

Environmental Assessment
For a Right-of-Way Application for the
Sewer Line Installation at the
John Muir Gravesite
John Muir National Historic Site

Regarding
Alhambra Valley Trunk Sewer and Alternatives

April 2007

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I. PURPOSE AND NEED

1. Introduction

This Environmental Assessment (EA) evaluates potential environmental impacts from a proposed sewer line installation through the John Muir gravesite property of the John Muir National Historic Site.

The Central Contra Costa Sanitary District (CCCSD) is requesting a right of way from the National Park Service (NPS) to install a sewer line that will serve residents of the Alhambra Valley in Martinez, California. The alignment through the NPS property is one of several alternatives that have been considered in the CCCSD planning process. Alhambra Valley is located within CCCSD's sphere of influence. CCCSD has committed to complete a sewer line to serve the Alhambra Valley from Gilbert Lane, north of the NPS gravesite property, to the intersection of Alhambra Valley Road/Reliez Valley Road south of the NPS gravesite property.

2. Purpose and Need

The purpose of the EA is to assess the potential impacts of the NPS granting a right-of-way permit to CCCSD for construction of a sewer line through the John Muir gravesite property. Because this proposed project crosses federal land, the National Environmental Policy Act (NEPA) requires the managing agency, the NPS, to publish an analysis of environmental impacts, which may result from the project. The alignment through the gravesite property is one of several alternatives considered by CCCSD in their planning process to serve Alhambra Valley. These alternatives are identified in Chapter IV.

The need for the project is that new development was approved by the Contra Costa County Board of Supervisors at the edge of the CCCSD's sphere of influence, south of the NPS property. Rather than pumping the wastewater over the hills to a trunk line, which is against District policy, the CCCSD is proposing to extend a trunk line to connect houses between the new development and the north end of the existing trunk sewer (north of the NPS property). The sewer line has been partially completed and the CCCSD is committed to finalizing the project in Alhambra Valley. The proposed alignment through the NPS property would serve more houses in a more efficient manner than other alignments and could serve properties on both sides of Alhambra Creek.

The action of the NPS is to either consider issuing a right-of-way permit for one of two alternative routes on NPS property, or select the "no action" alternative. If NPS selects the "no action" alternative, CCCSD will consider two alternative routes located off of NPS property in order to complete the trunk sewer.

II. PROJECT SETTING

The Muir gravesite property is located in Alhambra Valley in unincorporated Contra Costa County, south of the City of Martinez and Highway 4, and in the north central region of the county. Alhambra Valley covers about 2,800 acres (4.5 square miles) and has more than 650 residents. It is primarily a low-density residential area located within the Alhambra Creek watershed. (Refer to the Regional and Site Location Map on Figure 1.)

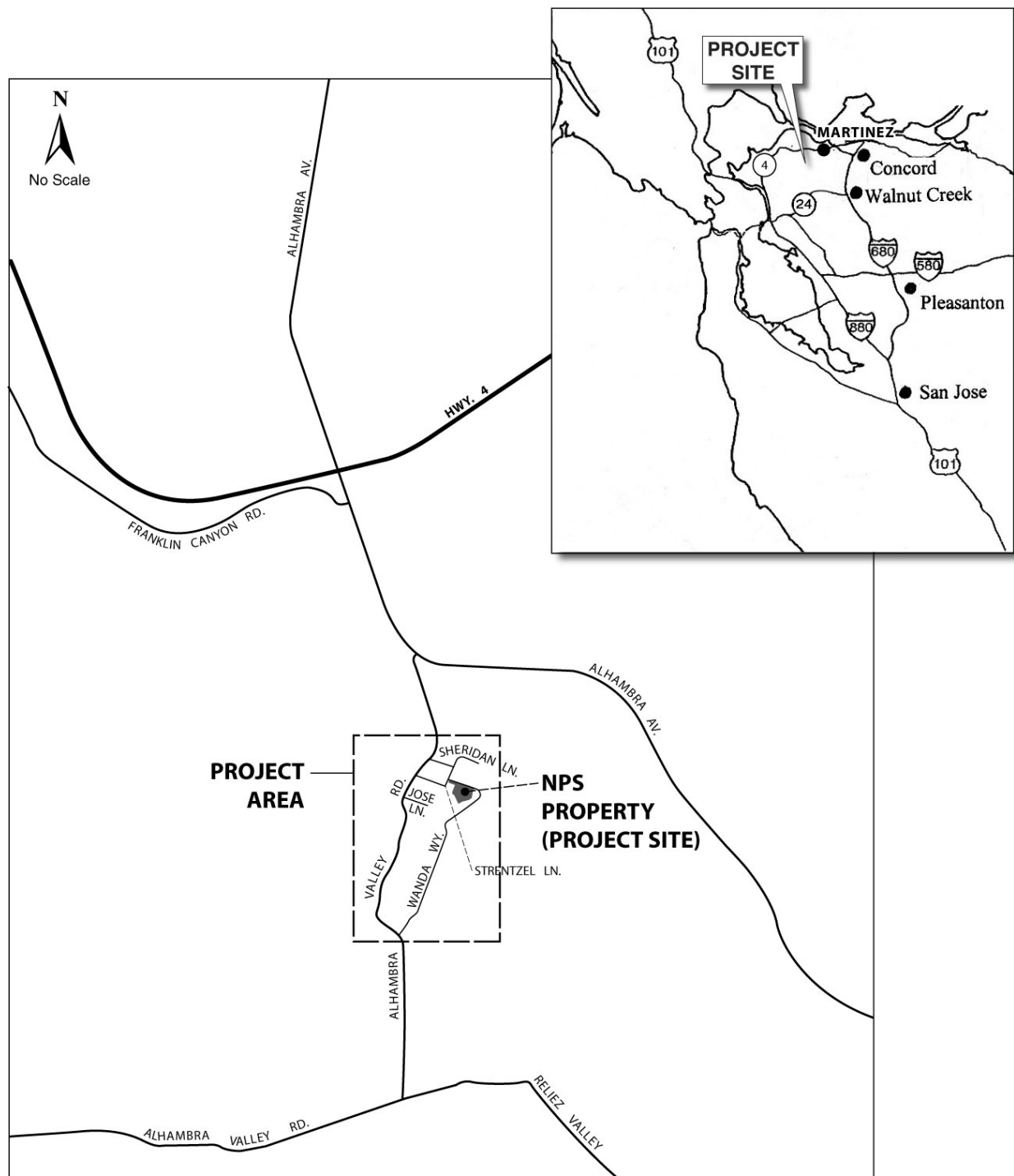
The project site is situated on federally owned land adjacent to single-family parcels. The site is located between Strentzel and Sheridan Lanes. Alhambra Creek forms the eastern boundary of the NPS property. The site is approximately 0.75 mile south of Highway 4 and is located in Township 2 north, Range 3 west on the Briones Valley and Walnut Creek USGS 7.5 minute Quadrangles. No section number is given because the site is within Valle de San Jose, a Mission period land grant.

The project site contains a historic pear orchard associated with the noted conservationist John Muir, as well as the graves of John Muir, his wife, his Strentzel in-laws and other members of the Strentzel family. The gravesite is located at the southeastern edge of the project site.

Table 1 identifies the alternatives to be assessed in this document. The NPS will consider two Onsite Alternatives (A or B) and the No Action Alternative. If the No Action Alternative is selected, the CCCSD will consider two alternative routes located off of NPS property. Figure 2 illustrates the trunk sewer alignment and the alternatives considered in this document.

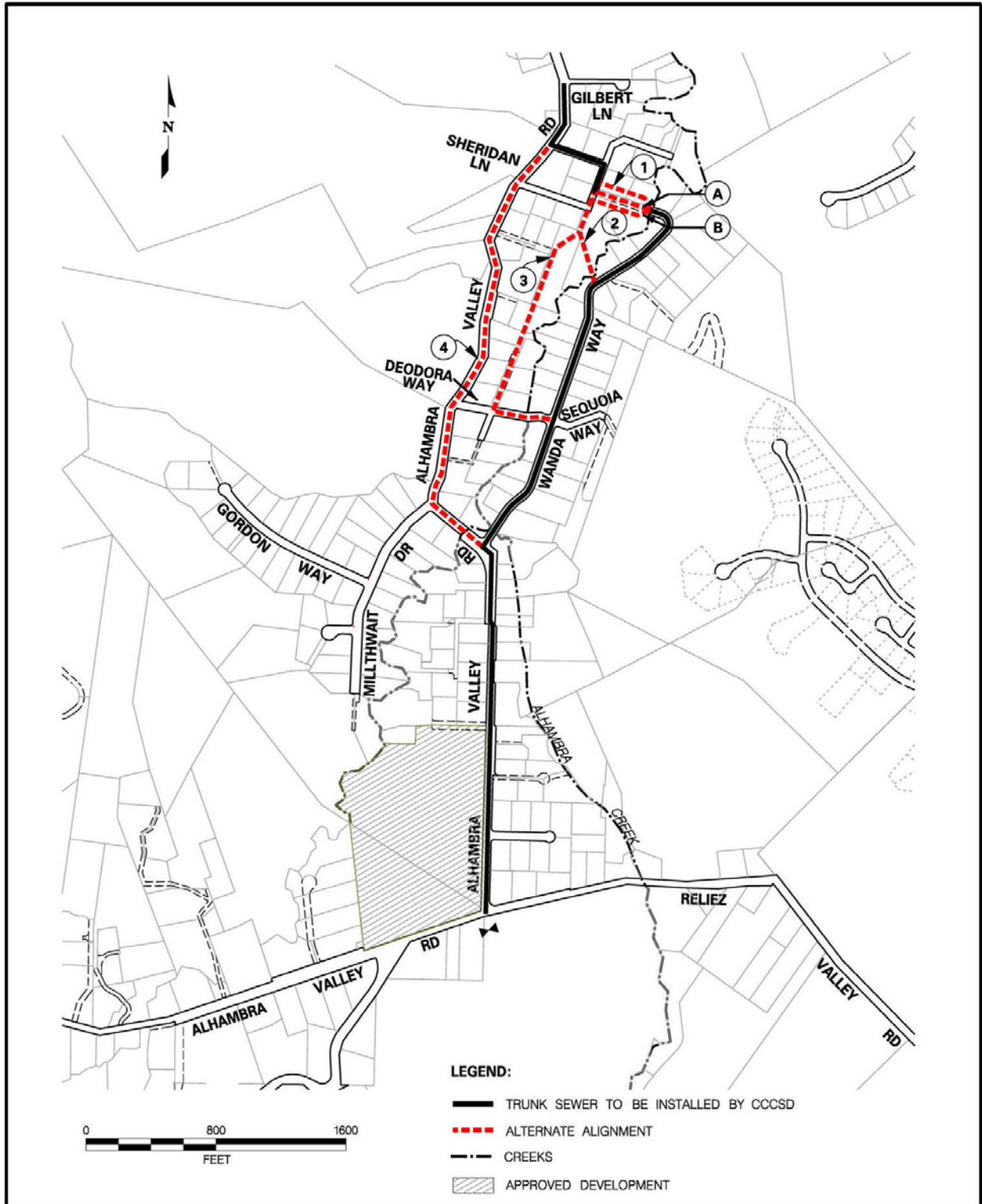
Table 1. Alternatives and Locations

ALTERNATIVES	LOCATION
On NPS Property	
Preferred Alternative A	North side of storm drain
Onsite Alternative B	South side of storm drain
No Action Alternative	No right-of-way license granted by NPS
Off NPS Property – Generated by Selection of No Action Alternative	
Alternative 1	North of NPS through private property
Alternative 2	South and west of NPS through private property
Alternatives Considered but Eliminated from Further Evaluation	
Alternative 3	Deodar/west side of Alhambra Creek (offsite)
Alternative 4	Alhambra Valley Road (offsite)



Source: Mills Associates

Figure 1: Regional and Site Location Map



Source: Central Contra Costa Sanitary District

Figure 2: Alhambra Valley Trunk Sewer and Alternative Routes

III. RELATED PLANNING DOCUMENTS

Facilities Plan for Wastewater Utility Service to Alhambra Valley, prepared by Central Contra Costa Sanitary District, accepted by the Central Contra Costa Sanitary District on October 2, 2003. (On file with the Central Contra Costa Sanitary District, 5019 Imhoff Place, Martinez, CA 94553).

The Facilities Plan concluded that although there are several methods to provide sewer service to Alhambra Valley, the CCCSD policy prefers gravity sewers to a pumping system.

Alhambra Valley Specific Plan, adopted by the Contra Costa County Board of Supervisors on October 6, 1992. (On file with the Contra Costa County Community Development Department, 651 Pine Street, Martinez, CA 94553).

This Specific Plan sets forth a series of goals and policies designed to guide use of the land and development within the valley at a level of detail greater than that afforded by the Contra Costa County General Plan.

Alhambra Valley Estates Final Environmental Impact Report (2004 FEIR), certified by the Contra Costa County Planning Commission on October 26, 2004. (On file with the Contra Costa County Community Development Department, 651 Pine Street, Martinez, CA 94553).

The Alhambra Valley Estates Final EIR is an environmental analysis of a 23-lot subdivision located at the northwest corner of Alhambra Valley Road at Reliez Valley Road that includes the analysis of wastewater alternatives, including the proposed sewer line across the NPS parcel.

Addendum to the 2004 Alhambra Valley Estates Final Environmental Impact Report for the Alhambra Valley Trunk Sewer Project, DP5919, prepared and adopted by the Central Contra Costa Sanitary District on September 1, 2005. (On file with the Contra Costa County Community Development Department, 651 Pine Street, Martinez, CA 94553).

This addendum documents the environmental review for the construction and operation of an approximately 6,400-linear-foot, public, gravity trunk sewer to serve the Alhambra Valley Estates subdivision and nearby properties in unincorporated Martinez, Contra Costa County, California. The proposed gravity trunk sewer alignment follows an alternative gravity sewer alignment evaluated in the 2004 Final Environmental Impact Report for the Alhambra Valley Estates subdivision project.

Strentzel Lane Erosion and Sediment Reduction Project Environmental Assessment, National Park Service, John Muir National Historic Site, prepared by Contra Costa County Public Works Department, March 2003. (On file with the Contra Costa County Public Works Department, 255 Glacier Drive, Martinez, CA 94553).

This document addresses the various alternatives and describes the impacts associated with the alternatives to construct a storm drain line on the NPS property to alleviate drainage problems within the valley.

National Park Service, Watershed Condition Assessment of Sub-drainage Zone 1167, 2000.

NPS Hydrologist Richard Inglis prepared this analysis of flooding in the project site watershed. Flood levels, sources of sediment, and erosion potential in the watershed were assessed. The assessment notes that under current conditions the Strentzel lane neighborhood will flood in even relatively small storms of 20 to 50 cubic feet per second, which is the 2-year storm (also described as the mean annual flood).

National Park Service, Stability of Alhambra Creek at the John Muir Gravesite, 2000.

This report, also by hydrologist Richard Inglis, reviewed the conditions of Alhambra Creek near the Muir gravesite for bank stability. The report concluded that the banks near the gravesite are unstable and continuing to erode due to a combination of factors, including inappropriate armoring of creek banks along the creek. The heavy vegetation associated with the creek banks is providing some protection, though, and the creek would be even more heavily incised without the presence of these trees.

National Park Service General Management Plan and Environmental Assessment, John Muir National Historic Site, February 1991.

NPS completed a general management plan (GMP) and environmental assessment in 1991. Issues reviewed included the proposed management objectives, lands needed to carry out the objectives, vegetation management on NPS lands, facilities requirements, and protection of the historic resources. The plan and assessment provided the basis for the NPS purchase of the Mt. Wanda lands.

Cultural Landscape Report for the John Muir National Historic Site, Volumes 1 & 2, 2005, authored by Jeff Killion of The Olmsted Center for Landscape Preservation.

This report researches and documents the historic landscape of the park, including the Muir gravesite property. The landscape and its many features were determined eligible for the National Register of Historic Places as contributing to the park's significance.

