



**Erler &
Kalinowski,
Inc.**

DRAFT REMOVAL ACTION WORKPLAN

**Trailer Disposal and Former Debris Areas
Rancho Corral de Tierra
Moss Beach, San Mateo County, California**

Prepared for:

Peninsula Open Space Trust

Prepared by:

Erler & Kalinowski, Inc.

1870 Ogden Drive
Burlingame, California 94010

www.ekiconsult.com

October 2012

EKI B10014.01

Consulting engineers and scientists

24 October 2012

To Potential Users of Electronic Files:

Erler & Kalinowski, Inc. (“EKI”) has provided our CLIENT, Peninsula Open Space Trust, with an electronic copy of the *Draft Removal Action Workplan, Trailer Disposal and Former Debris Areas, Rancho Corral de Tierra, Moss Beach, San Mateo County, California*, dated October 2012, including text, figures, and appendices by a compact disk (“CD”).

This electronic file is being provided at the request of our CLIENT. The Portable Document Format (“PDF”) file on the original CD provided to and for the sole benefit of our CLIENT, constitutes our professional work product. Because the electronic media may be damaged during transfer or altered, the PDF file on the original CD provided to the CLIENT (and retained in EKI’s files) shall control where there are any differences between the original CD and subsequent copies of electronic media. EKI makes no warranties, either express or implied, of the merchantability, applicability, compatibility with the recipients’ computer equipment or software; of the fitness for any particular purpose for the electronic media; or that the electronic media contains no defect or is virus free.

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Sincerely,

ERLER & KALINOWSKI, INC.



Michelle King, Ph.D.
Vice President

DRAFT REMOVAL ACTION WORKPLAN

Trailer Disposal and Former Debris Areas Rancho Corral de Tierra Moss Beach, San Mateo, County, California

October 2012

Prepared for:

Peninsula Open Space Trust

Prepared by:

Erler & Kalinowski, Inc.
1870 Ogden Drive
Burlingame, California

EKI B10014.01

24 October 2012

Ms. Meghan Scanlon
Peninsula Open Space Trust
222 High Street
Palo Alto, California 94301

Subject: Draft Removal Action Workplan, Trailer Disposal and Former Debris Areas
Rancho Corral de Tierra, San Mateo County, CA
(EKI B10014.01)

Dear Ms. Scanlon:

Erler & Kalinowski, Inc. (“EKI”) is pleased to present to Peninsula Open Space Trust (“POST”) this draft Removal Action Workplan (“RAW”) for the Trailer Disposal and Former Debris Areas at Moss Beach Ranch in Moss Beach, California (“Site”), dated October 2012. EKI’s services were performed in accordance with the Independent Consultant Agreement with POST, dated 7 March 2011 (“Agreement”), and Sampling Investigation and Preparation of Removal Action Workplan/Work Authorization No. 2, dated 10 January 2012.

This RAW describes the nature and extent of contamination at the Site, the removal action objective (“RAO”) and Site-specific cleanup goals for the Site to meet the RAO, includes a description and comparison of removal action alternatives, and recommends a removal action alternative for the Site.

Included in this RAW are plans that describe the procedures required in order to implement the proposed removal alternative. These plans serve to provide guidance for health and safety measures to be employed during soil removal activities. The following is a list of the plans included in this RAW:

- Transportation Plan;
- Decontamination Plan;
- Dust Control Plan;
- Storm Water Pollution Prevention Plan;
- Soil Cleanup Sampling and Analysis Plan;
- Quality Assurance Project Plan; and
- EKI Site-Specific Health and Safety Plan.

It is understood that the selected licensed remediation contractor will be required per bidding documents to provide their own Health and Safety Plan and plan addendums, if necessary, as specified in the plans.

We are pleased to have the opportunity to work with you on this project. Please call if you have any questions or need further assistance.

Very truly yours,

ERLER & KALINOWSKI, INC.



Michelle K. King, Ph.D.
Vice President/Principal in Charge



SIGNED ON
10/24/12

Jeffrey J. Tarantino, P.E.
Project Engineer



Kathryn L. Wuelfing
Project Scientist

Enclosure

cc: Viktoriya Sirova (National Park Service)



United States Department of the Interior

NATIONAL PARK SERVICE
Golden Gate National Recreation Area
Fort Mason 201, San Francisco, California 94123

IN REPLY REFER TO:
N36 (GOGA-ER)

OCT 23 2012

RE: DRAFT Removal Action Workplan: Trailer Disposal and Former Debris Areas, Rancho Corral de Tierra, Moss Beach, San Mateo, County, California

Dear Reviewer:

Golden Gate National Recreation Area (GGNRA) announces a 30-day public comment period on a draft Removal Action Workplan (draft RAW) prepared by Erler & Kalinowski, Inc. for a property located at 1862 Etheldore Ave Moss Beach, CA 94038. This property is part of GGNRA and is located in San Mateo County.

Environmental investigation conducted in 2011 found residues from historic operations at the site, including elevated levels of total petroleum hydrocarbons, zinc, and endrin (chlorinated pesticide) in the soil. The draft RAW proposes excavation of contaminated soils to meet unrestricted human and ecological use criteria and replacing it with clean fill.

The public is invited to comment on the draft RAW during the 30-day public comment period which runs from October 28, 2012 to November 27, 2012. The draft RAW is available online at <http://parkplanning.nps.gov/mossbeachranchremediation>. Reference copies of the draft RAW are available at San Mateo Libraries (Half Moon Bay and Pacifica Sanchez). Comments must be submitted or postmarked by November 27, 2012. Comments may be submitted online at the website listed above or by mail to: Superintendent, Attention: Moss Beach Ranch Remediation Bldg. 201 Fort Mason, San Francisco, CA 94123.

For more information on the project please visit the park website above, or send an email to goga_planning@nps.gov.

Sincerely,

Frank Dean
General Superintendent

Enclosure

DRAFT REMOVAL ACTION WORKPLAN

Trailer Disposal and Former Debris Areas
Rancho Corral de Tierra, Moss Beach, San Mateo County, California

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DRAFT REMOVAL ACTION WORKPLAN

Trailer Disposal and Former Debris Areas

Rancho Corral de Tierra, Moss Beach, San Mateo County, California

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EXECUTIVE SUMMARY

This draft Removal Action Workplan (“RAW”) addresses the Trailer Disposal and Former Debris Areas at Moss Beach Ranch of the Rancho Corral de Tierra property, located in Moss Beach, San Mateo County, California (these areas are referred to as the “Site”; see Figure 1). Erler & Kalinowski, Inc. (“EKI”) has prepared this RAW for our client, the Peninsula Open Space Trust (“POST”). EKI understands that ownership of the Rancho Corral de Tierra property was recently transferred to the National Park Service (“NPS”) and that POST has retained responsibility for the removal of contaminated soil at the Site per the First Amendment to Corporate Offer to Purchase Real Property, dated 19 October 2011 (“Property Transfer Agreement”). This report has been prepared by EKI in accordance with the Independent Consultant Agreement with POST, dated 7 March 2011 between POST and EKI and Work Authorization No. 2, dated 10 January 2012 (referred to collectively as the “Agreement”).

This RAW has been prepared in general accordance with the California Environmental Protection Agency (“Cal/EPA”) Department of Toxic Substances Control (“DTSC”) guidance for RAWs (“RAW Guidance,” DTSC, 1998). NPS will act as the lead regulatory agency per its authorities under the United States Code Title 16 (National Park Service Organic Act).

