an assessment of adverse effects to historic properties include, but are not limited to [36 CFR § 800.5(2)]:

(i.) Physical destruction of or damage to all or part of the property;
(ii.) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines;
(iii.) Removal of the property from its historic location;
(iv.) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
(v.) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;
(vi.) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and
(vii.) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

Assessment of Adverse Effects

The proposed undertaking (Alternative 3) would have no adverse effect on either the Yosemite Valley Historic District or the Pohono Bridge as a contributing structure to the Yosemite Valley Bridges historic district. Table F-3 documents the assessment of adverse effects for each of the contributing resources in the built environment within the APE. In summary, Alternative 3 would repair and improve the Bridalveil Fall trail system and parking to address public use in the area by providing safe, accessible paths of travel and viewing areas, improving site orientation, and improving parking efficiency, while avoiding or minimizing effects to the contributing structures of the Yosemite Valley Historic District and Yosemite Valley Bridges that are within the APE. Yosemite's A Sense of Place: Design Guidelines for Yosemite National Park (2011) were used to ensure that the proposed alternatives were compatible with the historic character of the Yosemite Valley Historic District.

The proposed undertaking would result in no adverse effect to archeological sites of the Yosemite Valley Archeological District and all archeological resources and historic properties with religious and cultural significance that are within the APE (Tables F-4 and F-5). Ground disturbance will be outside of the boundaries of sites near the rehabilitation actions. Electrical and sewer lines for the new comfort station would be installed along the existing road alignment of Southside Drive, which bisects two archeological sites. Based on previous disturbance and lack of integrity, one prehistoric site was recommended as a non-contributing element to the Yosemite Valley Archeological District; therefore, there would be no adverse effect to the site. Due to the testing at the second site, it was confirmed that the historic site, composed of three distinct historic deposits located away from the road, lacked subsurface artifacts near the vicinity of the road corridor and that the site had been assessed/visited recently with no surface features or scatters near the road; therefore, there would be no adverse effect to the site or to the Yosemite Valley Archeological District due to utility construction beneath the existing road.

To ensure the avoidance of adverse effect, a park archeologist will flag the boundaries of archeological sites during ground disturbing actions to protect these locations. Archeologists will work with construction crews to prevent staging of materials and driving of machinery within the boundaries of archeological sites. In addition, work crews will be briefed about the nature of cultural resources within the project area. Archeological monitoring would occur during construction activities nearby the boundaries of archeological sites. Should unanticipated artifacts be uncovered during the project work when an archeologist is not present, park archeologists will respond to the discoveries.

Alternatives Considered but Dismissed and Avoidance Measures

The NPS considered a range of actions when developing the alternatives for the rehabilitation of the Bridalveil Fall area. The planning team analyzed, considered, and dismissed several actions because they did not fully satisfy the objectives of this planning effort including the avoidance of adverse effects to historic properties.

Two alternatives analyzed but not selected include a No Action Alternative (Alternative 1) and Alternative 2.

Under the No Action Alternative, the park would not rehabilitate or repair visitor facilities at Bridalveil Fall with the exception of emergency repairs and routine and periodic maintenance activities. There would be no improvements to visitor experience, scenic vistas, visitor safety, or congestion; the park would not meet accessibility standards; and the park would not correct long-standing maintenance issues. Maintenance and repair needs would likely increase with continued visitation and aging infrastructure.

Alternative 2 includes construction of a new bridge across Bridalveil Creek from the existing viewing platform to a new trail on the east side of Bridalveil Creek. The entire bridge would serve as a viewing area with accessible and enlarged overlooks. The east side of the new bridge would connect to a new four-foot-wide trail that leads to the Bridalveil Fall Trail adjacent to Bridge 3.

Alternative 2 also includes construction of a second comfort station at Bridalveil Straight. There would be a second gathering and viewing area added near the new comfort station. A new combined entrance and exit road to the parking lot would replace the existing entrance/exit road approximately 150 feet south of the existing entrance/exit.

Under Alternative 2, the connection between the existing Bridalveil Fall Trail and the parking lot would be widened and raised with fill material to avoid areas that flood during high water periods. A different paving material would be used to delineate the historic alignment of the Bridalveil Fall Trail to the parking lot.