IV. ALTERNATIVES

This chapter identifies two potential action alternatives to meet the purpose and need for the project and the no action alternative. Alternatives were identified and refined during reviews and correspondence with NPS staff, CCCSD staff, and neighborhood residents. The “Off NPS Property” alternatives are included for information purposes. Since they are not on NPS property, they are not analyzed fully in this document. The alternatives are defined as shown in Table 2:

Table 2. Alternatives and Locations

ALTERNATIVES	LOCATION
On NPS Property	
Preferred Alternative A	North side of storm drain
Onsite Alternative B	South side of storm drain
No Action Alternative	No right-of-way license granted by NPS
Off NPS Property – Generated by Selection of No Action Alternative	
Alternative 1	North of NPS through private property
Alternative 2	South and west of NPS through private property
Alternatives Considered but Eliminated from Further Evaluation	
Alternative 3	Deodar/west side of Alhambra Creek (offsite)
Alternative 4	Alhambra Valley Road (offsite)

The NPS will consider potential impacts from the proposed alternatives, as analyzed in this EA, along with input from individuals, organizations, and agencies. The NPS may choose a preferred action or no action alternative based on this information, and present a Finding of No Significant Impact (FONSI). If the preferred alternative has the potential to create a significant impact to the human environment, the NPS may choose to prepare an Environmental Impact Statement (EIS) to more fully disclose impacts and explore alternatives.

If the NPS selects the “No Action Alternative,” CCCSD has two options to extend the sewer line through private property (Alternatives 1 and 2). CCCSD will pick one of these alternatives to complete the sewer project in the valley. The various alternative alignments are shown on the aerial photo in Figure 3. The two onsite alternatives are presented on Figure 4.

A. ON NPS PROPERTY ALTERNATIVES

1. Preferred Alternative A – Construct the sewer line on NPS property north and adjacent to the existing 60-inch storm drain line.

The overall Alhambra Valley Trunk Sewer project consists of approximately 6,500 feet of 10- to 12-inch sewer pipe with appurtenant manholes and service laterals. The sewer alignment begins in the City of Martinez at Gilbert Lane and Alhambra Valley Road. It proceeds in a southerly direction beneath Alhambra Valley Road, Sheridan Lane, Strentzel Lane, and south of the north edge of the NPS property where the John Muir gravesite is located. From there, the sewer would cross beneath Alhambra Creek to the north end of Wanda Way and proceed south, joining up with Alhambra Valley Road, and ending at the Reliez Valley Road intersection. The portions north of the NPS property and south of Wanda Way were constructed in 2006.

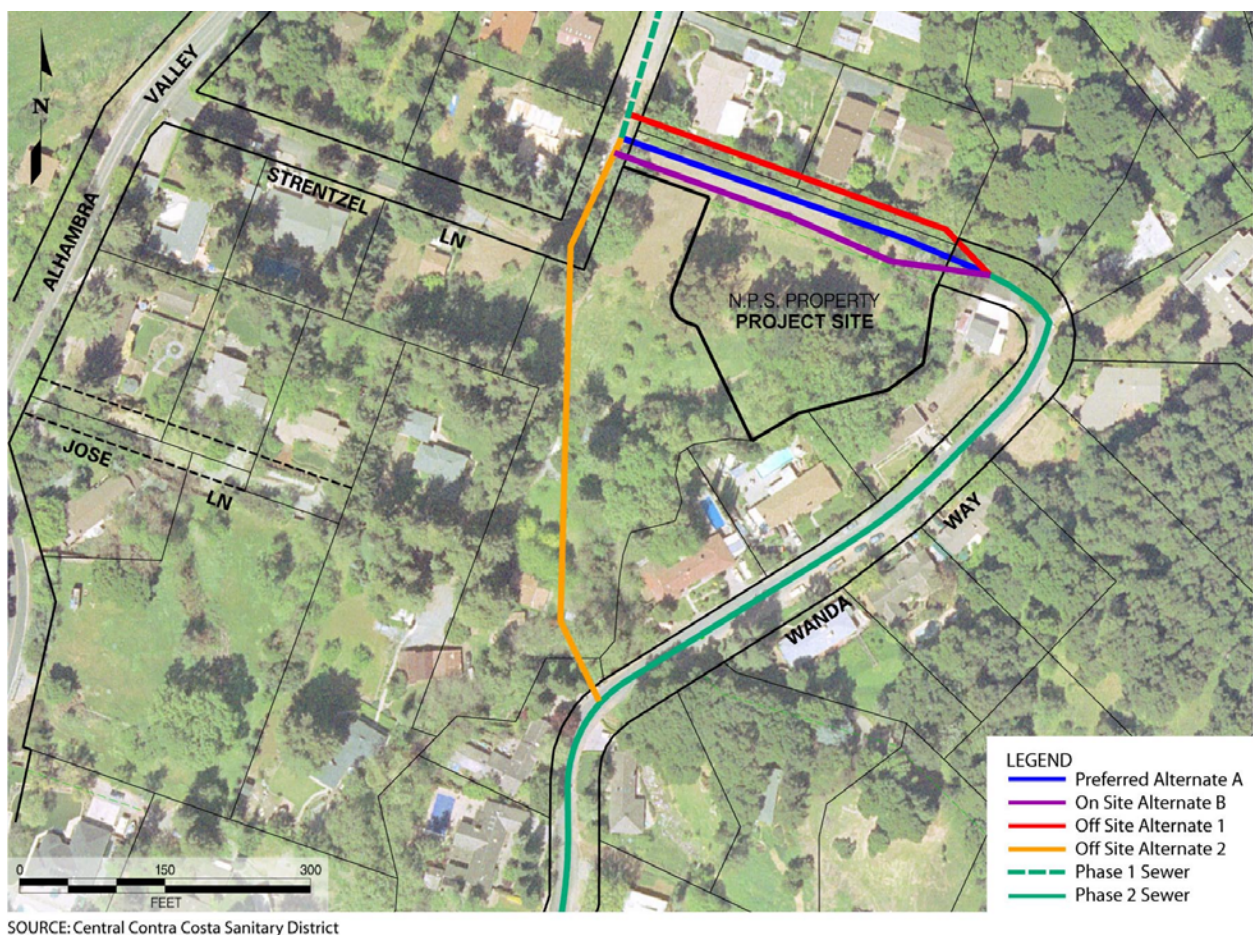


Figure 3: Aerial Photo of Alternative Routes Within the Project Area

The proposed sewer route on the NPS property is along an abandoned non-historic roadway that once connected to Wanda Way in the 1960s, approximately 300 feet. The preferred route is shown on Figures 2 through 4 and in the photo on Figure 5. The area of the NPS property where CCCSD

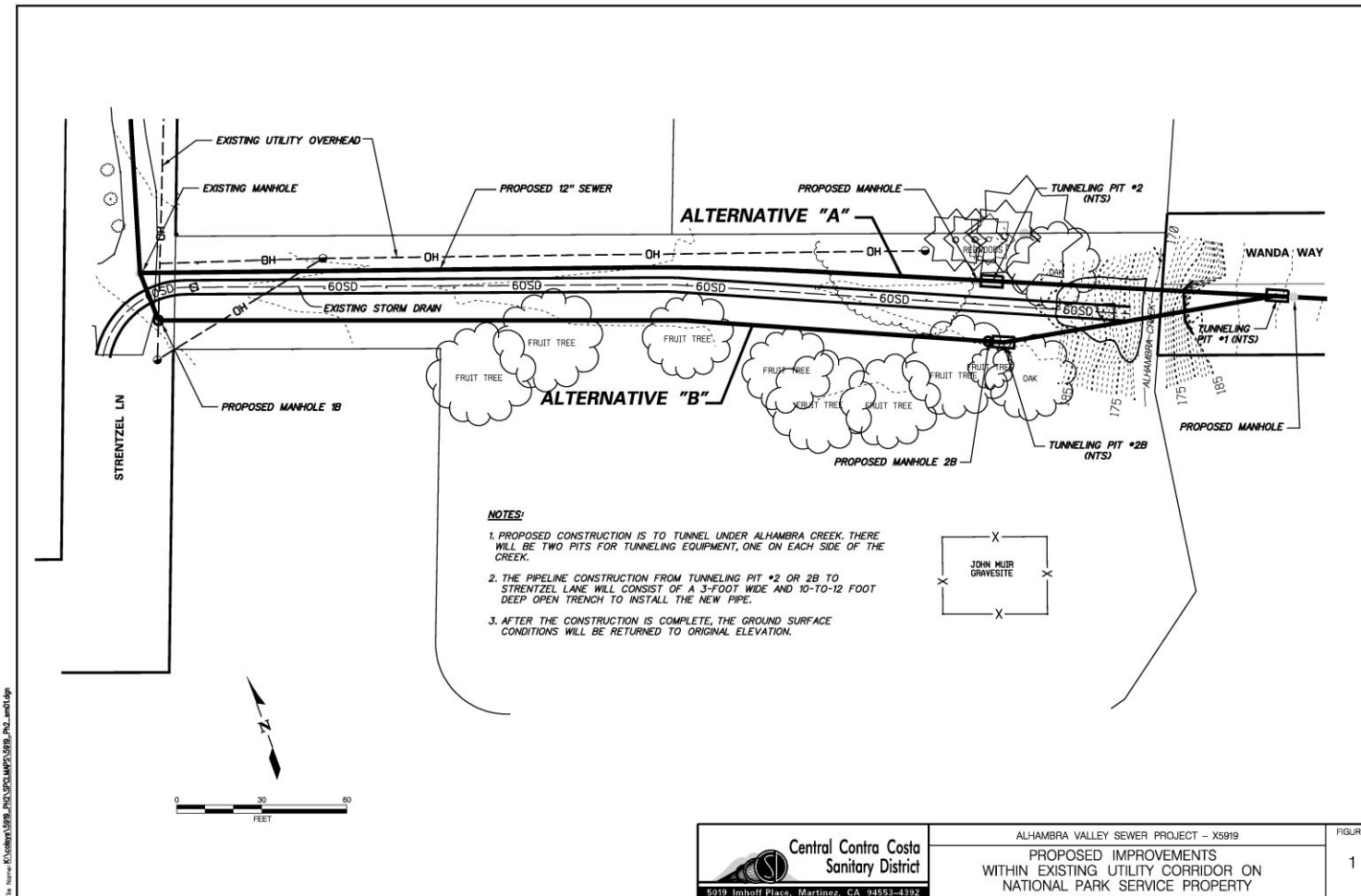


Figure 4 – Diagram of Preferred Alternative A and Alternative B Alignments on NPS Property



Figure 5. Viewing east towards Alhambra Creek from the entrance to the NPS property. The blue line represents the proposed sewer line and the teal line represents the storm drain.

proposes to construct the trunk sewer is within an existing 40-foot-wide access and utility easement. The easement is not a general access and utility easement, but exists only to serve properties adjacent to the NPS property and along the northern portion of Wanda Way. At least 19 properties have this easement right through the NPS property. These properties include 190 and 194 Strentzel Lane, the Jones property, and 20A through 41 Wanda Way. The easement provides for installation of all types of utilities including water, sewer, and gas to serve the affected properties. The proposed trunk sewer would serve all of these parcels.

CCCSD also would install a 4-inch lateral sewer pipe that would extend from the trunk line of the Muir gravesite property to the adjoining property at 194 Strentzel Lane located directly north of the preferred alternative site. The trench for this pipe would be 2-feet wide and 10 to 15 feet long. It would stub out just beyond the 194 Strentzel Lane/Muir gravesite property line. CCCSD stated that the alignment of the lateral would be located to avoid trees/shrubs along the property line.

Starting at the west end of the NPS property the sewer line would be installed using an open cut (trench) method with a trench 3 feet wide and excavation depths of 10 to 12 feet. The pipe beneath Alhambra Creek would be part of a twin barrel siphon constructed using the pilot tub microtunneling (PTMT) method, a trenchless technology. The sewer pipes would be in steel casing with 3 to 4 feet of cover. At the east end of the NPS property where the siphon transition begins, a 6-foot x 6-foot manhole structure would be constructed approximately 40 feet from the creek bank. The structure would be buried.

CCCSD has stated that the pipe is expected to have a 50-year life. CCCSD would periodically inspect the pipe using a closed circuit television and if needed, the pipe will be replaced or rehabilitated. If the casing becomes exposed due to creek scouring, CCCSD is responsible for re-establishing the creek bottom. CCCSD stated that the pipeline is designed to withstand ground shaking associated with the type of seismic events that are anticipated on major faults within the San Francisco Bay Area.

Installing the sewer pipe under the creek will require excavating a boring pit at each end of the pipe segment. The manhole located at the eastern edge of the NPS property would be located approximately 40 feet from the creek bank to avoid disturbance of the creek. The distance would be similar on the east side of the creek.

Construction of the preferred alternative, including the manhole installation and PTMT under the creek, is expected to take approximately 4 weeks. The average installation rate for the open cut method is 100 feet per day and sewer installed in this manner would take 7 to 10 days. The key steps in the open cut construction process are: surface clearing, trench excavation and shoring, pipe installation, trench backfilling and surface restoration. As the trench is cut, soil is removed, and the pipe is laid behind the trenching equipment. Upon completion of laying the pipe, the site would be restored to its natural condition. The PTMT method involves constructing a bore pit on the east side of the creek (Wanda Way) and a receiving pit on the west side (NPS property). The receiving pit dimensions would be approximately 6 feet long by 4 feet wide and 22 feet deep. The pit would be shored to prevent caving and would be enclosed with a temporary chain-link fence at the end of each day. Pipe and drilling equipment are placed in the boring pit. An auger with a rotating cutting head is placed in a steel casing. The auger rotates with the casing and acts as a drill bit. Both are pushed under the creek as the drilled soil is removed at the bore pit. The auger and casing are guided to the receiving pit using a laser and camera system. When the construction crew reaches the receiving pit, the auger is pushed out and removed at the receiving pit, and the casing is left in place. The new sewer pipe is installed within the casing.

The outer edge of the sewer line would be located 1 to 4 feet away from the outer edge of the existing storm drain. The storm drain would be protected during construction of the sewer line by physically identifying its alignment. CCCSD staff has stated that the storm drain is of sufficient depth that construction traffic would not damage it. Engineering plans were submitted to The Contra Costa County Public Works Department, but to date there has been no comment as to whether the proposed project would interfere with the storm drain on the NPS property. Prior to the start of construction CCCSD will confirm with the Department of Public Works that work can begin as proposed. CCCSD will be responsible for any damage to the storm drain should this occur.

Upon completion of the sewer line, CCCSD would install a gravel road covered with sufficient topsoil to support grass and mulched with a layer of duff (leaves/grass/redwood bark, etc.) so that the maintenance access would blend in with the rest of the Muir gravesite property. CCCSD shall repair and re-cover with additional topsoil, seed and duff if conditions warrant. The manhole located at the eastern edge of the property would be buried so that the manhole cover is not visible.

2. Alternative B – Extending the sewer line along the south side of the 60-inch storm drain line.

The Alternative B trunk sewer line would approach the property in the same manner as described above for the preferred alternative. However, from the manhole on Strentzel Lane, the trunk sewer line would have to cross under the storm drain in order for the sewer line to align on the south side of the storm drain pipe. This is because the storm drain continues south on Strentzel Lane and turns west, crossing Alhambra Valley Road. The alignment of the trunk sewer on the NPS property would parallel the existing storm drain to a point where it would angle to the northeast prior to crossing Alhambra Creek. The sewer line must angle to the northeast to align with the manhole located on the east side of the creek. The sewer line would be located approximately 7 to 10 feet from the storm drain. (Refer to Figures 3 and 4.)

3. No Action Alternative

Under this alternative, the NPS would not issue a right-of-way license for the construction of the sewer line on the Muir site. As a result, the Offsite Alternatives could become two potential outcomes of the No Action Alternative. Normally, the “no action” alternative would be the continuation of existing conditions. However, CCCSD is committed to completing the sewer project. Thus, the two offsite alternatives are described below. Although the NPS does not make a decision regarding the offsite alternatives, the following information is provided for public consideration.