This RAW addresses two areas (Trailer Disposal and Former Debris Areas) on the Moss Beach Ranch area of the Rancho Corral de Tierra property. The Rancho Corral de Tierra property includes ten parcels totaling approximately 3,858 acres situated east of Highway 1 along the southwestern flank of Montara Mountain, approximately three miles north of the city of Half Moon Bay in San Mateo County, California (see Figure 1). The Moss Beach Ranch is currently a horse stable and riding facility and is located on the downstream side, or west from, Ember Ridge Ranch (see Figure 1). San Vicente Creek bisects the Ranch compound. The Trailer Disposal Area is located between a trailer home and San Vicente Creek and is surrounded by horse stables and exercise areas. A mechanical shed and other small buildings are located to the west of the trailer. The Former Debris Area is located east of San Vicente Creek and is surrounded by an open field apparently used for parking and staging of horse trailers. A small bridge running over San Vicente Creek connects the Former Debris Area to the main portion of Moss Beach Ranch.

Environmental assessments and investigations conducted at the Site to date include: (1) a Phase I Environmental Site Assessment (“Phase I ESA”) conducted by Krazan & Associates, Inc. (“Krazan”) in 2001 (Krazan, 2001), (2) a Phase I ESA conducted by RRM, Inc. (“RRM”) in 2011 (RRM, 2011), (3) a reconnaissance-level Phase II sampling investigation performed by EKI in 2011 (EKI, 2011a), and (4) additional soil sampling performed by EKI to characterize of the lateral and vertical extent of petroleum hydrocarbon, endrin, and zinc in soil in February 2012 (EKI, 2012a).

Concentrations of chemicals detected in soil, groundwater, and surface water were compared with applicable screening criteria to identify chemicals of concern (“COCs”). Applicable soil screening criteria included the Regional Water Quality Control Board, San Francisco Bay Region (“RWQCB”), Environmental Screening Levels (“ESLs”) for residential soil (Table A-1, Final ESLs; and Table K-1, Direct Exposure ESLs) (RWQCB, 2008) and *Background Metals*



Concentrations in Soils in Northern Santa Clara County, California (Scott, C.M., 1995). Surface water sample results were compared to water quality parameter screening levels in the California Regional Water Quality Control Board, San Francisco Bay Region (Region 2) Water Quality Control Plan (“Basin Plan”), dated 18 January 2007 and U.S. EPA Bacteriological Criteria for Water Contact Recreation (Federal Register, Vol. 51, No. 45, March 7, 1986, pp. 8012-8016). Groundwater sample results were compared to RWQCB Drinking Water ESLs (Table F-3, Human Toxicity) (RWQCB, 2008), which includes United States Environmental Protection Agency (“USEPA”) Maximum Contaminant Levels. TPH-diesel, TPH-motor oil, endrin, and zinc in soil were retained as COCs for the Trailer Disposal Area and only TPH-diesel and TPH-motor oil in soil were retained as COCs for the Former Debris Area. No COCs were identified in groundwater or surface water, based on this screening.

The Removal Action Objectives (“RAOs”) for the Site are to (1) minimize potential exposure of ecological receptors to soil having zinc at concentrations exceeding its Site-specific background concentration and endrin above cleanup levels agreed upon by POST and NPS in the Property Transfer Agreement and (2) mitigate the potential threat to human health, ecological receptors, and the environment posed by petroleum hydrocarbon-impacted soils at concentrations above cleanup levels agreed upon by POST and NPS in the Property Transfer Agreement. Pursuant to the Property Transfer Agreement, the Presidio Cleanup Levels are used for petroleum hydrocarbons and endrin.

The removal technologies considered for the reduction of COCs in Site soil are:

- No Further Action and
- Excavation and Off-Site Disposal.

These removal technologies were evaluated and compared in terms of their effectiveness, implementability, cost, and compliance with Applicable or Relevant and Appropriate Requirements (“ARARs”) and other criteria to be considered (“TBCs”) to the extent practicable. Based on this evaluation, Excavation and Off-Site Disposal is the recommended alternative. EKI believes that the Excavation and Off-Site Disposal alternative best meets the RAOs considering effectiveness, implementability, cost, and compliance with applicable ARARs and TBCs.

The recommended alternative entails excavation of COC-impacted soils and transportation of those soils to off-Site permitted disposal facilities. The anticipated excavation depths range from approximately 1 to 2.5 feet below ground surface (“ft bgs”) and the estimated quantity of soil to be excavated is 265 tons. Initial excavation extents are shown on Figures 5 and 6. The excavation will be performed by a licensed remediation contractor (“Contractor”).

The plans that will be implemented during Site Cleanup activities are included in this draft RAW as follows:

- Transportation Plan (see Appendix E);
- Decontamination Plan (see Appendix F);
- Dust Control Plan (see Appendix G);
- Storm Water Pollution Prevention Plan (“SWPPP,” see Appendix H);

- Soil Sampling and Analysis Plan (“SAP,” see Appendix I);
- Quality Assurance Project Plan (“QAPP,” see Appendix J); and
- EKI Site-Specific Health and Safety Plan (“HSP,” see Appendix K).

The Transportation Plan specifies procedures for general and unique handling, transportation, and disposal of excavated soil and traffic control issues at the Site during Site cleanup activities. The Transportation Plan has been prepared following the DTSC guidance *Transportation Plan – Guidance for Developing Transportation Plans for Removal or Remedial Actions* (DTSC, 2001). The Contractor will be required to prepare an addendum to the Transportation Plan that specifies: (1) the actual off-Site disposal facilities and the transportation routes if actual disposal facilities vary from facilities listed in the Transportation Plan, (2) the Contractor’s selected transportation company, and (3) any proposed deviations from procedures specified in the Transportation Plan. The Contractor will be responsible for implementing the Transportation Plan

The Decontamination Plan specifies procedures for removal, collection, and containment of soil and other potentially contaminated material from equipment and transportation vehicles, decontamination of personnel and tools, and methods for temporary storage, characterization, treatment, and off-Site disposal of decontamination wastes generated during decontamination activities. The Contractor will be required to prepare an addendum to the Decontamination Plan if there are any proposed deviations from procedures specified in the Decontamination Plan. The Contractor will be responsible for implementing the Decontamination Plan.

The Dust Control Plan specifies measures to be undertaken to limit generation of dust during remediation activities. The Contractor will be required to prepare an addendum to the Dust Control Plan if there are any proposed deviations from procedures specified in the Dust Control Plan. The Contractor will be responsible for implementing the Dust Control Plan.

The SWPPP specifies measures to be undertaken to limit storm water impacts from the Site such as reducing the sediment load to the storm water runoff from the Site during Site cleanup activities and preventing accidental spills from impacting storm water. The Contractor will not be required to file a Notice of Intent (“NOI”) with the State Water Resources Control Board (“SWRCB”) because the disturbed area at the Site is anticipated to be less than one acre. The Contractor will be required to prepare an addendum to the SWPPP, which shall be prepared by a Qualified SWPPP Developer, in accordance with the General Permit requirements for the project Risk Level determined for the Site. The SWPPP addendum is anticipated to include: (1) determination of the Risk Level for the Site, (2) Material Safety Data Sheets for chemicals used or stored on the site during construction, (3) an best management practice (“BMP”) inspection form, (4) emergency contact information, and (5) any proposed deviations from the procedures specified in this SWPPP. The Contractor will be responsible for implementing the SWPPP.