Table F-6 lists additional actions considered but dismissed.

Table F-3. Assessment of Adverse Effects of the Proposed Undertaking (Alternative 3) of the Bridalveil Fall Rehabilitation Project on the Built Environment

Historic Resource Potentially Affected	Historic Property to Which the Resource Contributes	Potential Effects from Alternative 3	Assessment of Effects
Pohono Bridge	Yosemite Valley Historic District; Yosemite Valley Bridges	Encase the electrical and sewer lines for the new comfort station within the bridge deck.	No adverse effect because the utility lines would be encased within the aggregate and asphalt deck so as not to damage or alter the concrete arch structure or other significant character-defining features of the bridge during construction, and yet still conceal the utility lines after construction is completed.
Bridalveil Fall Access Road	Yosemite Valley Historic District	Restripe the access road to change it to an exit-only lane with the addition of a new entrance to the parking area.	No adverse effect as the historic alignment of the access road would be maintained.
Bridalveil Fall Trail (Historic Carriage Road)	Yosemite Valley Historic District	Add a new trailhead and move the existing trailhead a short distance and raise it on fill up to 18 inches higher to minimize ponding during high water events; install a new culvert to direct water under the trail. Harden the entire trail (from the Bridalveil Fall parking lot to Bridalveil Straight) with an accessibility acceptable surface to 12 feet in width consistent with existing conditions. Add a new paved viewing area with interpretative signs at the intersection with the trail leading up to the viewing platform.	No adverse effect because the structural features of the historic carriage road would be retained and the NPS will implement the following design and construction specifications to preserve the overall character of the trail: delineate the historic carriage road alignment within the trailhead from the parking lot with stones or a similar material; and apply a chip-seal surfacing using gravel that is compatible in color with the surrounding soil to provide a more rustic appearance.
Bridalveil Fall Bridge Number 1	Yosemite Valley Historic District	Harden Bridalveil Fall Trail with an accessibility acceptable surface to 12 feet in width consistent with existing conditions.	No adverse effect as the reinforced concrete arch spans, stone spandrel and wing walls, or other character-defining features of the bridge would not be altered.
Bridalveil Fall Bridge Number 2	Yosemite Valley Historic District	Harden Bridalveil Fall Trail with an accessibility acceptable surface to 12 feet in width consistent with existing conditions.	No adverse effect as the reinforced concrete arch spans, stone spandrel and wing walls, or other character-defining features of the bridge would not be altered.

Table F-3. Assessment of Adverse Effects of the Proposed Undertaking (Alternative 3) of the Bridalveil Fall Rehabilitation Project on the Built Environment

Historic Resource Potentially Affected	Historic Property to Which the Resource Contributes	Potential Effects from Alternative 3	Assessment of Effects
Bridalveil Fall Bridge Number 3	Yosemite Valley Historic District	Remove the stone steps at the east approach to the bridge. Grade the approach to meet ABA standards for accessibility and provide the required level of accessibility in accordance with park policy. Harden the trail with an accessibility acceptable surface to 12 feet in width consistent with existing conditions.	No adverse effect because the stone steps are non-historic elements and hardening the approach would not diminish the integrity of historic materials or character-defining features of the bridge. Although meeting ABA standards would affect the vertical alignment of the historic carriage road, the effect would be minimal and would not alter the overall character of the road in this area.
Valley Loop Trail	Yosemite Valley Historic District	Relocate the existing crosswalk in the center of Bridalveil Strait to the Valley Loop Trail.	No adverse effect as the appearance of the Valley Loop Trail would be maintained and no character-defining features of the trail would be altered.
Southside Drive	Yosemite Valley Historic District	Relocate the existing crosswalk to the Valley Loop Trail. Widen an approximately 600-foot-long section of Southside Drive to add a tour bus pullout and loading area and a seasonal shuttle stop.	No adverse effect as Southside Drive would continue to hold the route, appearance, and compatibility with the landscape and no associated significant historic features of the road within the Valley would be altered.
View from pull-off on Southside Drive to Bridalveil Fall and Leaning Tower	Yosemite Valley Historic District	Remove selective trees and vegetation.	No adverse effect as selective removal of trees (no black oaks) and vegetation would restore historic vistas to Bridalveil Fall.
View from Northside Drive to Bridalveil Fall	Yosemite Valley Historic District	Remove selective trees and vegetation.	No adverse effect as selective removal of trees (no black oaks) and vegetation would restore historic vistas to Bridalveil Fall.