It should be noted that if the trunk sewer does not connect to the residences on Wanda Way whose residents have easement rights over the NPS property, they could either individually or collectively have the sewer line installed to serve their properties.

B. OFF NPS PROPERTY ALTERNATIVES (GENERATED BY SELECTION OF NO ACTION ALTERNATIVE)

4. Alternative 1 – Sewer line constructed across two private residential properties to the north of the NPS property.

The Alternative 1 alignment is shown on Figures 2 and 3. This alternative does not utilize NPS property since the sewer line is moved immediately to the north of the NPS property, across two private residential properties (190 and 194 Strentzel Lane). To implement this alternative, the District would have to acquire easements from the two private properties. Property owners would be compensated for the right of the easement. Due to the built up environment and landscaping on these properties, CCCSD would have to bore the sewer line rather than dig a trench. Figures 6 and 7 illustrate the line of trees/shrubs under which the sewer line would be tunneled. As with the NPS alternatives, a manhole would be located near the creek crossing. However, the District would not be able to access the manhole due to the structures in the rear yards. Under this alternative, CCCSD may still need to seek permission from NPS for construction and maintenance access to the manhole located west of the creek at the 194 Strentzel Lane property, or access from the manhole located on Strentzel Lane.



Figure 6: Viewing east from entrance to NPS gravesite property. Alternative 1 alignment would be located to the left side of the line of shrubs and trees. The sewer line would be tunneled from the roadway under the trees in the photo.



Figure 7: Viewing west from edge of the property near creek. Line of trees and shrubs on right side of photo separate the NPS gravesite parcel and Alternative 1 site.

5. Alternative 2 – Alhambra Creek trunk sewer crossing approximately 750 feet south of the proposed creek crossing.

Alternative 2 is shown on Figures 2 and 3, and the photo in Figure 8 depicts the area of the alignment. The sewer line would cross Alhambra Creek approximately 750 feet south of the proposed creek crossing. It would cross through the Jones property to connect with Strentzel Lane. Under this alternative, the gravity sewer could not serve approximately 15 residences along the northern portion of Wanda Way. A separate gravity sewer or individual pumping stations would have to be constructed to provide sewer service to these homes.

Since these properties all have existing easements across the NPS gravesite property, the individual homeowners might want to build their own sewer main across the creek through NPS property, rather than go south and deeper to the Alternative 2 creek crossing.



Figure 8: Viewing southeast across the Jones property of the Alternative 2 alignment.

C. ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER REVIEW

CCCCSD considered additional offsite alternatives should NPS select the No Action Alternative. These two alternatives were eliminated from further evaluation by CCCCSD because they are both costly to construct due to the length and depth of the pipeline and technically challenging. Because of this, CCCCSD has already completed the sewer line up to the boundaries of the NPS gravesite property. These alternatives include the following:

6. Alternative 3 – Construct the sewer line using Wanda Way to Deodora Way to Peggy Lane.

This alternative is shown on Figure 2. The local sewer in Wanda Way north of Deodora Way would be constructed adverse to the natural ground slope, resulting in deeper excavations and flatter slopes. The excavations would range from 8 to 22 feet. Easements would need to be obtained across five parcels. Approximately one-half of the open-cut excavation would be on private property and backyard manholes with access roads would need to be constructed. There is the possibility of buildings and other encroachments being built over the sewer in the future. Under this alternative, one more creek crossing would be required to provide sewer service residents within the CCCSD project area.

7. Alternative 4 – Construct the sewer line in Alhambra Valley Road.

This alternative is shown on Figure 2. The route is located entirely in the public right-of-way of Alhambra Valley Road. Constructing a gravity sewer would require excavations greater than 40 feet deep within the two-lane road and would require specially designed shoring to hold the trench open during construction. Because the road is narrow, it would require closure during construction of the sewer line. This alignment would require only one creek crossing that would be located between the road and the top of a buried culvert, thereby making the creek crossing easier to construct. However, the alignment is considered the most technically difficult, due to the topography along the roadway and the excavation required.

Local sewers that tie into this trunk line from Wanda Way and Peggy Lane would be constructed adverse to the natural ground slopes and some homes would require individual pumping stations.

D. ENVIRONMENTALLY PREFERRED ALTERNATIVE

In accordance with Director's Order #12, Conservation Planning, Environmental Impact Analysis, and Decision-making, the NPS is required to identify the "environmentally preferred alternative" in all environmental documents, including EAs. The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act (NEPA) of 1969, which is guided by the Council on Environmental Quality (CEQ). The CEQ (46 FR 18026 – 46 FR 18038) provides direction that "[t]he environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA's Section 101," which considers:

1. fulfilling the responsibilities of each generation as trustee of the environment for succeeding generations;
2. assuring for all generations safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
3. attaining the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;

4. preserving important historic, cultural and natural aspects of our national heritage and maintaining, wherever possible, an environment that supports diversity and variety of individual choice;
5. achieving a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
6. enhancing the quality of renewable resources and approaching the maximum attainable recycling of depletable resources (NEPA Section 101(b)).

Generally, these criteria mean the environmentally preferable alternative is the alternative that causes the least damage to the biological and physical environment and that best protects, preserves, and enhances historic, cultural, and natural resources (46 FR 18026 – 46 FR 18038).

NPS decision-makers attempt to strike a balance with competing interests. In this case, the Preferred Alternative is consistent with NEPA criteria 2, 4, and 5. The Preferred Alternative, once completed, would leave the Muir gravesite property in its pre-construction state, and would not affect the NPS' efforts of preserving the site. The Preferred Alternative generates fewer impacts to NPS property than Alternative B.

Under the No Action Alternative, the sewer line would not extend through the Muir gravesite property. However, because CCCSD is committed to completing the sewer project, it would be necessary to select one of two alternative alignments that extend through private property. Offsite Alternative 1 would extend through private property north of the Muir gravesite, creating impacts with the potential loss of landscaping and creating greater disruption to the property owners. Due to the built-up nature of the property, CCCSD would have to access the Offsite Alternative 1 property through the NPS property to drill the pit and tunnel under the creek. Thus, impacts of this Alternative 1 would be similar to that of the Preferred Alternative, except that the beneficial impacts of the Preferred Alternative noted below would not occur. If CCCSD selects Offsite Alternative 2, the alignment would extend through private property further south of the Muir gravesite. This alignment would cut off 15 residences along the northern portion of Wanda Way that could be served by the Preferred Alternative. This can be interpreted as not achieving a balance between the population of the area and the resource. Furthermore, the 15 homeowners have existing easements across the NPS property and, as such, could build their own sewer main across the creek through the NPS property. The impacts to the Muir site would be similar to the Preferred Alternative if individual property owners construct a sewer line on the NPS property.

The Preferred Alternative would create the following beneficial impacts: the sewer line would be constructed by a single entity; it would be constructed in a shorter, straight line through the property; and it would cause the least damage to natural resources. Additionally, construction of this alternative would correct the grading of the storm drain trench, which has compacted over time.

There are potential short-term adverse impacts associated with the Preferred Alternative. The site would be disrupted during the 7- to 10-day construction period and would detract from the visitor experience during that time. The potential also exists that equipment could inadvertently damage or destroy trees, particularly the historic pear trees. Mitigation measures are recommended that call for

closing the site during the construction period, taping off all trees, participating in a Bartlett pear propagation program, and replacing any tree/shrub that is removed or destroyed.

Table 3 provides a summary of impacts for all of the alternatives, and Table 4 lists the mitigation measures for each resource topic. Table 5 identifies the topics dismissed from further evaluation.

Table 3. Summary of Alternatives and Impacts

Resource Topic/ Consultation Requirement	On NPS Property		No Action Alternative at NPS Site	No Action Alternative Generates Off NPS Property Alternatives	
	Preferred Alternative	Alternative B		Alternative 1	Alternative 2
AESTHETICS	Minor short-term impact associated with equipment compacting soil over storm drain; potential minor long-term direct impact of damage to trees on site. Minor beneficial impact associated leveling the grade and re-compacting storm drain alignment.	Minor short-term impact associated with equipment compacting soil over storm drain; a moderate direct long-term impact would occur with loss of historic pear trees; would impair the historic value of the site. Minor beneficial impact associated with leveling the grade and re-compacting storm drain alignment.	Site would remain as is; leveling and re-compacting the storm drain alignment would not be completed.	Moderate, long-term direct impact associated with the potential loss of landscaping with tunneling of the sewer line and installation of manhole. Construction activities would be disruptive to residents. This is a minor short-term direct impact. Construction of manhole would have to be conducted from NPS property creating minor short-term direct impact on NPS facilities.	On-site construction disruptive to residents; a minor, short-term impact. Potential impact on historic pear trees; a moderate long-term direct impact.

Table 3. Summary of Alternatives and Impacts

Resource Topic/ Consultation Requirement	On NPS Property		No Action Alternative at NPS Site	No Action Alternative Generates Off NPS Property Alternatives	
	Preferred Alternative	Alternative B		Alternative 1	Alternative 2
HISTORIC LANDSCAPE Archeological and Historic Preservation Act of 1974 (16 U.S.C. §469- 469c): National Historic Preservation Act of 1966, as amended (16 U.S.C. §470- 470+) EO 11593, Protection and Enhancement of the Cultural Environment, May 1971)	During construction historic pear trees could be damaged impairing cultural integrity of the park and historic landscape. This is a moderate, long-term impact. During construction period, historic landscape would be temporarily altered. This is a minor, short-term impact. Would require SHPO consultation.	Potential exists for historic pear trees to be damaged or destroyed. This would impair historic value of site and is considered an adverse long-term impact. During construction period, historic landscape would be temporarily altered. This is a minor, short-term impact. Would require SHPO consultation.	No impact.	Potential exists for construction equipment to inadvertently damage historic pear trees when CCCSD accesses NPS site to construct manhole on Alternative 1 site. This would be considered a moderate, adverse long- term impact if pear trees are damaged or destroyed.	No impact to historic resources on NPS site. Historic pear trees on Alternative Site 2 could be damaged or destroyed, depending upon the alignment. This would be considered a moderate, long-term impact.

Table 3. Summary of Alternatives and Impacts

Resource Topic/ Consultation Requirement	On NPS Property		No Action Alternative at NPS Site	No Action Alternative Generates Off NPS Property Alternatives	
	Preferred Alternative	Alternative B		Alternative 1	Alternative 2
VISITOR EXPERIENCE	During construction visitor experience compromised by intrusion of equipment, etc. This is a short-term moderate impact. Periodic visits of maintenance trucks would also create a short-term minor impact on visitor experience.	During construction visitor experience compromised by intrusion of equipment, etc. This is a short-term moderate impact. Periodic visits of maintenance trucks would also create a short-term minor impact on visitor experience.	No impact.	Construction activities would compromise the visitor experience; this is a short-term minor impact. Short-term minor impact on visitor experience at Muir site associated with maintenance trucks servicing pipeline.	Construction activities would compromise the visitor experience; this is a short-term minor impact Short-term minor impact on visitor experience at Muir site associated with maintenance trucks servicing pipeline.

Table 3. Summary of Alternatives and Impacts

Resource Topic/ Consultation Requirement	On NPS Property		No Action Alternative at NPS Site	No Action Alternative Generates Off NPS Property Alternatives	
	Preferred Alternative	Alternative B		Alternative 1	Alternative 2
NATURAL RESOURCES	<p>Construction of pipeline under creek could deter wildlife movement during daytime hours. This is considered a short-term negligible impact.</p> <p>No impact on wetlands or special-status species.</p> <p>No impact on site's hydrology or flows in creek.</p> <p>Sewer line subject to ground shaking from major seismic event in the area. Considered a short-term negligible impact.</p>	Same as Preferred Alternative.	No impact.	<p>Short-term moderate impact would occur with the potential loss of landscaping.</p> <p>Construction of pipeline under creek could deter wildlife movement during daytime hours. This is considered a short-term negligible impact.</p> <p>No impact on wetlands or special-status species.</p> <p>No impact on site's hydrology or flows in creek.</p> <p>Sewer line subject to ground shaking from major seismic event in the area. Considered a short-term negligible impact.</p>	Same impacts as identified for Alternative 1.

Table 3. Summary of Alternatives and Impacts

Resource Topic/ Consultation Requirement	On NPS Property		No Action Alternative at NPS Site	No Action Alternative Generates Off NPS Property Alternatives	
	Preferred Alternative	Alternative B		Alternative 1	Alternative 2
OTHER CONDITIONS	<p>Minor, short-term impacts would occur with construction activities that would result in increased truck trips, increased noise levels, and objectionable odors from diesel emissions.</p> <p>Potential odors may arise from manhole until flows are great enough to keep line flushed. This is a minor, short-term impact.</p>	<p>Minor, short-term impacts would occur with construction activities that would result in increased truck trips, increased noise levels, and objectionable odors from diesel emissions.</p> <p>Potential odors may arise from manhole until flows are great enough to keep line flushed. This is a minor, short-term impact.</p>	No impact.	<p>A short-term minor impact would occur if construction equipment damages individual driveways.</p> <p>Minor short-term impacts would occur during construction activities resulting in increased truck trips, increased noise levels, and objectionable odors from diesel emissions.</p> <p>Potential odors may arise from manhole until flows are great enough to keep line flushed. This is a minor, short-term impact.</p>	<p>A short-term minor impact would occur if construction equipment damages individual driveways.</p> <p>Minor short-term impacts would occur during construction activities resulting in increased truck trips, increased noise levels, and objectionable odors from diesel emissions.</p> <p>Potential odors may arise from manhole until flows are great enough to keep line flushed. This is a minor, short-term impact.</p>

Table 3. Summary of Alternatives and Impacts

Resource Topic/ Consultation Requirement	On NPS Property		No Action Alternative at NPS Site	No Action Alternative Generates Off NPS Property Alternatives	
	Preferred Alternative	Alternative B		Alternative 1	Alternative 2
CUMULATIVE IMPACTS	This alternative would not create cumulative impacts. No other construction activities are expected to take place in the project area during the few weeks when this alternative is being built, with the exception of the residential development at Alhambra Valley Road/Reliez Valley Road, located approximately three quarters of a mile from the project area. Subsequent sewer construction and residential infill development is anticipated, but not simultaneous with this alternative's construction.	This alternative would not create cumulative impacts. No other construction activities are expected to take place in the project area during the few weeks when this alternative is being built, with the exception of the residential development at Alhambra Valley Road/Reliez Valley Road, located approximately three quarters of a mile from the project area. Subsequent sewer construction and residential infill development is anticipated, but not simultaneous with this alternative's construction.	This alternative would not create cumulative impacts. No other construction activities are expected to take place in the project area during the few weeks when this alternative is being built, with the exception of the residential development at Alhambra Valley Road/Reliez Valley Road, located approximately three quarters of a mile from the project area. Subsequent sewer construction and residential infill development is anticipated, but not simultaneous with this alternative's construction.	This alternative would not create cumulative impacts. No other construction activities are expected to take place in the project area during the few weeks when this alternative is being built, with the exception of the residential development at Alhambra Valley Road/Reliez Valley Road, located approximately three quarters of a mile from the project area. Subsequent sewer construction and residential infill development is anticipated, but not simultaneous with this alternative's construction.	This alternative would not create cumulative impacts. No other construction activities are expected to take place in the project area during the few weeks when this alternative is being built, with the exception of the residential development at Alhambra Valley Road/Reliez Valley Road, located approximately three quarters of a mile from the project area. Subsequent sewer construction and residential infill development is anticipated, but not simultaneous with this alternative's construction.