The SAP describes specifications and procedures for collecting soil samples to verify that the soil cleanup goal has been achieved and to characterize stockpiled soil for disposal. EKI will be responsible for implementing the SAP.



The QAPP provides a description of field and laboratory procedures to be followed to ensure that samples collected from the Site yield representative data. EKI will be responsible for implementing the QAPP.

EKI's Site-specific HSP was prepared in accordance with Federal and California Occupational Safety and Health Administration ("OSHA") standards for hazardous waste operations (29 CFR 1910.120 and Title 8, CCR Section 5192). The Contractor will also prepare its own HSP in accordance with 29 CFR 1910.120 and Title 8, CCR Section 5192. The Contractor will be responsible for health and safety of their employees and workers sub-contracted to them at the Site. The Contractor's HSP must be reviewed and signed by a certified industrial hygienist ("CIH"). The Contractor's HSP is to address Site-specific issues, Site COCs, hazard communication, notification of workers, worker protection, and other topics required by applicable laws and regulations.

At the completion of Site cleanup activities, EKI will prepare a completion report on behalf of POST that describes implementation of the Site cleanup activities. The report will contain the following items:

- Summary of Site cleanup field activities and observations;
- Documentation of implementation of and conformance with the Plans specified as Appendices E to K;
- Documentation of laboratory analytical results for confirmation soil sampling, or other sampling needs as deemed necessary based on field observations and conditions;
- Documentation of quantities of soil disposed off-Site; and
- Documentation of final extent of excavation, backfill, and site restoration.



1.0 INTRODUCTION

This draft Removal Action Workplan (“RAW”) addresses the Trailer Disposal and Former Debris Areas at Moss Beach Ranch of the Rancho Corral de Tierra property, located in Moss Beach, San Mateo County, California (these areas are referred to as the “Site”; see Figure 1). Erler & Kalinowski, Inc. (“EKI”) has prepared this RAW for our client, the Peninsula Open Space Trust (“POST”). EKI understands that ownership of the Rancho Corral de Tierra property was recently transferred to the National Park Service (“NPS”) and that POST has retained responsibility for the removal of contaminated soil at the Site per the First Amendment to Corporate Offer to Purchase Real Property, dated 19 October 2011 (“Property Transfer Agreement”). This report has been prepared by EKI in accordance with the Independent Consultant Agreement with POST, dated 7 March 2011 between POST and EKI and Work Authorization No. 2, dated 10 January 2012 (referred to collectively as the “Agreement”).

This RAW has been prepared in general accordance with the California Environmental Protection Agency (“Cal/EPA”) Department of Toxic Substances Control (“DTSC”) guidance for RAWs (“RAW Guidance;” DTSC, 1998). Based on a discussion with NPS and POST on 9 December 2011, EKI understands that NPS will act as the lead regulatory agency overseeing the cleanup of the Trailer Disposal Area and the Former Debris Area at Moss Beach Ranch.

This report was prepared pursuant to the Agreement and, as such, is for the sole use and reliance of POST. Unless specifically authorized in writing in an agreement acceptable to EKI, the reliance on this report by any other entity is not permitted or authorized.¹ Reliance on the information contained in this report by any third party without authorization by EKI does not make the third party a beneficiary to EKI’s Agreement with POST. Any such unauthorized reliance on or use of this report, including any of its information or conclusions, will be at third party’s risk.

1.1 Removal Action Objectives

Removal Action Objectives (“RAOs”) are specific to a site area or to a contaminated medium, such as soil or groundwater, and are developed for the protection of human health and the environment. RAOs can address both chemical concentrations and potential exposure pathways. Protection can be achieved by reducing the mass, volume, toxicity, or mobility of chemicals of interest, by reducing potential exposures, or by a combination of these approaches.

The RAOs for the Site are to implement removal actions that protect human health and the environment and maintain protection over time. The following qualitative RAOs are established for the Site:

¹ EKI, POST, and NPS will enter into an agreement that will allow NPS to rely on this RAW and the documents associated with the implementation of the RAW. This agreement is anticipated to be executed in conjunction with the release of this document for public review.

- Mitigate potential exposure of ecological receptors to soil having zinc at concentrations exceeding its Site-specific background concentration and endrin above cleanup levels agreed upon by POST and NPS in the Property Transfer Agreement.²
- Mitigate the potential threat to human health, ecological receptors, and the environment posed by petroleum hydrocarbon-impacted soils at levels above cleanup levels agreed upon by POST and NPS in the Property Transfer Agreement.

As a part of the Property Transfer Agreement, NPS and POST agreed that the cleanup levels (herein referred to as Preliminary Cleanup Goals (“PCGs”)) for chemicals of concern (“COCs”) on the Rancho Corral property would be based on the Presidio Cleanup Levels. PCGs are discussed in detail in Sections 3.1 and 4.2, below.

1.2 Elements of the RAW

To accomplish the RAOs, this RAW includes the following elements:

- A description of the nature and extent of the COCs at the Site;
- The goals to be achieved by the removal action;
- An analysis of the alternatives considered including a discussion of effectiveness, implementability, and cost of each alternative; and
- A description of the recommended alternative and an implementation plan.

1.3 Site Specific Plans Included in the RAW

The following plans are included in this RAW:

- Transportation Plan (see Appendix E);
- Decontamination Plan (see Appendix F);
- Dust Control Plan (see Appendix G);
- Storm Water Pollution Prevention Plan (“SWPPP,” see Appendix H);
- Soil Sampling and Analysis Plan (“SAP,” see Appendix I);
- Quality Assurance Project Plan (“QAPP,” see Appendix J); and
- EKI Site-Specific Health and Safety Plan (“HSP,” see Appendix K).

1.4 Compliance

The NPS has completed all necessary compliance required under the National Environmental Policy Act and National Historic Preservation Act. The compliance documentation and associated project conditions are included in Appendix L.

² The RAO for endrin and zinc do not include protection of human health and the environment because the concentrations detected in soil at Moss Beach Ranch only exceed PCGs for ecological receptors.



The Administrative Record Index for this project is included in Appendix M. The Administrative record index will be updated to include input received during public comment period and any additional relevant records created between the publication of the Draft RAW and the date NPS signs the Record of Decision (“ROD”). Administrative records will be managed by NPS and will be located and available for review at 101 Fort Mason San Francisco, California 94123.

2.0 SITE BACKGROUND AND OPERATIONAL HISTORY

The Site (i.e., the Trailer Disposal and Former Debris Areas) are located on the Moss Beach Ranch portion of the greater Rancho Corral de Tierra property, which was transferred from POST to NPS in 2011. The Rancho Corral de Tierra property includes ten parcels totaling approximately 3,858 acres situated east of Highway 1 along the southwestern flank of Montara Mountain, approximately three miles north of the city of Half Moon Bay in San Mateo County, California (see Figure 1). The San Mateo County Assessor's office identifies the property as Assessor's Parcel Numbers ("APNs") 036-300-020, 036-300-070 (partial), 036-320-100 (partial), 036-320-110, 036-330-040 (partial), 036-332-030, 036-370-030, 037-320-100 (partial), 037-320-280 (partial), and 037-320-300.