Table F-4. Assessment of Adverse Effects of the Proposed Undertaking (Alternative 3) of the Bridalveil Fall Rehabilitation Project on Archeological Resources

Historic Resource Potentially Affected	Historic Property to Which the Resource Contributes	Potential Effects from Alternative 3	Assessment of Effects
Six archeological sites (prehistoric)	Contributing to the Yosemite Valley Archeological District	All proposed work from Southside Drive at the intersection of Wawona Road and extending up to Bridalveil Fall along the base of the talus slope.	No adverse effect to the six archeological sites. The sites have been avoided through design of facilities away from the sites
One archeological site (prehistoric)	Site was originally listed as contributing to the Yosemite Valley Archeological District. Later re-evaluated and recommended as non-contributing (Nilsson et al. 2009)	Installation of utility corridor from new restroom to Pohono Bridge.	No adverse effect. Site was tested in 2006 and no subsurface deposits were located adjacent to the proposed utility corridor within Southside Drive.
One archeological site (historic)	Site was recorded after the 1979 NRHP Yosemite Valley Archeological District nomination and remains unevaluated for the NRHP	Installation of utility corridor from new restroom to Pohono Bridge.	No adverse effect. Testing of adjacent prehistoric site 2006 extended into this site. No subsurface deposits located within utility corridor along Southside Drive.

Table F-5. Assessment of Adverse Effects of the Proposed Undertaking (Alternative 3) of the Bridalveil Fall Rehabilitation Project to Historic Properties with Religious and Cultural Significance

Historic Resource Potentially Affected	Historic Property To Which the Resource Contributes	Potential Effects from Alternative 3	Assessment of Effects
Three locations of ethnographic/religious and cultural significance	Yosemite Ethnographic Database and consultation with tribal members	Entire project development.	No adverse effect. Consultation with traditionally associated tribes and groups indicates that resource areas with religious and cultural significance will not be affected by project.

Table F-6. Actions Considered but Dismissed

Action	Reasons for Dismissal
Allow buses to unload passengers at the parking lot and pick up passengers at Bridalveil Straight.	There would be no guarantee that bus parking would be available at Bridalveil Straight for passenger pick-up. Buses waiting for parking could create additional congestion and confusion along Bridalveil Straight.
Add vault toilets at Bridalveil Straight.	Vault toilets require consistent pumping and regular cleaning. Park staff must have specialized training to operate pumping equipment. The park does not have the operational capacity to add another vault toilet considering the intensive maintenance required to maintain vault toilets. The park considered the addition of flush toilets at Bridalveil Straight, but not vault toilets, under Alternative 2 of the EA.
Construct a leach field in the historic sewer plant location north of Bridalveil Fall, adjacent to the Merced River near its confluence with Bridalveil Creek. This new leach field could serve the new flush toilet at the parking lot and remove the need to construct lengthy sewer and power lines to connect to the existing system.	This option is inconsistent with the 2014 *Merced River Plan*, which calls for removal of the remains of the abandoned plant and restoration to natural conditions. The park abandoned and demolished the historic sewer plant in 1975 when the park constructed a new tertiary sewage treatment plant in El Portal. The park must protect and enhance the water quality of the Wild and Scenic Merced River, and a new leach field in proximity to the river would be a risky endeavor in terms of protecting water quality. Construction of a new leach field in this area would likely require the park to amend the *Merced River Plan*. It is uncertain whether the park could obtain permits under the Clean Water Act to construct a leach field in close proximity to the Merced River. A new leach field would require the park to connect to a power source and construct additional infrastructure.
Construct a new trail and viewing platform from the Bridalveil Fall Trail near Bridge #3 toward the base of Bridalveil Fall.	Trail would be constructed within the bed-and-banks of Bridalveil Creek stream system. It would be subjected to high water velocities and high water depths during peak flows, creating the need for additional repair, maintenance, and debris clearing. The trail would be constructed into a relatively pristine area, with associated impacts to the natural habitat. The existing viewing platform would be visible from the new platform and hikers may hike cross-country from one to the other, creating new social trails in a relatively pristine area.
Remove the ability to make left hand turns out of the parking lot to decrease congestion.	If vehicles want to make a left turn, they would need to travel to Southside Drive and then make the one-way loop across El Capitan Crossover to Northside Drive and then back across Pohono Bridge. This is a considerable distance, it could take considerable time during congested periods of visitation, and the action could promote illegal U-turns on Wawona Road.
Move all parking to the right side of Bridalveil Straight and enhance views of El Capitan from the south side of the road. This would encourage visitors to stay on the south side of the road and improve safety in the area.	The vast majority of visitors stop along Bridalveil Straight for the breathtaking views of El Capitan (on the left side of the road). Visitors also stop for a number of other reasons including stretching their legs, checking maps, picnic lunches, river access. Keeping parking on the right side of the road may encourage some users to stay on the right side and not cross the street, but a substantial amount of visitors would be expected to cross the street.