Table 4. Summary of Mitigation Measures by Alternatives

	ON NPS SITE		OFF NPS SITE	
Resource Topic	Preferred Alternative	Alternative B	Alternative 1	Alternative 2
AESTHETICS	<ol style="list-style-type: none"> 1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after any routine maintenance activities and/or emergency sewer line repairs as outlined in this document. 2. NPS is attempting to identify the pear tree variety and propagate the historic trees. CCCSD shall participate in a propagation program with a commitment of at least \$25,000.00 toward orchard improvements. <i>Implementation of this mitigation measure would compensate for the impacts to the pear trees. Implementation of this mitigation measure is the responsibility of CCCSD.</i> 3. CCCSD shall add topsoil, and recompact the soil over the storm drain to achieve positive drainage by bringing it up to grade. <i>Implementation of this mitigation measure would repair localized damage. CCCSD would be responsible for the implementation of this mitigation</i> 	<ol style="list-style-type: none"> 1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after any routine maintenance activities and/or emergency sewer line repairs as outlined in this document. 2. CCCSD shall add topsoil, and re-compact the soil over the storm drain to achieve positive drainage by bringing it up to grade. <i>Implementation of this mitigation measure would repair localized damage. CCCSD would be responsible for the implementation of this mitigation measure.</i> 3. NPS is attempting to identify the pear tree variety and propagate the historic trees. CCCSD shall participate in a propagation program with a commitment of at least \$25,000.00 toward orchard improvements. <i>Implementation of this mitigation measure would compensate for the impacts to the pear trees. Implementation of this mitigation measure is the responsibility of CCCSD.</i> 	<ol style="list-style-type: none"> 1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after any routine maintenance activities and/or emergency sewer line repairs as outlined in this document. 2. CCCSD shall conduct pre- and post-construction surveys along the sewer alignment, documenting all trees, shrubs and exotic plants, as well as their condition. Any trees, shrubs, or plants damaged or destroyed through the course of construction shall be replaced by CCCSD with the approval of the individual property owners. <i>Implementation of this mitigation measure would compensate for the moderate, long-term direct impact associated with the loss of vegetation. CCCSD would be responsible for the implementation of this mitigation measure.</i> 	<ol style="list-style-type: none"> 1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after any routine maintenance activities and/or emergency sewer line repairs as outlined in this document. 2. CCCSD shall conduct pre- and post-construction surveys along the sewer alignment, documenting all trees, shrubs and exotic plants, as well as their condition. Any trees, shrubs, or plants damaged or destroyed through the course of construction shall be replaced by CCCSD with the approval of the individual property owners. <i>Implementation of this mitigation measure would compensate for the moderate, long-term direct impact associated with the loss of vegetation. Implementation of this mitigation measure is the responsibility of CCCSD.</i>

Table 4. Summary of Mitigation Measures by Alternatives

Resource Topic	ON NPS SITE		OFF NPS SITE	
	Preferred Alternative	Alternative B	Alternative 1	Alternative 2
	<p><i>measure.</i></p> <p>4. CCCSD shall conduct pre- and post-construction surveys of the pear trees and develop an implementation plan to the satisfaction of NPS for the replanting of any lost trees. <i>Implementation of this mitigation measure would compensate for the long-term adverse direct impact of the loss of the pear trees. CCCSD would be responsible for the implementation of this mitigation measure.</i></p> <p>5. CCCSD shall consult with NPS to define the width of the maintenance access. <i>The implementation of this mitigation measure would ensure the dirt/duff-covered access is the appropriate size. Implementation of this mitigation measure would be the responsibility of CCCSD and NPS.</i></p>	<p>4. CCCSD shall conduct pre- and post-construction surveys of the pear trees and develop an implementation plan to the satisfaction of NPS for the replanting of any lost trees. <i>Implementation of this mitigation measure would compensate for the long-term adverse direct impact of the loss of the pear trees. CCCSD would be responsible for the implementation of this mitigation measure.</i></p> <p>5. In the event any trees are damaged or compromised during construction, CCCSD shall replace the trees with 24-inch box specimens, consisting of mixed native evergreens and subject to the approval of the NPS. <i>Implementation of this mitigation measure would compensate for the moderate long-term adverse impact that could occur. CCCSD and NPS would be responsible for the implementation of this mitigation measure.</i></p> <p>6. CCCSD shall consult with NPS to define the width of the</p>		

Table 4. Summary of Mitigation Measures by Alternatives

Resource Topic	ON NPS SITE		OFF NPS SITE	
	Preferred Alternative	Alternative B	Alternative 1	Alternative 2
		<p>maintenance access. <i>The implementation of this mitigation measure would ensure the dirt/duff-covered access is the appropriate size. Implementation of this mitigation measure would be the responsibility of CCCSD and NPS.</i></p>		
HISTORIC LANDSCAPE	<ol style="list-style-type: none"> 1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after any routine maintenance activities and/or emergency sewer line repairs as outlined in this document. 2. NPS is attempting to identify the pear tree variety and propagate the historic trees. CCCSD shall participate in a propagation program with a commitment of at least \$25,000.00 toward orchard improvements. <i>Implementation of this mitigation measure would compensate for the impacts to the pear trees. Implementation of this mitigation measure is the responsibility of CCCSD.</i> 	<ol style="list-style-type: none"> 1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after any routine maintenance activities and/or emergency sewer line repairs as outlined in this document. 	<ol style="list-style-type: none"> 1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after any routine maintenance activities and/or emergency sewer line repairs as outlined in this document. 2. NPS is attempting to identify the pear tree variety and propagate the historic trees. CCCSD shall participate in a propagation program to the satisfaction of NPS. <i>Implementation of this mitigation measure would compensate for the long-term adverse direct impact of the loss of the pear trees. CCCSD and NPS would be responsible for the implementation of this</i> 	<ol style="list-style-type: none"> 1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after any routine maintenance activities and/or emergency sewer line repairs as outlined in this document. 2. CCCSD shall align the sewer pipe to avoid the historic trees. <i>Implementation of this condition is the responsibility of CCCSD.</i>

Table 4. Summary of Mitigation Measures by Alternatives

Resource Topic	ON NPS SITE		OFF NPS SITE	
	Preferred Alternative	Alternative B	Alternative 1	Alternative 2
	<p>3. CCCSD shall conduct pre- and post-construction surveys of the pear trees and develop an implementation plan to the satisfaction of NPS for the replanting of any lost trees. <i>Implementation of this mitigation measure would compensate for the long-term adverse direct impact of the loss of the pear trees. CCCSD would be responsible for the implementation of this mitigation measure.</i></p> <p>4. CCCSD shall consult with NPS to define the width of the maintenance access. <i>The implementation of this mitigation measure would ensure the dirt/duff-covered access is the appropriate size. Implementation of this mitigation measure would be the responsibility of CCCSD and NPS.</i></p>		<p><i>mitigation measure.</i></p> <p>3. CCCSD shall conduct pre- and post-construction surveys of the pear trees and develop an implementation plan to the satisfaction of NPS for the replanting of any lost trees. <i>Implementation of this mitigation measure would compensate for the long-term adverse direct impact of the loss of the pear trees. CCCSD would be responsible for the implementation of this mitigation measure.</i></p> <p>4. The dripline of all trees located in close proximity to the sewer line alignment shall be marked and fenced to protect them from damage created by the construction equipment. <i>Implementation of this measure by CCCSD and/or its contractor would ensure protection of trees during the construction of the sewer line.</i></p>	
VISITOR EXPERIENCE	1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after any	1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after any	1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after	Same as Alternative 1.

Table 4. Summary of Mitigation Measures by Alternatives

Resource Topic	ON NPS SITE		OFF NPS SITE	
	Preferred Alternative	Alternative B	Alternative 1	Alternative 2
	<p>routine maintenance activities and/or emergency sewer line repairs as outlined in this document.</p> <p>2. CCCSD shall add topsoil, and re-compact the soil over the storm drain to achieve positive drainage by bringing it up to grade. <i>Implementation of this mitigation measure would repair localized damage. CCCSD would be responsible for the implementation of this mitigation measure.</i></p> <p>3. NPS is attempting to identify the pear tree variety and propagate the historic trees. CCCSD shall participate in a propagation program with a commitment of at least \$25,000.00 toward orchard improvements. <i>Implementation of this mitigation measure would compensate for the impacts to the pear trees. Implementation of this mitigation measure is the responsibility of CCCSD.</i></p> <p>4. CCCSD shall conduct pre- and post-construction surveys of the pear trees and develop an implementation plan to the</p>	<p>routine maintenance activities and/or emergency sewer line repairs as outlined in this document.</p> <p>2. CCCSD shall add topsoil, and re-compact the soil over the storm drain to achieve positive drainage by bringing it up to grade. <i>Implementation of this mitigation measure would repair localized damage. CCCSD would be responsible for the implementation of this mitigation measure.</i></p> <p>3. NPS is attempting to identify the pear tree variety and propagate the historic trees. CCCSD shall participate in a propagation program with a commitment of at least \$25,000.00 toward orchard improvements. <i>Implementation of this mitigation measure would compensate for the impacts to the pear trees. Implementation of this mitigation measure is the responsibility of CCCSD.</i></p> <p>4. CCCSD shall conduct pre- and post-construction surveys of the pear trees and develop an implementation plan to the</p>	<p>any routine maintenance activities and/or emergency sewer line repairs as outlined in this document.</p> <p>2. The NPS shall consider closing the park site during the construction period. Implementation of this mitigation measure would avoid visitors experiencing construction impacts.</p> <p>3. CCCSD shall enter into a formal agreement with the NPS for scheduling access to the site for maintenance so that it does not conflict with the visitor experience. Implementation of this mitigation measure would avoid the potential short-term negligible impact on the visitor experience. CCCSD shall be responsible for the implementation of this mitigation measure.</p>	

Table 4. Summary of Mitigation Measures by Alternatives

Resource Topic	ON NPS SITE		OFF NPS SITE	
	Preferred Alternative	Alternative B	Alternative 1	Alternative 2
	<p>satisfaction of NPS for the replanting of any lost trees. <i>Implementation of this mitigation measure would compensate for the long-term adverse direct impact of the loss of the pear trees. CCCSD would be responsible for the implementation of this mitigation measure.</i></p> <p>5. CCCSD shall consult with NPS to define the width of the maintenance access. <i>The implementation of this mitigation measure would ensure the dirt/duff-covered access is the appropriate size. Implementation of this mitigation measure would be the responsibility of CCCSD and NPS.</i></p> <p>6. The NPS shall consider closing the site during the construction period. <i>Implementation of this mitigation measure would avoid visitors experiencing the construction impacts. Implementation of this measure would be the responsibility of the NPS.</i></p> <p>7. CCCSD shall enter into a formal agreement with the NPS for scheduling access to the site for</p>	<p>satisfaction of NPS for the replanting of any lost trees. <i>Implementation of this mitigation measure would compensate for the long-term adverse direct impact of the loss of the pear trees. CCCSD would be responsible for the implementation of this mitigation measure.</i></p> <p>5. CCCSD shall consult with NPS to define the width of the maintenance access. <i>The implementation of this mitigation measure would ensure the dirt/duff-covered access is the appropriate size. Implementation of this mitigation measure would be the responsibility of CCCSD and NPS.</i></p> <p>6. The NPS shall consider closing the site during the construction period. <i>Implementation of this mitigation measure would avoid visitors from experiencing the construction impacts. The NPS would be responsible for the implementation of this mitigation measure.</i></p> <p>7. CCCSD shall enter into a formal agreement with the NPS for scheduling access to the site for</p>		

Table 4. Summary of Mitigation Measures by Alternatives

	ON NPS SITE		OFF NPS SITE	
Resource Topic	Preferred Alternative	Alternative B	Alternative 1	Alternative 2
	<p>maintenance so that it does not conflict with the visitor experience. <i>Implementation of this mitigation measure would avoid the potential short-term negligible impact on the visitor experience. CCCSD shall be responsible for the implementation of this mitigation measure.</i></p>	<p>maintenance so that it does not conflict with the visitor experience. <i>Implementation of this mitigation measure would avoid the potential short-term negligible impact on the visitor experience. CCCSD shall be responsible for the implementation of this mitigation measure.</i></p>		
NATURAL RESOURCES	No mitigation measures required.	No mitigation measures required.	<ol style="list-style-type: none"> 1. CCCSD shall conduct pre- and post-construction surveys of onsite vegetation that is located within the sewer alignment, and develop an implementation plan to the satisfaction of the property owners for the replacement and replanting of vegetation destroyed during construction. <i>Implementation of this mitigation measure would compensate for the short- term adverse impact of the loss of the pear trees. CCCSD would be responsible for the implementation of this mitigation measure.</i> 2. The dripline of all trees located in close proximity to the sewer line alignment shall be marked and fenced to protect them from damage created by the 	Same as Alternative 1.

Table 4. Summary of Mitigation Measures by Alternatives

Resource Topic	ON NPS SITE		OFF NPS SITE	
	Preferred Alternative	Alternative B	Alternative 1	Alternative 2
			construction equipment. <i>Implementation of this measure by CCCSD and/or its contractor would ensure protection of trees during the construction of the sewer line.</i>	
OTHER CONDITIONS (TRAFFIC, NOISE, AIR QUALITY)	<ol style="list-style-type: none"> 1. CCCSD shall provide NPS and neighbors a telephone number to report odor occurrences. <i>Implementation of this mitigation measure would assist CCCSD to respond in a timely manner and reduce the length of time residents would be subjected to the odor. CCCSD is responsible for the implementation of this mitigation measure.</i> 2. CCCSD shall be responsible for the maintenance and flushing of the sewer line when odors are reported. <i>Implementation of this mitigation measure would minimize the duration of unnecessary odors from the sewer pipe. CCCSD is responsible for the implementation of this mitigation measure.</i> 3. CCCSD shall notify NPS and the neighbors one week in advance 	Same as Preferred Alternative.	<ol style="list-style-type: none"> 1. CCCSD shall provide NPS and neighbors a telephone number to report odor occurrences. <i>Implementation of this mitigation measure would assist CCCSD to respond in a timely manner and reduce the length of time residents would be subjected to the odor. CCCSD is responsible for the implementation of this mitigation measure.</i> 2. CCCSD shall be responsible for the maintenance and flushing of the sewer line when odors are reported. <i>Implementation of this mitigation measure would minimize the duration of unnecessary odors from the sewer pipe. CCCSD is responsible for the implementation of this mitigation measure.</i> 3. CCCSD shall notify NPS and the neighbors one week in 	Same as Alternative 1.

Table 4. Summary of Mitigation Measures by Alternatives

Resource Topic	ON NPS SITE		OFF NPS SITE	
	Preferred Alternative	Alternative B	Alternative 1	Alternative 2
	<p>of the start of construction. The hours of construction shall be posted with NPS and with the neighbors. <i>CCCSD is responsible for the implementation of this mitigation measure.</i></p> <p>4. Construction hours shall be limited to weekdays between 7:30 a.m. and 5:30 p.m. <i>CCCSD shall be responsible for maintaining the construction hours.</i></p>		<p>advance of the start of construction. The hours of construction shall be posted with NPS and with the neighbors. <i>CCCSD is responsible for the implementation of this mitigation measure.</i></p> <p>4. Construction hours shall be limited to weekdays between 7:30 a.m. and 5:30 p.m. <i>CCCSD shall be responsible for maintaining the construction hours.</i></p> <p>5. CCCSD shall be responsible for replacing or repaving driveways on private property should they become damaged during construction of the sewer line. <i>Implementation of this mitigation measure would reduce the impact of damaged driveways and would be the responsibility of CCCSD.</i></p>	

Table 5. Topics Dismissed from Review

Resource Topic	Reason Dismissed
AGRICULTURAL RESOURCES	Due to the suburban residential setting of the project, it will not impact any locally or statewide important farmland.
HAZARDOUS SUBSTANCES	This project involves the handling of negligible amounts of hazardous substances, including the liquids used to fuel and lubricate the construction equipment. No impact is anticipated. No hazardous substances will be stored or maintained onsite during the period of construction.
MINERAL RESOURCES	During construction, the project will use concrete, wood products, metals and other materials derived from natural resources; however, the project will not significantly impact these resources. The use of oil and gasoline to operate the machinery for construction purposes is negligible and of a short-term, temporary nature.
POPULATION/HOUSING	The sewer line project will provide sufficient capacity to allow for buildout of the 1992 Alhambra Valley Specific Plan, which envisioned approximately 300 homes in its study area. Most of the homes already exist, since there is little developable land left in Alhambra Valley. Except for three recently approved subdivisions totaling 37 lots, most of the remaining available parcels could each only accommodate a few infill residences. The project does not result in the displacement of any homes or residents. Significant intensification of the Alhambra Valley would require an amendment to the Specific Plan and approval by the Contra Costa County Board of Supervisors.
PUBLIC UTILITIES	The project will not affect utilities and service systems with the exception of the existing onsite storm drain. This is discussed in Chapter VI.
PUBLIC SERVICES	The project will not increase the need for fire or police protection, schools, parks, or other governmental services. In addition, it will not increase the capacity of Alhambra Valley Road.