The Rancho Corral de Tierra property and vicinity are dominated by rolling hills of shrub rangeland and chaparral, interspersed with wooded areas along creeks and drainages. The area's topography is described further in Section 2.3 below. The majority of the Rancho Corral de Tierra property is vacant and interspersed with unimproved roadways and hiking trails. Equine boarding and riding facilities consisting of Ocean View Farms, Renegade Ranch, Moss Beach Ranch, and Ember Ridge Ranch are located in the western and southern portions of the Rancho Corral de Tierra property (see Figure 1). These ranch areas include stable buildings, paddocks, barns, longing pens, corrals, small livestock pens, mobile homes and manufactured homes, e.g., trailer homes, for use by ranch personnel, and structures used for equipment storage, feed storage, and tack.

EKI understands that ownership of the Rancho Corral de Tierra property was recently transferred from POST to the NPS and that POST has retained responsibility for the removal of contaminated soil at the Site per the Property Transfer Agreement. The areas listed below are not part of the Rancho Corral de Tierra property and were not included in the transfer from POST to NPS (see also Figure 1):

- Current agricultural areas of the Denniston Creek Valley, e.g., farmed fields;
- Current agricultural areas located between Moss Beach Ranch and Cabrillo Farms and Highway 1, including the surface water impoundments;
- Cabrillo Farms compound;
- Agricultural, e.g., farmed, areas between Ocean View Farms and Highway 1; and
- Coastside County Water District ("CCWD") water treatment facility located in the Denniston Creek Valley.

Previous site assessments and investigations have been prepared for the Rancho Corral de Tierra property (Krazan, 2001; RRM, 2011; EKI, 2011a; EKI, 2012a). This RAW addresses the Trailer Disposal and Former Debris Areas that are both located on the Moss Beach Ranch area of the property.

The Moss Beach Ranch is currently a horse stable and riding facility and is located in Moss Beach, California on the downstream side, or west from, Ember Ridge Ranch (see Figure 1). The eastern portion of the ranch has been in operation since approximately the 1970s and the western portion of the ranch has been in operation since the 1980s. The Ranch includes three

medium-sized sheds, a recreational trailer for day use by tenants, and approximately 85 small horse sheds and out-buildings (see Figure 2). San Vicente Creek bisects the Ranch compound.

2.1 Trailer Disposal Area

The Trailer Disposal Area is located on Moss Beach Ranch between a trailer home and San Vicente Creek (see Figure 2). The Trailer Disposal area is surrounded by horse stables and exercise areas. A mechanical shed and other small buildings are located to the west of the trailer.

2.2 Former Debris Area

The Former Debris Area is located on Moss Beach Ranch east of San Vicente Creek (see Figure 2). The area of former debris is surrounded by an open field apparently used for parking and staging of horse trailers. A small bridge running over San Vicente Creek connects the Former Debris Area to the main portion of Moss Beach Ranch.

2.3 Topography

The Rancho Corral de Tierra property is dominated by rolling hills of shrub rangeland and chaparral, interspersed with wooded areas along creeks and drainages. The Moss Beach Ranch portion of the property includes the lower reaches of San Vicente Creek to Highway 1, and the Site (i.e., the Trailer Disposal and Former Debris Areas) is located on either side of the San Vicente Creek, in active portions of the Moss Beach Ranch equestrian facility.

The surface elevation at the Rancho Corral de Tierra property ranges from approximately 50 feet above Mean Sea Level (“ft MSL”) at the western portion adjacent to Highway 1 north of Montara, to approximately 1,830 ft MSL at the top of South Peak in the northeast corner of the Property. The elevation of the Site (Trailer Disposal Area and Former Debris Area) is approximately 150 ft MSL. The Site is relatively flat, except along the banks of San Vicente Creek. The Property has several creeks and drainages that trend mainly from the northeast to the southwest. The creeks include portions of Martini Creek, Kanoff Creek, Montara Creek, Dean Creek, San Vicente Creek, Denniston Creek, Deer Creek, and Arroyo de en Medio.

2.4 Geology and Hydrogeology

2.4.1 Site Geology and Soil Types

The property is located on the Pacific Coast approximately three miles north of Half Moon Bay. The property is located within the Coast Ranges Geomorphic Province of California, which is characterized by northwest-trending structural features, including faults and geologic units (Krazan, 2001). The majority of the eastern portion of the Rancho Corral de Tierra property is mapped as Cretaceous Granitic Rocks of Montara Mountain which includes quartz diorite with lesser granite (Krazan, 2001). The lower lying areas of the Rancho Corral de Tierra property in the western portions and within the creek valleys are mapped as being underlain by Holocene alluvial fan deposits, and young and older Holocene alluvium (Krazan, 2001). These deposits are described as unconsolidated fine to coarse grained sand, silt, and gravel (Krazan, 2001).

Some of the lower portions of the Rancho Corral de Tierra property, including the Moss Beach Ranch area, have been mapped as being capped with marine terrace deposits consisting of poorly consolidated sand and gravel (Krazan, 2001). Holocene alluvial deposits run along San Vicente Creek, through the Moss Beach Ranch area. Soils at the Site generally consist of Holocene alluvial deposits along San Vicente Creek and granite.

2.4.2 Site Hydrogeologic Settings

Shallow groundwater is present at the Rancho Corral de Tierra property in the alluvial deposits (Krazan, 2001). The flow direction of shallow groundwater likely mimics the topography of the Rancho Corral de Tierra property, which slopes westerly (Krazan, 2001). In the Moss Beach Ranch area, shallow groundwater in the immediate vicinity of San Vicente Creek (e.g., at the Site) likely flows toward the creek.

2.5 Surrounding Land Use and Sensitive Ecosystems

The Site is surrounded by the Rancho Corral de Tierra National Park site. The Rancho Corral de Tierra property is largely undeveloped consisting of vacant land interspersed with unimproved roadways and hiking trails. Three equine boarding and riding facilities are located on the property in addition to Moss Beach Ranch (Ocean View Farms, Renegade Ranch, and Ember Ridge Ranch). Land uses outside of the Rancho Corral de Tierra property include private residential areas, farms, San Pedro County Park, McNee Ranch State Park, the San Francisco Public Utilities Commission protected watershed lands, and the CCWD water treatment facility. Rancho Corral de Tierra supports four watersheds that flow from north to south into Montara State Beach, the J.V. Fitzgerald Marine Reserve (administered by the Gulf of the Farallones National Marine Sanctuary), and Pillar Point Harbor, all of which are part of the Montara State Marine Reserve and Pillar Point State Marine Conservation Area.

The Trailer Disposal and Former Debris Areas are part of the San Vicente Creek watershed, which flows into the J.V. Fitzgerald Marine Reserve. This watershed is approximately 1,165 acres in area, with 5.4 miles of watercourse (Go Native, 2001). Ecosystem and sensitive species information provided below was summarized from a report entitled *Rancho Corral de Tierra – Palomares, Biological Report & Study Compilation*, dated July 2001 and prepared by Go Native, LLC on behalf of POST. The Trailer Disposal and Former Debris Areas and vicinity are considered disturbed areas and are used heavily by the Moss Beach Ranch working equestrian facility. The Trailer Disposal Area borders the riparian habitat of San Vicente Creek. The habitat along this portion of the creek is impacted by non-native plant intrusion, such as Cape ivy (*Delairea odorata*) and stands of eucalyptus trees (*Eucalyptus globulus*). This habitat directly adjacent to the creek was identified by a Section 10(a)(1)(A) permitted biologist as potentially supporting two threatened and endangered species: the California red-legged frog (*Rana aurora draytonii* – federally listed, threatened) and the San Francisco Garter snake (*Thamnophis sirtalis tetrataenia* – state and federally listed, endangered). Historically, San Vicente Creek supported Central Coast steelhead (*Oncorhynchus mykiss irideus* – federally listed, threatened) and there are historical confirmed reports of the species in this creek. However, NPS is not aware of any confirmations of this species in this creek since 2001.