Cumulative Effects

In general, past development, operation, and maintenance of facilities throughout Yosemite National Park have protected and preserved the integrity of historic resources affected by this project. The cumulative impact analysis focuses on those historic resources affected by this project including the Bridalveil Fall access road, Bridalveil Fall trail (carriage road), and the three carriage road bridges in conjunction with past present and future projects. Other affected historic resources include Southside Drive, Pohono Bridge, and the historic views of the fall from the Valley View pullout and Southside Drive in the vicinity of the fall. For the purpose of cumulative affects analysis, the NPS has identified past projects that may have affected these historic resources since completion of the Yosemite Valley Historic District National Register nomination, which established the historic status of these resources in 2006. For the Pohono Bridge, historic structure status was established in the Yosemite Valley Bridges National Register nomination (1977). Effects to the trail and carriage road bridges since 2006 have been limited to standard trail/bridge maintenance, which is completed on an as-needed basis to address the high visitor use of the area and any damage from winter storm events. No changes to the historic carriage road alignment or its associated features have been made since completion of the nomination in 2006. Previous work along Southside Drive has not affected the historic alignment of the road and has typically focused on addressing parking issues in the immediate vicinity of the fall and for the El Capitan viewing area. Likewise, the Pohono Bridge, a contributing structure to both the Yosemite Valley Historic District (2006) and the Yosemite Valley Bridges (1977) National Register nominations, has received regular maintenance including minor damage repairs following the 1997 flood. Continued tree growth in the historic viewing areas along Southside Drive and the Valley View pullout is addressed through implementation of scenic vista management prescribed in the Merced River Plan (2014).

Current and reasonably foreseeable actions have been, and will continue to be, carried out in accordance with the park's design guidelines (2011) and the Secretary of the Interior's Standards for the Treatment of Historic Properties. Implementation of a program of scenic vista management in accordance with the Merced River Plan (2014) will result in the protection and restoration of historic vistas and important viewing areas in the Yosemite Valley.

Similarly, past development, operation and maintenance of facilities throughout the Yosemite Valley Archeological district have, for the most part, protected and preserved the integrity of historic properties having an archeological component. All sensitive archeological areas and sites have been avoided in the planning of this project, hence the project does not adversely add to cumulative effects for this class of historic property.

Summary

The NPS has concluded that the Bridalveil Fall Rehabilitation undertaking would have no adverse effect on historic properties. The proposed undertaking (Alternative 3) would not alter, directly or indirectly, any of the qualifying characteristics of the contributing historic, cultural, or archeological resources in the APE in a manner that would diminish their integrity of location, design, setting, materials, workmanship, feeling, or association either individually or of the historic and archeological districts as a whole.

The park continues to consult with the participating 106 consulting parties and will seek SHPO concurrence on no adverse effect to historic properties prior to signing the decision document for the project. The park will continue to provide further design drawings to the traditionally associated American Indian tribes and groups for review and comment to continue to avoid effects to historic properties with religious and cultural significance.

36 CFR § 800.8: COORDINATION WITH THE NATIONAL ENVIRONMENTAL POLICY ACT

Consistent with 36 CFR § 800.3(b) and 36 CFR § 800.8, the review process for Section 106 of the NHPA has been coordinated with, but independent of the NEPA planning process.