V. AFFECTED ENVIRONMENT

This chapter describes the important environmental resources of the project area. Important environmental resources are those that affect the project alternatives or that would be affected by those alternatives.

1. Area and Project Site Landscape

Alhambra Valley Road is a winding, narrow road in the project vicinity, with numerous trees and large shrubs lining the roadway. Few homes or other structures are readily visible from the road; most are hidden by the vegetation or fencing.

The preferred alternative site and the offsite alternative sites are located in an older suburban neighborhood of Alhambra Valley with homes, attendant structures, and many large and small trees. Parcel sizes vary widely, with the parcels nearest or adjoining the creek generally being larger (thereby providing a more open character), while the parcels nearer the road are generally smaller and the landscape has a more suburban character.

The Muir gravesite property is one of the larger parcels and contains the grave of John Muir, his wife, Strentzel in-laws, and other Strentzel family members. It is located at the southeastern edge of the property, surrounded by a wrought iron fence. A large eucalyptus tree is located directly to the west of the gravesite. Other large, mature evergreen and oak trees occupy the site, as well as remnants of the historic pear orchard. The northern property line is screened with various large shrubs and trees. A redwood tree is located at the eastern edge of the property line. Overhead electric lines extend along the northern property line. Along the storm drain alignment, the topsoil has compacted, causing furrows on the soil cap. The gravesite is shown in Figure 9.

Two large concrete abutments are prominent on the east and west banks of Alhambra Creek. Other parts of the creek are generally well wooded, but with evidence of human disturbance in the form of concrete riprap and similar bank protection measures.

The landscape at the two, offsite alternative sites consists of structures, ornamental landscaping, and numerous trees. Both offsite alternative properties contain remnants of the historic pear orchard. The Alternative 1 site contains numerous native and ornamental trees, including redwoods, oak, sycamore, and fruit trees.

2. Historic Landscape

The project area is nationally significant for its association with John Muir, noted author and conservationist. The National Park Service acquired the property in the 1990s to preserve and interpret the site where John Muir is buried. The NPS has done considerable work in this area as part of the General Management Plan for the National Historic Site (see NPS Planning Documents, noted previously). Other properties related to Muir or the Muir family and owned by the NPS in the immediate area include the Strain Ranch, a contemporary development at the southwest corner of Mt. Wanda. Private property immediately adjacent to the NPS gravesite property contains a portion of the historic pear orchard.

The historic pear orchard dates to Muir's ownership of the property. The pear orchard is listed in the National Register of Historic places for its association with John Muir and for being a contributing feature of the larger component landscape of the John Muir National Historic Site. The historic pear orchard is composed of historically significant Bartlett pear varieties. The pear orchard consists of approximately 26 live pear trees in highly variable condition. The arborist's report conducted for the Contra Costa Flood Control project evaluated ten trees and concluded that four were in poor condition and are expected to continue to decline even with management, while six pear trees are in moderate condition but could survive with management.



Figure 9: Photo of the National Historic John Muir and Strentzel gravesite.

3. Visitor Experience

At the present time, the NPS does not publicize access or inform the public on how to get to the gravesite. In the future, the NPS will provide guided transportation to the site from the Park Visitor Center. The entrance into the property allows for two parked cars. The NPS General Management Plan (GMP) identifies providing easier accessibility to the site, which the NPS is pursuing. The site has not been developed with trails, picnic, or sanitary facilities. As such, the site provides a tranquil setting within a suburban neighborhood. Because the site holds the remains of John Muir and his family, it is considered a national historic site.

4. Area Land Use

Land uses in the Alhambra Valley consist of single-family residential homesites. Lots range in size from one-half acre to several acres. Contra Costa County adopted the Alhambra Valley Specific Plan (1992), which directs the development densities and type of development within the valley. As shown in the aerial photo in Figure 3, the area surrounding the preferred alternative site is built out

with the exception of the Jones property located immediately adjacent to the Muir gravesite and a parcel located to the southwest of the property accessed by Jose Lane. Each of these parcels could be subdivided based upon the zoning allowed (Single-family residential – 20,000 square feet minimum lot size).

The Muir gravesite and the offsite alternative parcels were once a part of a larger parcel that was the Strentzel and Muir homesteads. Thus, all three parcels contain similar resources; e.g., native vegetation, historic pear trees, creek frontage. The offsite alternative parcels have been altered with structures and the introduction of ornamental landscaping. The Muir gravesite property is vacant and the landscaping is essentially the same as when John Muir owned the property. Land uses would not change with implementation of any alternative.

5. Natural Resources

The federal and state Endangered Species Act (and associated legislation), Clean Water Act, Clear Air Act, and National Environmental Policy Act (NEPA) require that the effects of any federal undertaking examine natural resources. In addition, National Park Service Management Policies and Natural Resource Management Guidelines call for the consideration of natural resources in planning proposals. Natural resources exist within the Muir Gravesite property and could be affected by implementation of the alternatives. Analysis was performed for the following natural resources: biological resources (including riparian resources, wetlands, and migratory corridors), geology and soils, and hydrology.

a. Biology

Vegetation: The Strentzel Lane Flood and Sediment Reduction Project Environmental Assessment biological data is included for this project, since that study area encompasses the area of the proposed CCCSD sewer pipeline. Alhambra Creek is a relatively large, regionally important stream. At the project site, its banks are dominated by a dense mix of native and non-native vegetation including native trees, such as California sycamore (*Platanus racemosa*), valley oak, coast live oak, and several species of willow. These trees are significant for stability of the creek banks (Inglis 2002). The stream bank is dominated by species such as periwinkle (*Vinca major*), an exotic ground cover, poison oak (*Toxicodendrum diversiloba*; native), creeping wild-rye (*Leymus triticoides*; native), and Himalayan berry (*Rubus discolor*; exotic). Also present are California blackberry (*Rubus ursinus*; native), California rose (*Rosa californica*; native), stinging nettle (*Urtica dioica*; native), and scattered young oaks. A number of common wildlife species use the creek. The larger species include deer, raccoons, skunks, and similar species. Riparian and other songbirds and locally nesting birds are common as well. The creek is, by far, the most important biological resource in the project area due to its good cover by native plant species, use by wildlife both for watering and as a migratory corridor, and the many functions provided by riparian systems (pollutant transformation, shoreline anchoring, flood desynchronization, water storage, organic carbon export, and support for native plant and wildlife communities).

Wetlands: Wetlands on site were assessed through a Section 404 jurisdictional delineation for the Strentzel Lane Flood and Sediment Reduction Project Environmental Assessment.¹ Technical standards for delineating Section 404 areas, including wetlands, have been developed by the Corps of

¹ Zentner and Zentner, 2001, *Strentzel Lane, Section 404 Jurisdictional Delineation*, September 6.

Engineers in its Wetlands Delineation Manual² (“Delineation Manual”) and adopted by the Regional Water Quality Control Board, and many local agencies. No wetlands or other Corps/RWQCB jurisdictional areas were found on site except Alhambra Creek, which is defined under the Corps methodology as an “other water tributary to waters of the United States.”

Special-status species: The complete listing of potential special-status species for this region included 136 species of mammals, birds, herptiles (amphibians and reptiles), invertebrates, and plants.³ None of these species are considered likely to use or inhabit the site due to the lack of suitable habitat (grazed pasture and suburban residential are generally not suitable habitat for these species); extent of disturbance (again, these species are rare in areas of intensive and extensive disturbance); and absence of sightings onsite or nearby.

Specific notes on several species of concern in the region are provided below.

California red-legged frog (*Rana aurora draytonii*)

As stated in the Strentzel Lane Flood and Sediment Reduction Project Environmental Assessment, the Contra Costa County Flood Control staff reviewed the project site and Alhambra Creek with U.S. Fish and Wildlife Service (FWS) staff for the potential presence of the California red-legged frog, a Federally- and State-listed native frog. The FWS concluded that the site was unlikely to host this species.

California tiger salamander (*Ambystoma californiense*)

The California tiger salamander is likely absent for similar reasons (lack of suitable ponds and similar breeding habitat; absence of known locations nearby; and extent of local disturbance).

Steelhead trout (*Onchorhynchus mykiss irideus*)

Alhambra Creek was investigated for the presence of steelhead trout by several fisheries ecologists. Barriers to upstream migration in the City of Martinez and downstream from the project site are such that this anadromous species cannot reach the creek at the project site (Alhambra Creek Watershed Plan, May 2001).

Alameda whipsnake (*Masticophis lateralis euryxanthus*)

The Alameda whipsnake may occur in the hills above the project site; this area is included in the lands determined by the FWS to be critical habitat for this species. However, this snake occurs in scrub-shrub covered hillsides with occasional patches of grassland or woodland, conditions not occurring on the project site.

² U.S. Army Corps of Engineers, Environmental Laboratory, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss., 1987.

³ Contra Costa County Public Works Department, 2003, *Strentzel Lane Erosion and Sediment Reduction Project Environmental Assessment*, National Park Service, John Muir National Historic Site, March.

Western pond turtle (*Clemmys marmorata*)

The Western pond turtle, a State and Federal Species of Concern, is known from the region and although the California Natural Diversity Data Base (CNDDDB) records do not place it in Alhambra Creek, it is possible that it occurs there.

b. Geology and Soils

The Franklin fault is located approximately one mile from the project site. There are no active earthquake fault zones at or in the immediately vicinity of the project site. According to CCCSD, the pipeline is designed to withstand ground shaking associated with the type of seismic events that are anticipated in the project area.

According to the Contra Costa County Soil Survey, soils in the vicinity of the project consist almost entirely of Botella clay loam. These are moderately well drained soils on alluvial fans and floodplains. Permeability is relatively slow and runoff can be rapid. The hazard of erosion is moderate to high where the soil is bare depending on the slope. This soil type is primarily used for homes and dry grain crops.

c. Hydrology

Alhambra Creek drains a 264-acre watershed and is identified by the Contra Costa County Flood Control District as Sub-drainage Zone 1167. The existing onsite storm drain conveys local drainage and discharges into Alhambra Creek at the eastern edge of the project site. The project site is relatively flat and undeveloped, consequently there is little runoff generated at the site.

6. Other Conditions

a. Traffic

Residents of the Alhambra Valley utilize Alhambra Valley Road, Reliez Valley Road, Alhambra Avenue, and State Route 4 to enter or exit the valley. Alhambra Valley Road is a winding, narrow road in the project vicinity with numerous trees and large shrubs lining the roadway. Due to the topography and vegetation, there is little shoulder room. Traffic volumes in the immediate vicinity of the Muir gravesite are limited to neighborhood traffic.

b. Noise

The project site is located in a relatively secluded, older suburban neighborhood and is not located near land uses generating loud noises. Accordingly, noise levels are generally very low with the dominant noise sources in the project area being from traffic on Alhambra Valley Road, homeowner power tools, and trains traveling on the nearby railroad line.

c. Air Quality

Air quality in the project area is good with minor problems due to auto emissions from vehicles on Alhambra Valley Road. New construction is minor in the project area and construction-related emissions are not common.

VI. IMPACTS AND MITIGATIONS OF THE ALTERNATIVES

A. METHODOLOGY

The National Environmental Policy Act (NEPA) requires that environmental documents disclose the environmental impacts of the proposed federal action, reasonable alternatives to that action, and any adverse environmental effects that cannot be avoided should the proposed action be implemented. This section analyzes the environmental impacts of project alternatives on Aesthetics, Historic Resources, Visitor Experience, Natural Resources, and Other Conditions, as well as Cumulative Impacts. These analyses provide the basis for comparing the effects of the alternatives. NEPA requires consideration of impacts including the context, intensity, duration, type, and measures to mitigate impacts.

The following definitions were used to evaluate the context, intensity, duration, and cumulative nature of impacts associated with project alternatives:

Context is the setting within which an impact is analyzed, such as the affected region, society as a whole, the affected interests, and/or a locality. In this environmental assessment, the intensity of the contribution of effects to cumulative impacts are evaluated in a site-specific context rather than park-wide due to the separation of the site from the park or, in the case of special-status species, within the context of a species range.

Intensity is a measure of the severity of an impact. The intensity of an impact may be:

negligible, when the impact is localized and not measurable or at the lowest level of detection;

minor, when the impact is localized and slight but detectable;

moderate, when the impact is readily apparent and appreciable; or

major, when the impact is severely adverse and highly noticeable.

Duration is a measure of the time period over which the effects of an impact persist. The duration of impacts evaluated in this EA may be:

short term, when impacts occur only during construction or last less than one year; or

long term, when impacts are reversed more slowly and when impacts last one year or longer.

Type of impact is defined to be adverse, beneficial, direct, indirect, and cumulative.

Adverse impacts are those that change the affected environment in a manner tending away from the natural range of variability.

Beneficial impacts are those that change the affected environment toward the natural range of variability.

Direct impacts are those that occur at a different time and/or place than the action. Indirect impacts include changes such as species composition, structure of the vegetation, or range of wildlife. Indirect impacts also include impacts that occur offsite, such as erosion-related impacts, or general economic conditions tied to park activities.

Cumulative impacts are those impacts on the environment that result from the incremental (i.e., additive) impact of direct and indirect impacts when added to other past, present, and reasonably foreseeable future actions regardless of who undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Mitigation of Impacts. Mitigation measures must eliminate or reduce impacts by the following measures:

Avoid conducting management activities in an area of the affected environment.

Reduce the type of impact to an affected environment.

Minimize the duration or intensity of the impact to an affected environment.

Repair localized damage to the affected environment immediately after an adverse impact.

Rehabilitate an affected environment with a combination of additional management activities.

Compensation of a major long-term adverse direct impact through additional strategies designed to improve an affected environment as much as is practical.

Special-Status Species Analyses. In accordance with language used to determine effects on threatened and endangered species under the federal Endangered Species Act (USFWS 1998), potential effects on special-status species were categorized as follows:

no effect, when the proposed actions would not affect special-status species or critical habitat;

not likely to adversely affect, when effects on special-status species are discountable (i.e., extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated) or completely beneficial; or

likely to adversely affect, when any adverse effect to listed species may occur as a direct or indirect result of proposed actions and the effect is not discountable or completely beneficial.

Cultural Resources Analyses. The assessment of impacts on cultural resources and historic properties was made in accordance with regulations of the Advisory Council on Historic Preservation (36 CFR 800) implementing Section 106 of the National Historic Preservation Act. Following a determination of the areas of potential effect, cultural resources were identified within these areas that are either listed in, or eligible for listing in, the National Register of Historic Places.

An assessment was made of the nature and extent of effects on cultural resources anticipated from implementing proposed undertakings. Cultural resources can be affected by actions that alter in any way the attributes that qualify the resources for inclusion in the National Register. Adverse effects

can result when the integrity of a resource's significant characteristics is diminished. Consideration was given both to the effects anticipated at the same time and place of the undertaking, and to those potentially occurring indirectly at a later time and distance.