2.6 Previous Site Actions

A summary of Site assessment activities conducted to date are discussed in the sections below. Table 1 and Appendix C provide a summary of the analytical results for soil and surface water samples collected from Moss Beach Ranch during the prior Site investigations. Sample locations are shown on Figures 3 and 4.

2.6.1 Phase I Environmental Site Assessments

2.6.1.1 2001 Phase I Environmental Site Assessment

In 2001, Krazan & Associates, Inc. (“Krazan”) conducted a Phase I Environmental Site Assessment (“Phase I ESA”) for the property on behalf of POST prior to POST’s purchase of the property (Krazan, 2001). The purpose of the Phase I ESA was to evaluate whether current or historical activities on or near the Site may have resulted in significant impacts by hazardous substances or petroleum products. The Phase I ESA did not include sample collection and analysis.

The assessment by Krazan revealed no evidence of recognized environmental conditions in connection with the Site (Moss Beach Ranch area of the property) with the exception of the following:

- An area west of San Vicente Creek near Moss Beach Ranch (Former Debris Area) appears to be used for storage of a variety of materials including old machinery, wood, metal, vehicle parts, and other miscellaneous items. Present in this area are an old above ground storage tank (“AST”), which was likely used for diesel storage and another old AST of unknown use. These materials have since been removed from the property.
- Also present in the area west of San Vicente Creek was a rusty 55-gallon drum (Trailer Disposal Area). The bunghole for the 55-gallon drum was open and the drum appeared to be full. The drum is labeled "polymeric isocyanate containing diphenylmethane diisocyanate". The use or former use of this substance is not known. This drum was not present in 2011. Soil samples were collected from the area in the 2011 focused site investigation and the 2012 trenching excavation investigation described below.

2.6.1.2 2011 Phase I Environmental Site Assessment

In 2011, RRM, Inc. (“RRM”) conducted a Phase I ESA for the property on behalf of POST and the NPS to support the transfer of the property (RRM, 2011). The Phase I ESA did not include sample collection and analysis.

Based on their assessment, RRM concluded and recommended the following regarding the Site (Moss Beach Ranch area of the property):

- RRM recommended the removal and proper disposal of any unusable machinery, vehicles, containers, and debris from areas where these items have been deposited on the ground surface at the Property. This includes the area of general refuse stockpiled in the grassy clearing adjacent to San Vicente Creek at Moss Beach Ranch. Should areas of soil

staining be observed after the removal of the wastes from these areas, additional soil sampling to evaluate these conditions may be warranted.

- RRM recommended the removal and proper disposal of the buried steel drum behind the 5th wheel trailer home at Moss Beach Ranch, adjacent to San Vicente Creek. Following removal of the drum, should areas of soil appear impacted by the drum contents, additional soil sampling to evaluate these conditions may be warranted.

2.6.2 2011 Focused Site Investigation

At the request of POST, EKI performed sampling investigations of the Rancho Corral de Tierra property in 2011 to identify potential environmental liabilities, also referred to as “recognized environmental conditions” (“RECs”), associated with the property (EKI, 2011a). As a part of this investigation, EKI collected soil samples from multiple areas across the Rancho Corral de Tierra property, which were analyzed for a variety of chemical constituents, including total petroleum hydrocarbons (“TPH”), metals, organochlorine pesticides, and volatile organic compounds. EKI also collected surface water samples from several creeks on the property, which were analyzed for fecal indicator bacteria, pesticides, and common water quality parameters. Groundwater samples were collected from several domestic supply wells on the property and analyzed for TPH, BTEX compounds³, and pesticides.

Specifically, soil sample results were compared to:

- Regional Water Quality Control Board, San Francisco Bay Region (“RWQCB”), Environmental Screening Levels (“ESLs”) for residential soil (Table A-1, Final ESLs; and Table K-1, Direct Exposure ESLs) (RWQCB, 2008) and
- *Background Metals Concentrations in Soils in Northern Santa Clara County, California* (Scott, C.M., 1995).

Surface water sample results were compared to:

- Water quality parameter screening levels in the California Regional Water Quality Control Board, San Francisco Bay Region (Region 2) Water Quality Control Plan (“Basin Plan”), dated 18 January 2007 and
- U.S. EPA Bacteriological Criteria for Water Contact Recreation (Federal Register, Vol. 51, No. 45, March 7, 1986, pp. 8012-8016).

Groundwater sample results were compared to:

- RWQCB Drinking Water ESLs (Table F-3, Human Toxicity) (RWQCB, 2008), which includes United States Environmental Protection Agency (“USEPA”) Maximum Contaminant Levels.

³ Benzene, toluene, ethylbenzene and xylenes.

A summary of the investigation findings for the property that represent a REC for purposes of NPS evaluation of potential environmental liabilities is presented below. Tables of analytical results for the Trailer Disposal and Former Debris Areas from this report are included in Appendix C.

- At Moss Beach Ranch, TPH in the diesel fuel and motor oil ranges were reported in a discrete soil sample collected adjacent to the buried container of oil at concentrations well above their respective residential ESLs (see Table 1 and Figure 3). The buried container was located within an area of identified shallow gravelly fill material in the Moss Beach Trailer Disposal Area. Zinc was also reported in this discrete soil sample at a concentration of 1,130 milligrams per kilogram (“mg/kg”), which is above its residential ESL of 600 mg/kg. TPH was not detected in the soil sample collected at the 5-foot depth from the same borehole. The lateral extent of TPH-impacted soil in the area of the buried oil container was characterized as a part of the 2012 trenching excavation investigation described below. The buried oil container has since been removed, but the impacted soil will require excavation along with the gravelly fill material (see below).
- Exploratory trenching in the area behind the trailer at Moss Beach Ranch adjacent to San Vicente Creek (Trailer Disposal Area) identified the presence of gravelly fill soils containing assorted metallic debris and household refuse. The fill soils appeared to be approximately four feet thick at the locations explored. Samples collected of the fill material identified the presence of TPH in the diesel fuel and motor oil ranges at concentrations of 248 mg/kg and 1,260 mg/kg, which exceed their respective residential ESLs (see Table 1 and Figure 3). The sample of the fill material also contained endrin at a concentration slightly above its ESL for protection of aquatic habitat. The lateral and vertical extents of the fill soil containing elevated concentrations of TPH and endrin were evaluated as a part of the 2012 trenching excavation investigation described below.
- The multi-increment (“MI”) soil sample collected from the former debris area at Moss Beach Ranch (Former Debris Area) contained TPH in the diesel fuel and motor oil ranges at concentrations of 1,880 mg/kg and 3,060 mg/kg, respectively, which exceed their respective residential ESLs (see Table 1 and Figure 4). The lateral and vertical extents of TPH-impacted soil in this area were evaluated as a part of the 2012 trenching excavation investigation described below.
- The downstream surface water sample collected by EKI from the Renegade Ranch drainage contains *Escherichia coli* (“*E. coli*”) at levels above potentially applicable U.S. EPA criteria for water contact recreation. Given that *E. coli* was not detected in the upstream water sample, Renegade Ranch activities appear to be degrading the quality of water in the drainage. The downstream San Vicente Creek water sample collected by EKI at Moss Beach Ranch contains *E. coli* at levels above potentially applicable water quality criteria. Given that the upstream water sample at Moss Beach Ranch was reported not to contain detectable levels of *E. coli*, Moss Beach Ranch activities may be degrading the quality of surface water in that segment of San Vicente Creek. The presence of *E. coli* in surface waters at Renegade Ranch and Moss Beach Ranch may be due to horse manure. Better management of horse manure at these ranch locations may be required to reduce *E. coli* impacts to surface water.