A public meeting and webinar will be held during the 30-day public comment period for the EA, disclosing the assessment of effects for historic properties in which their locations or character are not confidential. The public will be encouraged to express their views on potential effects of the Bridalveil Fall Rehabilitation Project on historic properties through their written comments.

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2011 A Sense of Place: Design Guidelines for Yosemite National Park.

2014 Merced Wild and Scenic River Final Comprehensive Management Plan and Environmental Impact Statement. February.

2014 Programmatic Agreement among the National Park Service at Yosemite National Park, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding Compliance with Section 106 of the National Historic Preservation Act for the Merced Wild and Scenic River Comprehensive Management Plan (Merced River Plan).

National Register nomination forms for Yosemite's historic properties are found at:

https://www.nps.gov/yose/learn/historyculture/nr-yose-list.htm

EXHIBIT 1: MAP OF BRIDALVEIL FALL REHABILITATION PROJECT AREA OF POTENTIAL EFFECTS

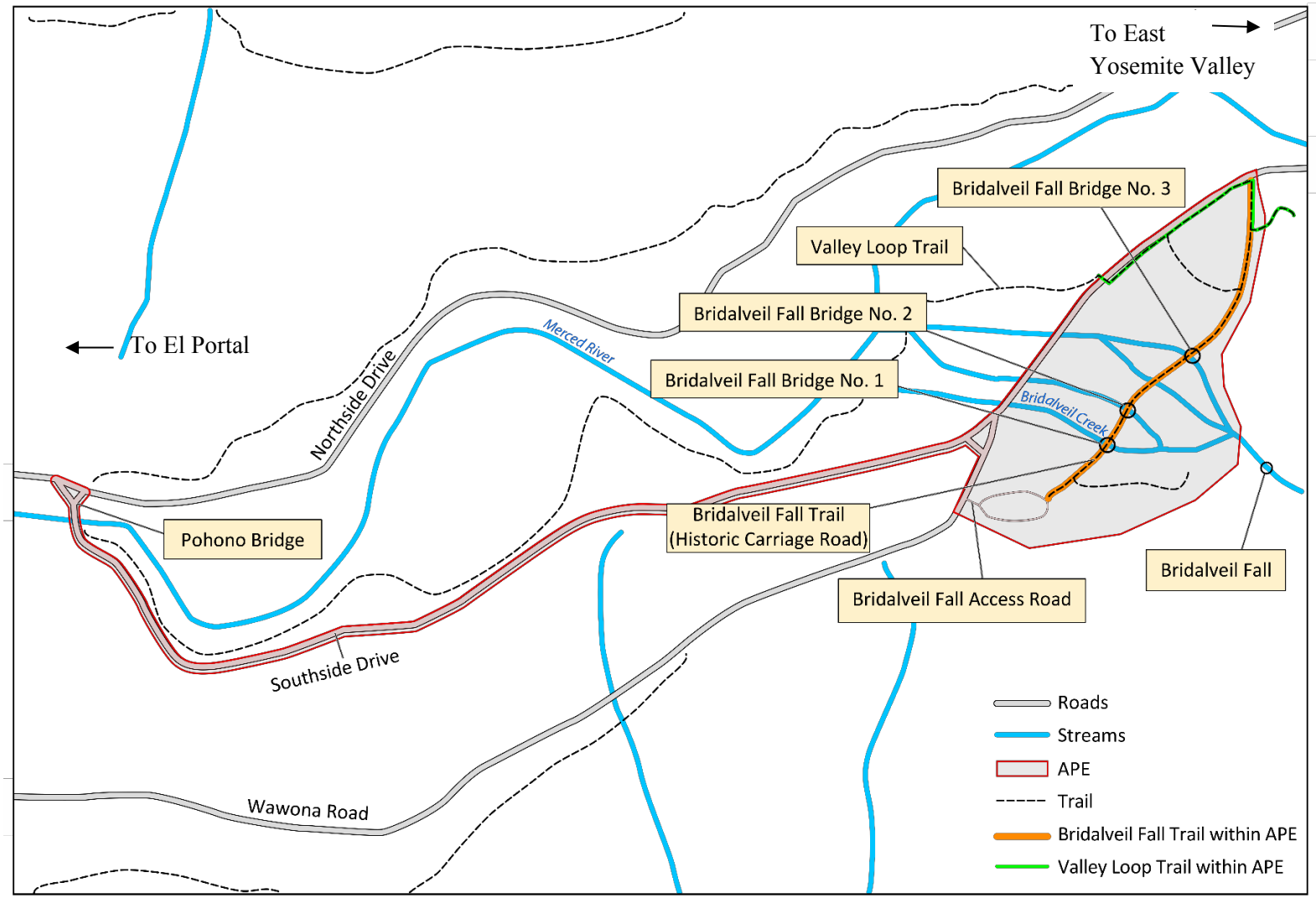

EXHIBIT 2: PHOTOS OF SELECT HISTORIC PROPERTIES IN THE BRIDALVEIL FALL REHABILITATION PROJECT AREA OF POTENTIAL EFFECTS

Photo F-1. Pohono Bridge: Contributing Structure in the Yosemite Valley Historic District and Yosemite Valley Bridges.

Photo F-2. Bridalveil Fall Access Road (foreground): Contributing Structure in the Yosemite Valley Historic District. View looking east-southeast towards parking lot.