To provide consistency with requirements of the NEPA, the effects on cultural resources are also described in terminology intended to convey the duration, intensity, and beneficial or adverse nature of potential impacts. Impacts could be of short-term, long-term, or permanent duration. (Analysis of the duration of impacts is required under NEPA; however, duration is not required and is not usually considered in assessing effects in terms of the National Historic Preservation Act). The intensity of impacts is defined as follows:

Negligible – impact(s) is at the lowest levels of detection—barely perceptible and not measurable.

Minor adverse – impact(s) would alter a pattern(s) or feature(s) of the historic landscape but would not diminish the overall integrity of the landscape.

Minor beneficial impact – preservation of landscape patterns and features in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties with guidelines for the Treatment of Historic landscapes.

Moderate adverse impact – impact(s) would alter a pattern(s) or features(s) of the historic landscape, diminishing the overall integrity of the landscape.

Beneficial impact – rehabilitation of a landscape or its patterns and features in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties with guidelines for the Treatment of Historic landscapes.

Major adverse impact – impact(s) would alter a pattern(s) or features(s) of the historic landscape, diminishing the overall integrity of the resource.

Beneficial impact – restoration of a landscape or its patterns and features in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties with guidelines for the Treatment of Historic landscapes.

Short-term – effects on the natural elements of a historic landscape may be comparatively short-term (less than a year) until new vegetation grows or historic plantings are restored.

Long-term – because most cultural resources are essentially non-renewable, any effects on archeological, historic, or ethnographic resources would be long term. Effects on the historic landscape would persist for more than one year.

Impairment of Park Resources or Values

In addition to determining the environmental consequences of the preferred and other alternatives, NPS *Management Policies* (NPS, 2006) and Director's Order – 12, *Conservation Planning, Environmental Impact Analysis, and Decision-making*, require analysis of potential effects to determine if actions would impair park resources.

The fundamental purpose of the National Park System, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park

resources and values. NPS managers must always seek ways to avoid or minimize, to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the NPS management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the NPS management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement that the NPS must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including opportunities that otherwise would be present for the enjoyment of those resources or values. An impact to any park resource or value may constitute impairment. However, an impact would more likely constitute impairment to the extent it affects a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- identified as a goal in the Park's General Management Plan or other relevant NPS planning documents.

B. AESTHETICS

1. Environmental Impacts of Preferred Alternative A

The trunk sewer line would be installed within the existing utility easement adjacent to the existing storm drain. The sewer line would be located north of the storm drain at a distance ranging from 2 feet near Strentzel Lane to 5 feet near Wanda Way and at a depth lower than the storm drain. At the present time, the soil beneath the grassy area covering the storm drain has compacted, creating furrows. The weight of the construction equipment traveling over the storm drain could further compact the soil covering the storm drain. This is considered a minor, short-term direct impact.

The District's arborist⁴ stated that the construction would not require the removal of any trees or shrubs. The nearest trees are a large oak and redwood located on the property line near the creek. These trees are located approximately 14 and 19 feet, respectively, from the centerline of the storm drain. Branches extend close to the sewer line alignment and construction activities could cause some damage to the trees if not properly trimmed. This would be considered a minor, long-term, direct impact.

As a part of the project, the District is proposing to install a gravel-reinforced maintenance access that would be covered with topsoil seeded and mulched with duff so as to blend with the existing setting of the gravesite property. The width of the maintenance access would be determined in consultation with the NPS. The manhole cover would be buried so as not to be visible in the same manner as the access.

⁴ Chris Chapman, 2005, Horticultural Services, Ltd., Letter to Central Contra Costa Sanitary District, December 6.

Mitigation Measures

1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after any routine maintenance activities and/or emergency sewer line repairs as outlined in this document.
2. NPS is attempting to identify the pear tree variety and propagate the historic trees. CCCSD shall participate in a propagation program with a commitment of at least \$25,000.00 toward orchard improvements. *Implementation of this mitigation measure would compensate for the impacts to the pear trees. Implementation of this mitigation measure is the responsibility of CCCSD.*
3. CCCSD shall add topsoil, and recompact the soil over the storm drain to achieve positive drainage by bringing it up to grade. *Implementation of this mitigation measure would repair localized damage. CCCSD would be responsible for the implementation of this mitigation measure.*
4. CCCSD shall conduct pre- and post-construction surveys of the pear trees and develop an implementation plan to the satisfaction of NPS for the replanting of any lost trees. *Implementation of this mitigation measure would compensate for the long-term adverse direct impact of the loss of the pear trees. CCCSD would be responsible for the implementation of this mitigation measure.*
5. CCCSD shall consult with NPS to define the width of the maintenance access. *The implementation of this mitigation measure would ensure the dirt/duff-covered access is the appropriate size. Implementation of this mitigation measure would be the responsibility of CCCSD and NPS.*

Best Management Practices

CCCSD will implement the following Best Management Practices during construction of the sewer line.

1. The dripline of all trees located in close proximity to the sewer line alignment will be marked in consultation with the NPS and fenced to protect them from damage created by the construction equipment.
2. In the event trees and/or shrubs require pruning prior to construction, CCCSD will retain an arborist to report on the health of the tree(s)/shrubs and make recommendations for their treatment. The NPS will be consulted and approve any trimming that is done on trees that are on NPS property. CCCSD shall be responsible for retaining an arborist to ensure the health and quality of the trees/shrubs is upheld through the construction period.

2. Environmental Impacts of Onsite Alternative B

The sewer line would be aligned along the southern side of the storm drain, closer to the pear orchard. This alignment would impact the historic pear trees. The closest pear trees are located approximately 12 feet from the center of the storm drain. The trunk sewer line would be located approximately 7 to 10 feet from the storm drain pipe, which would potentially impact the root system of the pear trees. Because of the trees' age and fragility, they could be damaged to a point where they could not survive. This would be considered a moderate, direct long-term adverse impact.

This alternative would also require more excavation than the preferred alternative because the sewer line is longer and another manhole is required. As such, greater maintenance would be required than would be with the preferred alternative.

Mitigation Measures

1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after any routine maintenance activities and/or emergency sewer line repairs as outlined in this document.
2. CCCSD shall add topsoil, and re-compact the soil over the storm drain to achieve positive drainage by bringing it up to grade. *Implementation of this mitigation measure would repair localized damage. CCCSD would be responsible for the implementation of this mitigation measure.*
3. NPS is attempting to identify the pear tree variety and propagate the historic trees. CCCSD shall participate in a propagation program with a commitment of at least \$25,000.00 toward orchard improvements. *Implementation of this mitigation measure would compensate for the impacts to the pear trees. Implementation of this mitigation measure is the responsibility of CCCSD.*
4. CCCSD shall conduct pre- and post-construction surveys of the pear trees and develop an implementation plan to the satisfaction of NPS for the replanting of any lost trees. *Implementation of this mitigation measure would compensate for the long-term adverse direct impact of the loss of the pear trees. CCCSD would be responsible for the implementation of this mitigation measure.*
5. In the event any trees are damaged or compromised during construction, CCCSD shall replace the trees with 24-inch box specimens, consisting of mixed native evergreens and subject to the approval of the NPS. *Implementation of this mitigation measure would compensate for the moderate long-term adverse impact that could occur. CCCSD and NPS would be responsible for the implementation of this mitigation measure.*
6. CCCSD shall consult with NPS to define the width of the maintenance access. *The implementation of this mitigation measure would ensure the dirt/duff-covered access is the appropriate size. Implementation of this mitigation measure would be the responsibility of CCCSD and NPS.*

Best Management Practices

CCCSD will implement the following Best Management Practices during construction of the sewer line.

1. The dripline of all trees located in close proximity to the sewer line alignment will be marked in consultation with the NPS and fenced to protect them from damage created by the construction equipment.
2. In the event trees and/or shrubs require pruning prior to construction, CCCSD will retain an arborist to report on the health of the tree(s)/shrubs and make recommendations for their treatment. The NPS will be consulted and approve any trimming that is done on trees that are on NPS property. CCCSD shall be responsible for retaining an arborist to ensure the health and quality of the trees/shrubs is upheld through the construction period.

3. Environmental Impacts of No Action Alternative

This alternative would not create any aesthetic impacts to the project site, but would result in CCCSD selecting one of the two offsite alternative sewer alignments that would have aesthetic impacts affecting the Muir gravesite.

4. Environmental Impacts of Offsite Alternative 1

The sewer line would be constructed by tunneling under dense vegetation and mature trees, potentially impacting the health of the trees/shrubs bordering the NPS property. This is considered a moderate, long-term direct aesthetic impact.

The construction of a sewer line through private property would be disruptive to the residents and would create short-term aesthetic impacts with heavy equipment working in the yard and digging up portions of the property. Construction is anticipated to last 7 to 10 days and occur during daylight hours, Monday through Friday. This is considered a minor, short-term direct impact.

Construction of the manhole would result in the removal of exotic vegetation, reducing the effect to a moderate, short-term impact. Additionally, the construction of the siphon on this property could also interfere with existing structures. CCCSD may have to access the property from the NPS site, creating a minor short-term direct impact to the NPS facilities.

Mitigation Measures

1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after any routine maintenance activities and/or emergency sewer line repairs as outlined in this document.
2. CCCSD shall conduct pre- and post-construction surveys along the sewer alignment, documenting all trees, shrubs and exotic plants, as well as their condition. Any trees, shrubs, or plants damaged or destroyed through the course of construction shall be replaced by CCCSD with the approval of the individual property owners. *Implementation of this*

mitigation measure would compensate for the moderate, long-term direct impact associated with the loss of vegetation. CCCSD would be responsible for the implementation of this mitigation measure.

5. Environmental Impacts of Offsite Alternative 2

This alternative would by-pass the NPS property altogether. The aesthetics of the Muir gravesite would be left undisturbed and there would be no aesthetic impact under this alternative. As with Alternative 1, the disruption of the land and the presence of heavy equipment would be aesthetically disruptive for the residents. This is considered a short-term minor impact on the private property owners. Since the exact alignment for this alternative is unknown, the potential exists that trees could be removed or harmed during construction. This is considered a moderate, long-term direct aesthetic impact.

Mitigation Measures

1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after any routine maintenance activities and/or emergency sewer line repairs as outlined in this document.
2. CCCSD shall conduct pre- and post-construction surveys along the sewer alignment, documenting all trees, shrubs and exotic plants, as well as their condition. Any trees, shrubs, or plants damaged or destroyed through the course of construction shall be replaced by CCCSD with the approval of the individual property owners. *Implementation of this mitigation measure would compensate for the moderate, long-term direct impact associated with the loss of vegetation. Implementation of this mitigation measure is the responsibility of CCCSD.*

C. HISTORIC LANDSCAPE

1. Environmental Impacts of Preferred Alternative A

The National Historic Preservation Act, the Archeological Resources Protection Act, Native American Graves Protection Act, and NEPA requires that the effects of any federal undertaking on cultural resources should be examined. In addition, National Park Service management policies and cultural resource management guidelines call for the consideration of cultural resources in planning proposals. The Strentzel family/John Muir gravesite property is a significant cultural resource that includes family graves, an enclosed family plot and fruit trees planted by the Muir family.

The pear orchard is comprised of historically significant Bartlett pear varieties. The preferred alternative would not impact the Muir gravesite due to the distance of the sewer line from the gravesite. The sewer line would be located on the north side of the existing storm drain, approximately 15 feet from the nearest pear trees, however, the trees could be inadvertently damaged as equipment maneuvers the sewer alignment. This is considered a moderate, adverse impact.

As a part of the sewer project, CCCSD would install a reinforced gravel base for maintenance access that would be covered with topsoil sufficient to support grass, seeded and mulched with a layer of duff so as to blend with the existing setting of the gravesite property. The width of the maintenance

access would be determined in consultation with the NPS. The manhole cover would be buried in the same manner as the maintenance access. The final treatment of the sewer line construction route and the manhole would not create an impact upon the historic landscape. However, their presence in the historic landscape and the future need to access the manhole to conduct maintenance, which would require uncovering the manhole and any associated disturbance by trucks coming onto the historic landscape, is a permanent impact to the site. It is expected that each maintenance visit by CCCSD will at least require a recovering of the manhole as described above and possible repairs to the access route.

During the 7- to 10-day construction period, the historic landscape of the project site would be temporarily altered with the introduction of equipment and the trenching of the sewer route. This is considered a minor, short-term impact during the construction period. The site would return to its natural condition when construction is completed.

No Impairment: The pipeline by itself would be buried and not affect park resources upon completion of the project. However, during construction, the potential exists for the historic pear trees to be harmed or destroyed, which would impact the cultural integrity of the park and its historic landscape. This is considered a moderate long-term impact. The gravesite is located at a great enough distance from the proposed alignment that it would not be impacted or impaired.

Mitigation Measures

1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after any routine maintenance activities and/or emergency sewer line repairs as outlined in this document.
2. NPS is attempting to identify the pear tree variety and propagate the historic trees. CCCSD shall participate in a propagation program with a commitment of at least \$25,000.00 toward orchard improvements. *Implementation of this mitigation measure would compensate for the impacts to the pear trees. Implementation of this mitigation measure is the responsibility of CCCSD.*
3. CCCSD shall conduct pre- and post-construction surveys of the pear trees and develop an implementation plan to the satisfaction of NPS for the replanting of any lost trees. *Implementation of this mitigation measure would compensate for the long-term adverse direct impact of the loss of the pear trees. CCCSD would be responsible for the implementation of this mitigation measure.*
4. CCCSD shall consult with NPS to define the width of the maintenance access. *The implementation of this mitigation measure would ensure the dirt/duff-covered access is the appropriate size. Implementation of this mitigation measure would be the responsibility of CCCSD and NPS.*

Best Management Practices

CCCSD will implement the following Best Management Practices during construction of the sewer line.

1. The dripline of all trees located in close proximity to the sewer line alignment will be marked in consultation with the NPS and fenced to protect them from damage created by the construction equipment.
2. In the event trees and/or shrubs require pruning prior to construction, CCCSD will retain an arborist to report on the health of the tree(s)/shrubs and make recommendations for their treatment. The NPS will be consulted and approve any trimming that is done on trees that are on NPS property. CCCSD shall be responsible for retaining an arborist to ensure the health and quality of the trees/shrubs is upheld through the construction period.

2. Environmental Impacts of Onsite Alternative B

The sewer line would extend along the south side of the storm drain within the existing easement. It would be located approximately 7 to 10 feet from the storm drain and approximately 2 to 5 feet from the nearest pear trees, thereby potentially damaging or destroying this historic resource. Construction and maneuvering of construction equipment would most likely damage the trees to the point that they could not survive, due to their age and fragility. Because of the historic importance of the pear trees to the Muir site, this would be a moderate, adverse and long-term impact.

As with the preferred alternative, the District is proposing to install gravel reinforced maintenance access that would be covered with topsoil, seeded and mulched with duff so as to blend with the existing setting of the gravesite property. The width of the maintenance access would be determined in consultation with the NPS. The manhole cover would be buried so as not to be visible in the same manner as the access.

Although the sewer line would be located closer to the gravesite, nonetheless it is located at a great enough distance that it would not be impacted by construction activities.

No Impairment: The pipeline by itself would be buried and not affect park resources after completion of the installation. However, during construction, the potential exists for the historic pear trees to be harmed or destroyed, which would impact the cultural integrity of the park and its historic landscape. Because of the historic value of the pear trees to the Muir site, this is considered a moderate, long-term impact. The gravesite is located at a great enough distance from the proposed alignment that it would not be impacted or impaired.

Mitigation Measure

1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after any routine maintenance activities and/or emergency sewer line repairs as outlined in this document.

3. Environmental Impacts of No Action Alternative

This alternative would not create any impacts on historic resources at the project site, but would result in CCCSD selecting one of the two offsite alternative sewer alignments that would have potential impacts that could affect the Muir gravesite.