- A lead and asbestos assessment conducted by Acumen Industrial Hygiene, Inc. (“Acumen”) identified the presence of asbestos-containing materials (“ACM”) in the western and eastern ruins in Denniston Creek Valley (Acumen, 2011). Acumen recommended the removal of the structure ruins by appropriately-licensed personnel. Acumen reported the presence of lead based paint (“LBP”) in two paint samples collected at Renegade Ranch, three samples at Moss Beach Ranch, three samples at Ember Ridge Ranch, one sample at Ocean View Farms, and two samples collected at the eastern ruins. Given the potential lead exposure to children due to the identified LBP on certain Site structures, Acumen recommended lead hazard abatement and interim controls. Acumen indicated that certain paints can be encapsulated, e.g., re-painted, as an interim control. In other cases where the LBP is in poor condition, Acumen recommended that the buildings either be demolished or LBP removed from the structures.

Thus, based on the results of the 2011 investigation of the Rancho Corral de Tierra property, the following COCs in soil were identified:

- At the Trailer Disposal Area at Moss Beach Ranch:
 - TPH-diesel,
 - TPH-motor oil,
 - zinc, and
 - endrin.
- At the Debris Disposal Area at the Moss Beach Ranch
 - TPH-diesel and
 - TPH-motor oil.

Manure management and lead and asbestos management are being managed separately and are not part of this RAW since different management authorities and regulations apply.

2.6.3 2012 Trenching Excavation Investigation

In February 2012 at the request of POST, EKI performed exploratory trenching and additional soil sampling at the Trailer Disposal and Former Debris Areas at Moss Beach Ranch of the Rancho Corral de Tierra property. This sampling event is documented in a draft Memorandum, dated 16 April 2012 and is included in Appendix A (EKI, 2012a). The objectives of this sampling were to: (1) conduct exploratory trenching and collect additional soil samples to characterize the lateral and vertical extent of impact identified during previous sampling at the Site and (2) collect additional zinc data to be used to calculate a representative background concentration for zinc in soil at the Site. Sample locations and analytical results from the February 2012 sampling event are included in Table 1 and on Figures 3 and 4.

A total of 34 soil samples were collected from the Trailer Disposal Area. Twenty-five soil samples were collected from 11 trenches, generally centered around the MI sample and stained sample collected in April 2011 (samples MBRTRS and MBRTR1). Five additional surface soil

samples were collected along the western bank of San Vicente Creek and four samples were collected from two locations within the mechanical shed.

Twenty-six soil samples were collected from the Former Debris Area and analyzed for TPH-diesel and TPH-motor oil. Five additional soil samples, all located at a depth of 2.5 feet below ground surface (“ft bgs”), were collected and analyzed for zinc to augment the background data set.

The results of this sampling event and the April 2011 sampling described above were used to characterize the extent of COC contamination and delineate the initial excavation extents, discussed in Section 3.0, below.

3.0 NATURE AND EXTENT OF CONTAMINANTS

As discussed above, the COCs in soil identified at the Site are TPH-diesel, TPH-motor oil, endrin, and zinc at the Trailer Disposal Area and TPH-diesel and TPH-motor oil at the Former Debris Area. The following sections summarize the analytical results of soil samples collected from the Trailer Disposal and Former Debris Areas during the environmental investigations conducted by EKI in April 2011 and February 2012. Soil analytical results for the Trailer Disposal and Former Debris Areas are presented in Table 1 and on Figures 3 and 4.

3.1 Preliminary Cleanup Goals

In order to identify the extent of impact, preliminary cleanup goals, or “PCGs,” were developed for the COCs. As a part of the Property Transfer Agreement, NPS and POST agreed that the PCGs for COCs on the Rancho Corral property would be based on the Presidio Cleanup Levels because the Site is part of the Golden Gate National Recreation Area (“GGNRA”). The Presidio Cleanup Levels are risk-based values for the protection of human health, ecological populations, and water quality (EKI, 2002; BBL, 2004; RWQCB Order R2-2003-0080). EKI understands that NPS endeavors to use the Presidio Cleanup Levels at properties throughout the GGNRA. However, given that the geology of the Moss Beach Ranch and the Presidio is very different, it was agreed that a site-specific background concentration would be developed for zinc and used as its PCG. PCGs for each COC are as follows:

Trailer Disposal Area

TPH-diesel ⁴	115 mg/kg
TPH-motor oil	140 mg/kg
Endrin	0.004 mg/kg
Zinc	138 mg/kg

Former Debris Area

TPH-diesel ⁴	140 mg/kg
TPH-motor oil	140 mg/kg

The background concentration of zinc is developed in Appendix B. The basis of all of the PCGs is discussed further in Section 4.2

3.2 Type, Source, and Location of Contaminants

Although the sources of impact at the Trailer Disposal and Former Debris Areas are not specifically known, they are likely associated with the debris at the Site and disposal of containers and wastes from maintenance activities at Moss Beach Ranch. This section focuses on the type and location of contaminants at the Site.

⁴ The Presidio Freshwater Ecological Protection Zone goal for TPH-diesel contamination in soil where depth to groundwater is less than 5 feet is 115 mg/kg. The Presidio Goal where groundwater is greater than 5 feet is 140 mg/kg. Because of the close proximity to San Vicente Creek and the likely variable depth to groundwater in this area, the more conservative POCC of 115 mg/kg is used at the Trailer Disposal Area. The POCC of 140 mg/kg is applied to the Former Debris Area, where the depth to groundwater is likely greater than 5 ft bgs.

3.2.1 Petroleum Hydrocarbons

The delineation of the extent of petroleum hydrocarbon impacted soil at the Site was based on detected TPH-diesel and TPH-motor oil concentrations above respective PCGs. The PCGs for TPH-diesel are 115 mg/kg for soil where groundwater is within 5 ft bgs (Trailer Disposal Area) and 140 mg/kg for soil where groundwater is greater than 5 ft bgs (Former Debris Area); the PCG for TPH-motor oil is 140 mg/kg.

3.2.1.1 Trailer Disposal Area

Soil impacted by TPH-diesel and TPH-motor oil was generally located in three locations at the Trailer Disposal Area: (1) the area east of the trailer, including soils in the vicinity of the buried oil container, (2) on the floor of a mechanical shed, and (3) in soil generally south of the mechanical shed.