Photo F-3. Bridalveil Fall Trail: Contributing Structure in the Yosemite Valley Historic District. Trailhead at parking lot (looking northeast).

Photo F-4. Bridalveil Fall Trail: Contributing Structure in the Yosemite Valley Historic District. View looking southwest toward connection with parking lot.

Photo F-5. Bridalveil Fall Bridge #1: Contributing Structure to the Yosemite Valley Historic District (looking north).

Photo F-6. Bridalveil Fall Bridge #2: Contributing Structure to the Yosemite Valley Historic District. View from Bridalveil Fall Trail (looking northeast).

Photo F-7. Bridalveil Fall Bridge #2: Contributing Structure to Yosemite Valley Historic District. View looking southwest from streambank.

Photo F-8. Bridalveil Fall Bridge #3: Contributing Structure in the Yosemite Valley Historic District. View looking south from streambank

Photo F-9. Southside Drive (Bridalveil Straight): Contributing Structure in the Yosemite Valley Historic District. View looking southwest.

Photo F-10. Southside Drive (Bridalveil Straight): Contributing Structure and Historic View within the Yosemite Valley Historic District. View looking northeast.

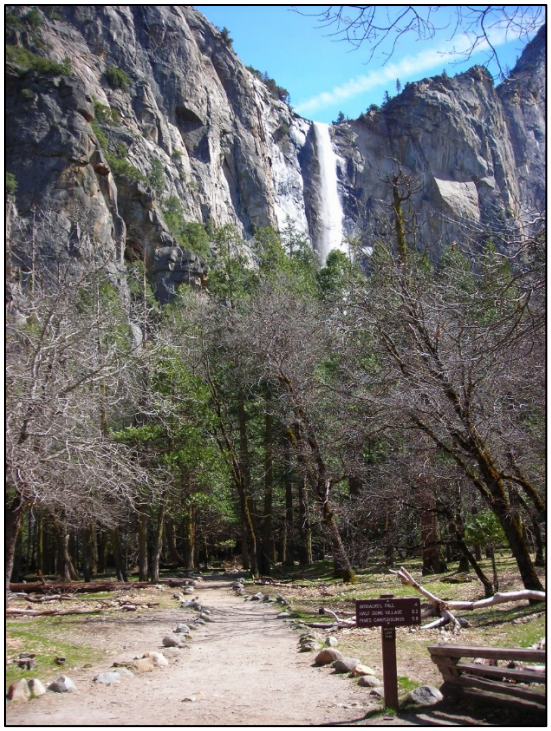

Photo F-11. View from Southside Drive pull-off towards Bridalveil Fall, Yosemite Valley Historic District.

Photo F-12. Historic View from Northside Drive to Bridalveil Fall and Leaning Tower, Yosemite Valley Historic District. (*Photo by Steven Bumgardner*)

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National Park Service
U.S. Department of the Interior

Bridalveil Fall Rehabilitation
Environmental Assessment
Yosemite National Park
P.O. Box 577
El Portal, CA 95318

As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.