4. Environmental Impacts of Offsite Alternative 1

Known or potential archaeological resources in the project area include the Muir gravesite and the pear orchard adjacent to the gravesite. Under this alternative, the sewer line would be installed on adjoining properties. The potential exists that CCCSD would have to access the Alternative 1 site through the NPS property. The maneuvering of heavy equipment through the NPS property could potentially damage or destroy the pear trees if equipment becomes too close to the remnant orchard. This would result in a moderate, long-term impact on the historic landscape.

Mitigation Measures

1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after any routine maintenance activities and/or emergency sewer line repairs as outlined in this document.
2. NPS is attempting to identify the pear tree variety and propagate the historic trees. CCCSD shall participate in a propagation program to the satisfaction of NPS. *Implementation of this mitigation measure would compensate for the long-term adverse direct impact of the loss of the pear trees. CCCSD and NPS would be responsible for the implementation of this mitigation measure.*
3. CCCSD shall conduct pre- and post-construction surveys of the pear trees and develop an implementation plan to the satisfaction of NPS for the replanting of any lost trees. *Implementation of this mitigation measure would compensate for the long-term adverse direct impact of the loss of the pear trees. CCCSD would be responsible for the implementation of this mitigation measure.*
4. The dripline of all trees located in close proximity to the sewer line alignment shall be marked and fenced to protect them from damage created by the construction equipment. *Implementation of this measure by CCCSD and/or its contractor would ensure protection of trees during the construction of the sewer line.*

5. Environmental Impacts of Offsite Alternative 2

This alternative would avoid any impacts to the pear orchard and the Muir gravesite, since the sewer line would be located at a fair distance from both of these resources. Remnants of the pear orchard are also located on the Alternative 2 site. Depending upon the sewer line alignment, these trees could also be damaged or destroyed. This considered a moderate, long-term adverse impact.

Mitigation Measures

1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after any routine maintenance activities and/or emergency sewer line repairs as outlined in this document.

2. CCCSD shall align the sewer pipe to avoid the historic trees. *Implementation of this condition is the responsibility of CCCSD.*

D. VISITOR EXPERIENCE

1. Environmental Impacts of Preferred Alternative A

During the construction period, the visitor experience at the site would be compromised with the intrusion of construction equipment, workers, noise, diesel exhaust, and equipment moving about. The tranquility of the site would be lost during the 7- to 10-day period. Because the NPS does not open the site for general visitation, this would be considered a short-term moderate impact.

The site would be returned to its natural condition upon completion of the sewer line. All man-made features would be buried and covered so that the historic landscape is maintained. However, during periods that the CCCSD maintenance trucks must visit the site to clean out the sewer line, this could create a short-term moderate impact on the visitor experience.

Mitigation Measures

1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after any routine maintenance activities and/or emergency sewer line repairs as outlined in this document.
2. CCCSD shall add topsoil, and re-compact the soil over the storm drain to achieve positive drainage by bringing it up to grade. *Implementation of this mitigation measure would repair localized damage. CCCSD would be responsible for the implementation of this mitigation measure.*
3. NPS is attempting to identify the pear tree variety and propagate the historic trees. CCCSD shall participate in a propagation program with a commitment of at least \$25,000.00 toward orchard improvements. *Implementation of this mitigation measure would compensate for the impacts to the pear trees. Implementation of this mitigation measure is the responsibility of CCCSD.*
4. CCCSD shall conduct pre- and post-construction surveys of the pear trees and develop an implementation plan to the satisfaction of NPS for the replanting of any lost trees. *Implementation of this mitigation measure would compensate for the long-term adverse direct impact of the loss of the pear trees. CCCSD would be responsible for the implementation of this mitigation measure.*
5. CCCSD shall consult with NPS to define the width of the maintenance access. *The implementation of this mitigation measure would ensure the dirt/duff-covered access is the appropriate size. Implementation of this mitigation measure would be the responsibility of CCCSD and NPS.*

6. The NPS shall consider closing the site during the construction period. *Implementation of this mitigation measure would avoid visitors experiencing the construction impacts. Implementation of this measure would be the responsibility of the NPS.*
7. CCCSD shall enter into a formal agreement with the NPS for scheduling access to the site for maintenance so that it does not conflict with the visitor experience. *Implementation of this mitigation measure would avoid the potential short-term negligible impact on the visitor experience. CCCSD shall be responsible for the implementation of this mitigation measure.*

Best Management Practices

CCCSD will implement the following Best Management Practices during construction of the sewer line.

1. The dripline of all trees located in close proximity to the sewer line alignment will be marked in consultation with the NPS and fenced to protect them from damage created by the construction equipment.
2. In the event trees and/or shrubs require pruning prior to construction, CCCSD will retain an arborist to report on the health of the tree(s)/shrubs and make recommendations for their treatment. The NPS will be consulted and approve any trimming that is done on trees that are on NPS property. CCCSD shall be responsible for retaining an arborist to ensure the health and quality of the trees/shrubs is upheld through the construction period.

2. Environmental Impacts of Onsite Alternative B

The visitor experience would be similar to that identified in the preferred alternative. However, because the sewer alignment would be located closer to the historic pear trees, some trees could be severely damaged or destroyed. This would create a moderate, long-term direct impact on the visitor experience, since the pear trees are a moderate feature of the historic site.

Mitigation Measures

1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after any routine maintenance activities and/or emergency sewer line repairs as outlined in this document.
2. CCCSD shall add topsoil, and re-compact the soil over the storm drain to achieve positive drainage by bringing it up to grade. *Implementation of this mitigation measure would repair localized damage. CCCSD would be responsible for the implementation of this mitigation measure.*
3. NPS is attempting to identify the pear tree variety and propagate the historic trees. CCCSD shall participate in a propagation program with a commitment of at least \$25,000.00 toward orchard improvements. *Implementation of this mitigation measure would compensate for the impacts to the pear trees. Implementation of this mitigation measure is the responsibility of CCCSD.*

4. CCCSD shall conduct pre- and post-construction surveys of the pear trees and develop an implementation plan to the satisfaction of NPS for the replanting of any lost trees. *Implementation of this mitigation measure would compensate for the long-term adverse direct impact of the loss of the pear trees. CCCSD would be responsible for the implementation of this mitigation measure.*
5. CCCSD shall consult with NPS to define the width of the maintenance access. *The implementation of this mitigation measure would ensure the dirt/duff-covered access is the appropriate size. Implementation of this mitigation measure would be the responsibility of CCCSD and NPS.*
6. The NPS shall consider closing the site during the construction period. *Implementation of this mitigation measure would avoid visitors from experiencing the construction impacts. The NPS would be responsible for the implementation of this mitigation measure.*
7. CCCSD shall enter into a formal agreement with the NPS for scheduling access to the site for maintenance so that it does not conflict with the visitor experience. *Implementation of this mitigation measure would avoid the potential short-term negligible impact on the visitor experience. CCCSD shall be responsible for the implementation of this mitigation measure.*

Best Management Practices

CCCSD will implement the following Best Management Practices during construction of the sewer line.

1. The dripline of all trees located in close proximity to the sewer line alignment will be marked in consultation with the NPS and fenced to protect them from damage created by the construction equipment.
2. In the event trees and/or shrubs require pruning prior to construction, CCCSD will retain an arborist to report on the health of the tree(s)/shrubs and make recommendations for their treatment. The NPS will be consulted and approve any trimming that is done on trees that are on NPS property. CCCSD shall be responsible for retaining an arborist to ensure the health and quality of the trees/shrubs is upheld through the construction period.

3. Environmental Impacts of No Action Alternative

This alternative would not create any impacts to the visitor experience at the project site, but would result in CCCSD selecting one of the two offsite alternative sewer alignments that would have potential impacts that could affect the visitor experience when visiting the Muir gravesite.

4.&5. Environmental Impacts of Offsite Alternatives 1 and 2

Although both of these alternatives occur off site, nonetheless they are in close proximity to the Muir site. Introduction of construction noise, equipment traffic, workers, and diesel fumes into an

otherwise tranquil setting, could compromise the visitor experience. This is considered a short-term minor direct impact on the visitor experience.

As with the preferred alternative, it would be necessary from time to time for CCCSD to visit the site for pipeline maintenance. The presence of the truck, coupled with the truck noise, could compromise the visitor experience. This is considered a short-term minor impact.

Mitigation Measures

1. CCCSD shall enter into a formal agreement with the NPS confirming their responsibilities for repair and restoration of the NPS gravesite property after any routine maintenance activities and/or emergency sewer line repairs as outlined in this document.
2. The NPS shall consider closing the park site during the construction period. *Implementation of this mitigation measure would avoid visitors experiencing construction impacts.*
3. CCCSD shall enter into a formal agreement with the NPS for scheduling access to the site for maintenance so that it does not conflict with the visitor experience. *Implementation of this mitigation measure would avoid the potential short-term negligible impact on the visitor experience. CCCSD shall be responsible for the implementation of this mitigation measure.*

E. LAND USE

1.&2. Environmental Impacts of Preferred Alternative A, Onsite Alternative B, and Offsite Alternatives 1 and 2

Land uses at the Muir gravesite property would not change as a result of implementing any of the alternatives. The site would be returned to its natural condition upon completion of the project. Land uses at the offsite alternative properties also would not be altered with construction of the sewer line. There are no land use impacts associated with any of the alternatives.

F. NATURAL RESOURCES

1.&2. Environmental Impacts of Preferred Alternative A and Onsite Alternative B

a. Biology

Tunneling under Alhambra Creek would have no impact on the creek. The pits would be located approximately 40 feet back from the top of bank, thus no creek bank vegetation would be disturbed.

Daytime construction activities would severely degrade the habitat quality of the site and immediately adjacent habitats, some migratory patterns, but impacts would be limited to the construction period. The effects would be adverse, short term, and negligible.

No special-status species are likely to use or inhabit the site due to the lack of suitable habitat. Accordingly, the proposed action is not likely to adversely affect listed species. The only wetland or

Section 404 CWA jurisdictional area is the creek channel; this area would not be disturbed with the construction of the sewer main.

The impact on trees, particularly the historic pear trees, has been discussed in previous sections. Impacts to this natural resource would be as previously described.

b. Hydrology

The proposed project would not interfere with the hydrology of the watershed nor interfere with the storm drain that was installed to reduce the amount of flooding in the area. There would be no impact on hydrological features at the project site. The sewer line would be constructed under the creek bed so to not disrupt the flow or create erosion problems in the creek channel. Test borings of the creek bed indicate that the underlying soils are firm and stable for the underground sewer line. Drill pits would be located approximately 40 feet away from the top of creek bank and would not destroy creek bank vegetation or result in creek bank erosion.

c. Geology

The project site is subject to ground shaking. The sewer line is designed to withstand ground shaking associated with the types of seismic events anticipated in the project area. There are no geologic/soils impacts associated with this alternative.

3. No Action Alternative

This alternative would not create any impacts on natural resources at the project site, but would result in CCCSD selecting one of the two offsite alternative sewer alignments that would have potential impacts that could affect natural resources in the area.

4.&5. Environmental Impacts of Offsite Alternatives 1 and 2

a. Biology

Offsite Alternative 1 is landscaped with exotic vegetation and the property is fenced. The potential exists for the domestic landscaping on both sites to be damaged or destroyed during the construction process. This would displace wildlife that uses the trees and shrubs for habitat. This would be considered a short-term moderate adverse impact.

Offsite Alternative 2 is larger and does provide a habitat for species typical of a suburban neighborhood; e.g., deer, raccoon, skunk, rabbits, etc. This site is more open and provides access to Alhambra Creek. Construction activities would temporarily displace wildlife that may occupy the site.

The proposed action would result in negligible impacts to Alhambra Creek as a result of tunneling the sewer pipe under the creek bed. Many of the wildlife that use the creek for movement do so at night and since construction would occur only during the daylight hours, it is likely that many of these species will continue to move through the project area. Accordingly, biologic impacts from the

construction are expected to be short term and minor. The creek banks would not be impacted by drilling of the pits since they would be located at a minimum of 40 feet from the top of bank.

No special-status species are likely to use or inhabit the site due to the lack of suitable habitat. Accordingly the proposed action is not likely to adversely affect listed species. The only wetland or Section 404 CWA jurisdictional area is the creek channel; this area would be not be impacted by the construction of the sewer main.

b. Hydrology

Because the sewer line would be buried on site and under the creek, the hydrology of the area would not change under any onsite or offsite alternative.

c. Geology/Soils

The project site is subject to ground shaking. The sewer line is designed to withstand ground shaking associated with the types of seismic events anticipated in the project area. There are no geology/soils impacts associated with either of the offsite alternatives.

Mitigation Measures

1. CCCSD shall conduct pre- and post-construction surveys of onsite vegetation that is located within the sewer alignment, and develop an implementation plan to the satisfaction of the property owners for the replacement and replanting of vegetation destroyed during construction. *Implementation of this mitigation measure would compensate for the short-term adverse impact of the loss of the pear trees. CCCSD would be responsible for the implementation of this mitigation measure.*
2. The dripline of all trees located in close proximity to the sewer line alignment shall be marked and fenced to protect them from damage created by the construction equipment. *Implementation of this measure by CCCSD and/or its contractor would ensure protection of trees during the construction of the sewer line.*

G. OTHER CONDITIONS

1.&2. Environmental Impacts of Preferred Alternative A and Onsite Alternative B

The following discussion is directed to construction impacts associated with traffic and noise, since the project itself, upon completion, would not create any traffic or noise impacts.

a. Traffic

Construction of the project would include excavation that would result in approximately 50 truck trips per day along Strentzel Lane, Sheridan Lane, and Alhambra Valley Road. *This is considered a minor short-term impact.* During construction, access would be maintained for the residences of the neighborhood and heavy equipment would not block roadways. Residents and emergency service vehicles would be able to drive around the construction area at all times.

b. Noise

Construction of the trunk sewer line would temporarily increase noise levels in the neighborhood during the daytime hours. CCCSD has stated that working hours would be limited from 7:30 a.m. to 7:00 p.m., Monday through Friday. However, given the close proximity of the construction to residences, it is recommended that the construction hours be limited to daytime hours. *Noise impacts are considered minor and short term.*

c. Air Quality

Grading and other work would necessitate the use of heavy construction equipment. CCCSD staff estimate that work would occur for approximately 7 to 10 days. Emissions from construction equipment and objectionable odors may be generated during this construction. *This impact is considered negligible and short term.*

Until such time as the wastewater flows generated upstream are sufficient to keep the line flushed, odors may build up in the siphon and become noticeable to residents of the area and visitors to the NPS site. When this occurs, CCCSD must visit the site to flush the line. As more users come on line, this problem would be eliminated, since the force of the wastewater would keep the sewer line open. *This is considered a minor, short-term indirect impact.*

Mitigation Measures

1. CCCSD shall provide NPS and neighbors a telephone number to report odor occurrences. *Implementation of this mitigation measure would assist CCCSD to respond in a timely manner and reduce the length of time residents would be subjected to the odor. CCCSD is responsible for the implementation of this mitigation measure.*
2. CCCSD shall be responsible for the maintenance and flushing of the sewer line when odors are reported. *Implementation of this mitigation measure would minimize the duration of unnecessary odors from the sewer pipe. CCCSD is responsible for the implementation of this mitigation measure.*
3. CCCSD shall notify NPS and the neighbors one week in advance of the start of construction. The hours of construction shall be posted with NPS and with the neighbors. *CCCSD is responsible for the implementation of this mitigation measure.*
4. Construction hours shall be limited to weekdays between 7:30 a.m. and 5:30 p.m. *CCCSD shall be responsible for maintaining the construction hours.*

3. Environmental Impacts of No Action Alternative

This alternative would not create any impacts associated with traffic, noise or air quality at the project site, but would result in CCCSD selecting one of the two offsite alternative sewer alignments that would have potential impacts associated with traffic, noise and air quality.

4.&5. Environmental Impacts of Offsite Alternatives 1 and 2

a. Traffic

Construction of the project would include excavation that would result in approximately 50 truck trips per day along Alhambra Valley Road. *This is considered a minor short-term impact.*

During construction, access would be maintained for the residences of the neighborhood and heavy equipment would not block roadways. Residents and emergency service vehicles would be able to drive around the construction area at all times.