- *East of the Trailer:* The highest concentrations of TPH-diesel and TPH-motor oil in the Trailer Disposal Area were 42,500 mg/kg and 60,300 mg/kg, respectively, detected in a discrete shallow soil sample collected from 1.5 ft bgs near the buried oil container (MBSTR1-1.5). TPH-diesel and TPH-motor oil were also detected in soil samples above their PCGs, located generally around this area including a MI surface soil sample. However, TPH was not detected above PCGs in soil samples collected from 2 ft bgs in the surrounding trenches and from 5 ft bgs at location MBSTR1. Therefore, petroleum hydrocarbon impact is assumed to be limited to soil approximately 2.5 ft bgs and shallower, in the general area of the buried oil container.
- *Mechanical Shed:* A surface sample collected in April 2011 (MBRSHS) indicates that petroleum hydrocarbon contamination (TPH-diesel at 144 mg/kg and TPH-motor oil at 296 mg/kg) is present on the mechanical shed floor. TPH-diesel and TPH-motor oil were not detected above PCGs in subsurface soil samples collected from 1.5 ft bgs in February 2012. Therefore, petroleum hydrocarbon impact is limited to the surface of the mechanical shed floor.
- *South of Mechanical Shed:* TPH-diesel was detected at concentrations up to 242 mg/kg, above its PCG, in two soil samples collected from a depth of 0.5 ft bgs but was not detected in deeper samples (2 ft bgs) at the same locations. TPH-motor oil was not detected in any sample from the area south of the mechanical shed at concentrations above its PCG. Therefore, petroleum hydrocarbon impact in this area is limited to shallow soil. TPH-diesel was detected at a concentration above its PCG in surface soil sample Creek D (139 mg/kg). The analytical laboratory determined that the hydrocarbons detected in this sample were most likely of natural origins rather than petroleum or other synthetic hydrocarbons (EKI, 2012a). Therefore, there is no evidence of petroleum hydrocarbons migrating in soil towards the creek.

3.2.1.2 Former Debris Area

Petroleum hydrocarbon impact is also present at the Former Debris Area. The MI sample (MBR9S) collected in April 2011 contained TPH-diesel and TPH-motor oil at 1,880 mg/kg and 3,060 mg/kg, respectively, which exceed their PCGs. In 2012, extensive soil sampling was conducted within the vicinity of sample MBR9S to characterize the lateral and vertical extent of impact of petroleum hydrocarbon impact. Samples of soil collected from 1 ft bgs and 2.5 bgs did not contain TPH-diesel or TPH-motor oil above PCGs. Therefore, petroleum hydrocarbon impact is limited to surface soils shallower than 1 ft bgs, within the footprint of MI sample MBR9S.

3.2.2 Endrin

The delineation of the extent of endrin-impacted soil at the Site was based on detected endrin concentrations above its PCG of 0.004 mg/kg. The PCG for endrin is discussed further in Section 4.2, below.

Endrin was only detected in one sample from the Trailer Disposal Area (MI surface soil sample MBRTS) at a concentration of 0.00511 mg/kg, which is above its PCG. Because endrin was not detected in subsequent soil samples from the area, endrin-impacted soil is limited to surface soil within the footprint of the MI sample, MBRTS.

Endrin was not retained as a COC at the Former Debris Area because it was not detected in the initial site characterization sample MBR9S.

3.2.3 Zinc

The delineation of the extent of zinc-impacted soil at the Site was based on detected zinc concentrations above its site-specific background concentration of 138 mg/kg. The site-specific background for zinc is discussed further in Section 4.2.3, below.

Zinc-impacted soil was located in two areas at the Trailer Disposal Area: (1) the area east of the trailer, including soils in the vicinity of the buried oil container and (2) on the floor of a mechanical shed.

- *East of the Trailer:* Zinc was detected above its site-specific background concentration in a discrete shallow soil sample collected from 1.5 ft bgs near the buried oil container (MBSTR1-1.5), in the MI surface soil sample (MBRSHS), a discrete shallow trench sample within its footprint (TRE-1), and in a discrete shallow trench sample located near the horse paddock fence (TRJ-1). However, zinc was not detected above its site-specific background concentration in soil samples collected below 1.5 ft bgs. Therefore, zinc-impact is limited to soil approximately 1.5 ft bgs and shallower, in the general area of the buried oil container.
- *Mechanical Shed:* Zinc was detected at a concentration above its site-specific background concentration in the surface soil sample collected from the mechanical shed floor

(MBRSHS). Assuming zinc is co-located with the petroleum hydrocarbons, the extent of zinc in surface soil is anticipated to be limited to surface soil.

At the Former Debris Area, zinc was detected at a concentration of 213 mg/kg in the initial multi-increment soil sample collected from the site (MBR9S), which is less than the residential ESL that was used to identify COCs in the 2011 focused site investigation. Although this concentration is somewhat greater than the site-specific background concentration of 138 mg/kg developed in this RAW, zinc was not retained as a COC at the Former Debris Area. The zinc at the Former Debris Area will be excavated as part of the remediation of the petroleum-impacted soil and confirmation soil samples will be analyzed for zinc.

3.2.4 Subsurface Debris

Some debris was observed in all trenches in the Trailer Disposal Area except for trenches TRJ and TRK (see Figure 3). Generally debris included materials such as household trash, asphalt, wood, and wire. A rusted barrel was observed in trench TRH and corrugated metal was observed in trenches TRE and TRG. Because no significant debris was observed in trenches TRF or TRK, trenching was not extended westward beyond the trailer. Debris was not observed in any trench at depths greater than 2.5 ft bgs.

Buried corrugated metal was discovered in the northern end of trench TRE approximately 1 to 2 ft bgs. In addition, the edge of buried corrugated metal was exposed in the western end of trench TRG at the Trailer Disposal Area, also at a depth of approximately 1 to 2 ft bgs. The metal had been painted and the paint was observed to be flaking off into the soil at trench TRE. A sample of this flaking paint was collected and contained lead at a concentration of 4,430 mg/kg (Table 2). Lead was not detected in soil located beneath the corrugated metal. Lead-impact appears to be limited to the paint associated with the buried corrugated metal. Although lead is not a COC in soil at the Site based on available data, the buried corrugated metal with flaking lead-based paint is located within COC-impacted soil and will therefore be addressed as part of the soil removal action at the Trailer Disposal Area.

At the Former Debris Area, the surface debris and flatbed trailers that had been on the Site in April 2011 were not present during the February 2012 exploratory trenching and sampling. Debris was not observed in any of the trenches in the Former Debris Area.

3.3 Human Health Risk Screening

As indicated previously, analytical data initially were screened against state screening criteria (i.e., ESLs) to identify COCs. Per the Agreement between POST and NPS, Presidio Cleanup Levels (modified to include a Site-specific background concentration for zinc) are used to establish PCGs for the Site. Both types of criteria consider protection of human health, ecological receptors, and water quality. This section provides a summary of the COCs that have potential impact to human health, ecological receptors, or water quality when using PCGs.

3.3.1 Petroleum Hydrocarbons

3.3.1.1 Trailer Disposal Area

TPH-diesel was detected in soil collected from the Trailer Disposal Area at concentrations ranging from 64.2 mg/kg to 42,500 mg/kg. As such, TPH-diesel is present in soil at concentrations that exceed the following Presidio cleanup levels:

- Residential (unrestricted) land use at 1,380 mg/kg;
- Terrestrial ecological populations at 700 mg/kg;
- Freshwater Ecological Protection Zone for soil at 140 mg/kg; and
- Water quality protection at drinking water standards for soil where the depth to groundwater is less than 5 feet at 115 mg/kg.

Therefore, TPH-diesel at the Trailer Disposal Area presents a potential risk to human health, ecological receptors, and groundwater quality.