During construction the potential exists for heavy equipment to damage paved driveways on private properties. *This is considered a minor short-term impact.*

b. Noise

Construction of the project would temporarily increase noise levels in the neighborhood and at the properties where construction would occur. The primary source of noise would come from the diesel-powered heavy equipment. This would occur over a period of 7 to 10 days. CCCSD stated that working hours would be limited to 7:30 a.m. to 7:00 p.m., Monday through Friday. However, given the close proximity of the construction to residences, it is recommended that the construction hours be limited to daytime hours. This is a considered a short-term minor impact.

c. Air Quality

Grading and other work would necessitate the use of heavy construction equipment. CCCSD staff estimate that work would occur for approximately 7 to 10 days. Emissions from construction equipment and objectionable odors may be generated during this construction. *This impact is considered negligible and short term.*

Until such time the wastewater flows generated upstream are sufficient to keep the line flushed, odors may build up in the siphon and become noticeable to residents of the area and visitors to the NPS site. When this occurs, CCCSD must visit the site to flush the line. As more users come on line, this problem would be eliminated, since the force of the wastewater would keep the sewer line open. *This is considered a minor, short-term indirect impact.*

Mitigation Measures

1. CCCSD shall provide NPS and neighbors a telephone number to report odor occurrences. *Implementation of this mitigation measure would assist CCCSD to respond in a timely manner and reduce the length of time residents would be subjected to the odor. CCCSD is responsible for the implementation of this mitigation measure.*
2. CCCSD shall be responsible for the maintenance and flushing of the sewer line when odors are reported. *Implementation of this mitigation measure would minimize the duration of unnecessary odors from the sewer pipe. CCCSD is responsible for the implementation of this mitigation measure.*

3. CCCSD shall notify NPS and the neighbors one week in advance of the start of construction. The hours of construction shall be posted with NPS and with the neighbors. *CCCSD is responsible for the implementation of this mitigation measure.*
4. Construction hours shall be limited to weekdays between 7:30 a.m. and 5:30 p.m. *CCCSD shall be responsible for maintaining the construction hours.*
5. CCCSD shall be responsible for replacing or repaving driveways on private property should they become damaged during construction of the sewer line. *Implementation of this mitigation measure would reduce the impact of damaged driveways and would be the responsibility of CCCSD.*

H. CUMULATIVE IMPACTS

1. 2., Alternatives

3., 4., & 5

None of the five alternatives would create cumulative impacts. No other major construction activities are expected to take place in the project area during the few weeks when this alternative is being built, with the exception of the residential development at Alhambra Valley Road/Reliez Valley Road, approximately three quarters of a mile from the project area. Subsequent sewer construction and residential infill development is anticipated, but not simultaneous with any of the alternatives.

VII. COORDINATION, COMPLIANCE, AND CONSULTATION

A. COORDINATION

A public scoping meeting was held on October 25, 2006, at the Martinez Junior High School in Martinez, California. Approximately 740 notices were mailed to residents in the project area and to interested parties and organizations. In addition to the verbal comments received at the scoping meeting, written comments were also submitted. Seven persons attended the public meeting. District staff presented the project and NPS staff explained the procedure for producing an environmental assessment of the project.

Table 6 is a summary of comments submitted either at the public meeting or submitted in writing. After each comment, the report section is identified where the issue has been addressed.

**Table 6. Oral and Written Comments
Received During Public Scoping Period**

Comment	Chapter/Section Where Issue has been Addressed
<u>Erosion/Settlement Issues</u>	
1. Potential for creek erosion to expose pipe.	Refer to Section IV.A
2. Creek scouring is a problem	Refer to Section IV.A
3. Erosion around bridge abutment and effects of construction on bridge abutment.	Refer to Section IV
4. Concave settling along storm drain alignment.	Refer to Section V.1
5. Stability of 60-inch storm drain.	Refer to Chapter IV
<u>Project-Related Comments</u>	
6. Describe how the drain works under creek.	Refer to Section IV.A
7. Show photos or illustrations of tunneling examples.	Refer to Section IV.A for a textual description
8. Include hours of construction.	Refer to Sections VI.G, VI.1 & VI.2
9. Safety issues during construction of pit and the size of the pit.	Refer to Section IV.A
10. Will the pit or trench interfere with tree roots?	Refer to Sections VI.B and VI.1
11. Where are manholes located? (Responded that manhole would be located within the 10-foot-wide access road and another manhole would be located on the opposite side of the creek on Wanda Way at #41. Manholes will be flush to ground.)	Refer to Section IV.A
12. Pipe maintenance – how often does this occur; do the maintenance trucks use the existing easement; and are both manholes maintained?	Refer to Section IV.A

**Table 6. Oral and Written Comments
Received During Public Scoping Period**

Comment	Chapter/Section Where Issue has been Addressed
13. Will smells come from the pipe/manhole?	Refer to Chapter IV
14. Describe the manholes.	Refer to Chapter IV
<u>Alternatives</u>	
15. Flip the sewer pipe to other side of storm drain (south side).	See Section IV.B
16. Feasibility of the alternatives?	Refer to Sections IV.A – IV.C
17. Look at alternative that doesn't cross the creek.	Refer to Section IV.C
18. Look at an alternative that stays in Alhambra Valley Road instead of going on private or public land.	Refer to Section IV.C
19. Consider a dual sewer line?	Refer to Chapter IV
20. Alternative 1 is not feasible – homeowner disturbance.	Refer to Chapter VI
21. Look at two creek crossings.	Refer to Section IV.C
22. Other alternatives which may not be the easiest location on which to build or least costly, but they exist and should be used.	Refer to Section IV.C
23. If the preferred alternative is approved, consider the following: hide the utilitarian infrastructure of the sewer pipe, such as manhole covers, siphons valves and access roads.	Refer to Section IV.1
24. Protect following trees on offsite alternative - 1 mature sycamore, 1 young plum, multiple mature redwood tree roots, functioning leachfield to septic system, 2 mature orange trees, roots to 1 mature oak tree, 2 John Muir-planted Bartlett pear trees, a stand of redwood trees, and possible future buildings/uses.	Refer to Chapter V and Section VI.B, 4
25. If NPS does not allow pipe installed on Muir site, NPS would probably not allow CCCSD to install pipe and perform monthly maintenance from NPS land if pipes are on Menasco property. This property is fully built out on north side. The only way to get vehicles into backyard is through easement to NPS land.	Refer to Chapter IV
26. Heavy-duty construction and maintenance vehicles would require an upgrade of driveway on Menasco property to ensure protection of underground mains.	Refer to Section VI.G, 4 & 5
27. Where would construction pit be located to tunnel beneath Menasco property? A 10x15 pit would jeopardize many more trees.	Refer to Chapter IV
28. Should one household absorb the construction and maintenance of the sewer creek crossing so valley can have a sewer? Can mitigation be recommended to keep sewer on NPS land?	Refer to Chapter VII
29. Other alternatives should be considered that do not cross NPS land.	Refer to Chapter IV
30. No alternative route has been offered.	Refer to Chapter IV

**Table 6. Oral and Written Comments
Received During Public Scoping Period**

Comment	Chapter/Section Where Issue has been Addressed
31. Adjacent property owners have utility rights through gravesite property.	Refer to Chapter IV
32. Land disturbance impacts the integrity, cultural setting and historic landscape to a piece of heritage that cannot be replaced.	Refer to Section VI.C, 1
33. Problems created by sewer line – negative visual impact to a national treasure, known and potential disturbances to Alhambra Creek, increased traffic and continual maintenance requirements.	Refer to Section VI.B, 1
<u>Miscellaneous Concerns</u>	
34. Encourage mitigation funding to go towards the Alhambra Valley Creek Coalition (AVCC) efforts to reduce erosion of creek banks.	Refer to Section VI.F, 1 & 2
35. Loss of resale value of home if a manhole is on the property, which could also place a restriction on the land.	Refer to Section IV.4

Table 7. Agencies and Organizations to Receive the EA

(Approximately 740 residents and interested individuals will be sent notices of the EA)

US Fish and Wildlife Service Pacific Regional Office 2800 Cottage Way Sacramento, CA 95825	Milford Wayne Donaldson California State Preservation Officer Office of Historic Preservation Department of Parks and Recreation P. O. Box 94296 Sacramento, CA 94296-0001
California State Clearinghouse P. O. Box 3044 Sacramento, CA 95812-3044	Muir Heritage Land Trust P. O. Box 2452 Martinez, CA 94553
Contra Costa County Community Development Department 651 Pine Street, 4 th Floor Martinez, CA 94553	City of Martinez Division of Planning 525 Henrietta Street Martinez, CA 94553
Sierra Club San Francisco Chapter 2530 San Pablo Avenue Berkeley, CA 94702	Sierra Club Mount Diablo Group P.O. Box 4457 Walnut Creek, CA 94596
Advisory Council on Historic Preservation 1100 Pennsylvania Avenue, N.W., Suite 809 Old Post Office Building Washington, D.C. 20004	Congressman George Miller 3220 Blume Drive, Suite 281 Richmond, CA 94806
East Bay Regional Park District Department of Planning	Contra Costa County Public Works Department

2950 Peralta Oaks Court P. O. Box 5381 Oakland, CA 94605	255 Glacier Street Martinez, CA 94553
Regional Water Quality Control Board San Francisco Bay Region 1515 Clay Street Oakland, CA 94612	

B. COMPLIANCE

The following laws and associated regulations provided direction for the design of project alternatives, the analysis of impacts, and the formulation of mitigation/avoidance measures:

National Environmental Policy Act of 1969 (NEPA) (Title 42 U.S. Code Sections 4321 to 4370 [42 USC 4321-4370]). The purposes of NEPA include encouraging “harmony between [humans] and their environment and [promoting] efforts which would prevent or eliminate damage to the environment . . . and stimulate the health and welfare of [humanity].” The purposes of NEPA are accomplished by evaluating the effects of federal actions. The results of these evaluations are presented to the public, federal agencies, and public officials in document format (e.g., environmental assessments and environmental impact statements) for consideration prior to taking official action or making official decisions. Implementing regulations for NEPA are contained in Part 1500 to 1515 of Title 40 of the U.S. Code of Federal Regulations (40 CFR 1500-1515).

An Environmental Assessment has been prepared in accordance with the requirements of NEPA to address the potential environmental impacts of installing a sewer line on a National Historic Site.

Clean Water Act of 1972, as amended (CWA) (33 USC 1251-1387). The purposes of the CWA are to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” To enact this goal, the U.S. Army Corps of Engineers (Corps) has been charged with evaluating federal actions that result in potential degradation of waters of the U.S. and issuing permits for actions consistent with CWA. The U.S. Environmental Protection Agency also has responsibility for oversight and review of permits and actions that affect waters of the U.S. Implementing regulations describing the Corps’ CWA program are contained in 33 CFR 320-330. A 404 permit from the Corps and a 401 certificate from the Regional Water Quality Control Board would be obtained for the project. A national pollution discharge elimination system (NPDES) permit for stormwater runoff would also be obtained. The Storm Water Rule (Clean Water Act, PL 95-217, sec. 402) requires a NPDES permit on certain categories of stormwater discharge. Road repairs that would involve clearing and grading activities that exceed five acres require an NPDES permit.

The Clean Water Act does not apply to the trunk sewer project. The installation of the trunk sewer is an extension of an existing wastewater system, which as a whole, must comply with the Clean Water Act regulations. The installation of the trunk sewer would provide a beneficial impact in that eventually most homes in the Valley would be hooked up to the municipal wastewater system rather than using individual septic systems.

Executive Order 11990, “Protection of Wetlands.” This executive order requires federal agencies to avoid, where possible, impacts on wetlands. A Statement of Findings has been prepared in

compliance with Director's Order #77-1: Wetland Protection and its accompanying Procedural Manual #77-1 to address wetlands.

Executive Order 11990 does not apply to any of the alternatives because wetlands do not exist along the sewer pipe alignment.

Endangered Species Act of 1973, as amended (ESA) (16 USC 1531-1544). The purposes of the ESA include providing "a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved." According to the ESA, "all Federal departments and agencies shall seek to conserve endangered species and threatened species" and "[e]ach Federal Agency shall... insure that any action authorized, funded, or carried out by such agency... is not likely to jeopardize the continued existence of any endangered species or threatened species." The U.S. Fish and Wildlife Service (non-marine species and marine turtles upon land) and the National Marine Fisheries Service (marine species, including anadromous fish and marine mammals) administer the ESA. The effects of any agency action that may affect endangered, threatened, or proposed species must be evaluated in consultation with either the USFWS or NMFS, as appropriate. Implementing regulations that describe procedures for interagency cooperation to determine the effects of actions on endangered, threatened, or proposed species are contained in 50 CFR 402.

It appears that construction of the sewer line by any of the alternatives would not impact threatened or endangered species.

National Historic Preservation Act of 1966, as amended (NHPA) (16 USC 470 et seq.). Congressional policy set forth in the NHPA includes preserving "the historical and cultural foundations of the Nation" and preserving irreplaceable examples important to our national heritage to maintain "cultural, educational, aesthetic, inspirational, economic, and energy benefits." The NHPA also established the National Register of Historic Places, composed of "districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering, and culture." Section 106 of the NHPA requires that federal agencies take into account the effects of their actions on properties eligible for or included in the National Register of Historic Places, and permit the Advisory Council on Historic Preservation an opportunity to review such actions. Federal agencies consult as appropriate with state historic preservation officers, tribal historic preservation officers or representatives, and other interested parties in fulfilling Section 106 requirements. Section 106 further requires federal agencies to propose and evaluate alternatives to undertakings that would adversely affect historic properties, or to adequately mitigate adverse effects if avoidance cannot be reasonably achieved. Section 110 of the NHPA requires federal agencies, in consultation with the state historic preservation officer, to locate, inventory, and nominate all properties that appear to qualify for the National Register of Historic Places. It also requires federal agencies to manage and maintain historic properties under their jurisdiction in a manner that considers the preservation of historic, archeological, architectural, and cultural values.

The onsite alternatives are subject to the National Historic Preservation Act. As discussed in Chapter VI, the sewer line would not impact the gravesite, but could potentially impact the historic pear trees that are remnants of the orchard when John Muir owned the property. The preferred alternative would be located the farthest from the pear trees and construction is not anticipated to cause harm to the trees. The site would be returned to its natural condition upon completion of the project. No man-made appurtenances would be visible. A letter and the EA will be sent to the State Office of Historic Preservation in Sacramento, California.

Impairment. No project is allowed to “impair” National Park Service resources or values, according to the NPS Organic Act of 1916, and NPS Director's Order #55. The National Park Service may choose to take an action resulting in some impact, ranging from measurable to significant, but “impairment” is prohibited. The selected alternative contains elements with the potential to have short-term, minor and moderate impacts that are limited in context. However, implementing any portion of this project will not impair National Park Service resources or values.

The proposed project is subject to the NPS Organic Act of 1916 and NPS Director's Order #55. Implementation of the preferred alternative would not impair the Muir gravesite as a national resource. The sewer line would be located between the existing storm drain and the property line to the north—the farthest distance from the graves and the historic pear trees. Alternative B would be located in close proximity to the pear trees and could have a moderate, long-term adverse impact on the trees’ condition and survivability.

C. CONSULTATION

This document was prepared by Carolyn Mills under the direction of the Central Contra Costa Sanitary District and the National Park Service.

The following persons and agencies were consulted during the preparation of this environmental assessment.

National Park Service

Rick Smith, Deputy Superintendent and Project Manager
Martha Lee, Superintendent
Jonathan Gervias, Compliance Specialist
Lucy Lawliss, Cultural Resource Specialist

Central Contra Costa Sanitary District

Alex Rozul, Project Manager
Russell B. Leavitt, AICP, Engineering Assistant