TPH-motor oil was detected in soil collected from the Trailer Disposal Area at concentrations ranging from 66.8 mg/kg to 60,300 mg/kg. As such, TPH-motor oil (which is comparable to fuel oil at the Presidio) is present in soil at concentrations that exceed the following Presidio cleanup levels:

- Residential (unrestricted) land use at 1,900 mg/kg;
- Terrestrial ecological populations at 980 mg/kg;
- Freshwater Ecological Protection Zone for soil 140 mg/kg; and
- Water quality protection at drinking water standards for soil where the depth to groundwater is less than 5 feet at 160 mg/kg.

Therefore, TPH-motor oil at the Trailer Disposal Area presents a potential risk to human health, ecological receptors, and groundwater quality.

3.3.1.2 Former Debris Area

TPH-diesel was detected in one soil sample from the Former Debris Area at a concentration of 1,880 mg/kg. This concentration of TPH-diesel is above the following Presidio cleanup levels:

- Residential (unrestricted) land use at 1,380 mg/kg;
- Terrestrial ecological populations at 700 mg/kg; and
- Freshwater Ecological Protection Zone for soil 140 mg/kg.

TPH-diesel concentrations in soil at the Former Debris area are less than the cleanup level based on water quality protection at drinking water standards for soil where the depth to groundwater is greater than 5 feet (i.e., 15,000 mg/kg). Therefore, TPH-diesel at the Former Debris presents a potential risk to human health and ecological receptors only.

TPH-motor oil was detected in one soil sample from the Former Debris Area at a concentration of 3,060 mg/kg. This concentration of TPH-motor oil is above the following Presidio cleanup levels:

- Residential (unrestricted) land use at 1,900 mg/kg;
- Terrestrial ecological populations at 980 mg/kg; and
- Freshwater Ecological Protection Zone for soil 140 mg/kg.

TPH-motor oil concentrations in soil at the Former Debris area are less than the cleanup level based on water quality protection at drinking water standards for soil where the depth to groundwater is greater than 5 feet (i.e., 15,000 mg/kg). Therefore, TPH-motor oil at the Former Debris presents a potential risk to human health and ecological receptors only.

3.3.2 Endrin

3.3.2.1 Trailer Disposal Area

Endrin was detected in one sample collected from the Trailer Disposal Area at a concentration of 0.00511 mg/kg. This detected concentration is above the Presidio special status species cleanup level of 0.004 mg/kg, but is less than the residential cleanup level of 18 mg/kg. Therefore, endrin in soil at the Trailer Disposal Area presents a potential risk to ecological receptors only.

3.3.2.2 Former Debris Area

Endrin was not detected in soil at the Former Debris Area and therefore was not retained as a COC for this area.

3.3.3 Zinc

3.3.3.1 Trailer Disposal Area

Zinc was detected in soil collected from the Trailer Disposal Area at concentrations ranging from 21.9 mg/kg to 1,130 mg/kg. These zinc concentrations are less than the Presidio residential cleanup level of 22,000 mg/kg, but they exceed background levels in some samples. As indicated previously, the Presidio special status species cleanup level is based on background levels in soil at the Presidio. The site-specific background concentration of zinc for the Site is 138 mg/kg (Appendix B). Therefore, zinc in soil at the Trailer Disposal Area presents a potential risk to ecological receptors.

3.3.3.2 Former Debris Area

Zinc was detected in soil at the Former Debris Area at concentrations ranging from 29.4 mg/kg to 213 mg/kg. Zinc was not identified as a COC at the Former Debris Area based on the initial screening of data with the ESLs. Although one soil sample at the Former Debris Area (MBR9S) contains zinc above the site-specific background concentration of 138 mg/kg, this sample also contains petroleum hydrocarbons above the PCGs. As such, the zinc, which could be considered a potential risk to ecological receptors, will be excavated.

3.4 Extent and Volume of Contamination

3.4.1 Trailer Disposal Area

Soil impacts in the Trailer Disposal Area are limited to three locations: (1) the area east of the trailer including soils in the vicinity of the buried oil container, (2) on the floor of a mechanical shed, and (3) in soil generally south of the mechanical shed. Proposed excavation extents for the Trailer Disposal Area are shown on Figure 4.

- *East of the Trailer:* Excavation is proposed to extend to an area of approximately 665 square feet (“sq ft”) of soil to a depth of 2.5 ft bgs from the area east of the trailer. This extent will incorporate the footprint of the MI surface soil sample MBRTS, impact found in trench TRJ, and buried corrugated metal with lead-based paint observed in the southwestern end of trench TRG. It is anticipated that approximately 65 bank cubic yards (“bcy”) of soil will be removed from this area.
- *Mechanical Shed:* TPH and zinc impacts were detected in one surface sample from the floor of the mechanical shed (MBRSHS) but did not extend laterally and were not present in deeper samples. The composition of this floor is unclear and may be heavily compacted soil or a degraded aggregate surface such as asphalt or concrete. The floor of this will be scraped with hand tools to the extent practicable. Due to the on-going use of the Mechanical Shed and limited access, it may not be feasible to remove all of the impacted soil. If confirmation soil sampling shows that impacted soil is still present after the initial soil removal, NPS and POST will reevaluate the situation to determine an appropriate course of action to meet the intent of this RAW.
- *South of Mechanical Shed:* Excavation is proposed to extend to an area of approximately 175 sq ft to a depth of 1.5 ft bgs in the area located south of the mechanical shed. This extent will remove the petroleum-impacted soils detected in trenches TRA and TRB. The estimated volume of soil to be removed from this area is 10 bcy.

3.4.2 Former Debris Area

The proposed initial excavation extent for the Former Debris Area is shown on Figure 6. TPH-diesel and TPH-motor oil impacted soil in this area has been characterized and the extent of impact appears to be limited to surface soils within the footprint of the MI surface soil sample MBR9S. Therefore, the initial excavation extent is limited to the footprint of MI sample MBR9S and extend down to 1 ft bgs. The estimated volume of soil to be removed is approximately 90 bcy.

4.0 IDENTIFICATION OF ARARS AND PRELIMINARY CLEANUP GOALS

RAOs established for the Site are described in Section 1.1 above. The RAOs were developed in discussions between POST and NPS by considering, among other things, Applicable or Relevant and Appropriate Requirements (“ARARs”) and the Presidio Cleanup Levels (as PCGs). This section describes the ARARs and the basis of the PCGs for the Site.

4.1 Applicable or Relevant and Appropriate Requirements (ARARs)

ARARs are defined in the National Contingency Plan (“NCP”), 40 CFR Part 300.430(e)(2)(i), as follows:

- Applicable Requirements: Cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, removal action, location, or other circumstance found at a Comprehensive Environmental Response Compensation and Liability Act (“CERCLA”) site.
- Relevant and Appropriate Requirements: Cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not “applicable” to a hazardous substance, pollutant, contaminant, removal action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the site that their use is well-suited to the particular site.

ARARs typically are separated into three categories:

1. Chemical-Specific ARARs: These are health-based or risk-based standards that define the allowable limits of specific chemical constituents found in or discharged to the environment. They can provide cleanup and discharge levels that can determine site removal goals. Most chemical-specific ARARs are applicable to water sources potentially used for drinking water; few are available for ambient air or soil. Maximum Contaminant Levels (“MCLs”) for drinking water are examples of potential chemical-specific ARARs.
2. Location-Specific ARARs: These requirements can apply to natural site features, such as wetlands, flood plains, or the presence of endangered species, and to man-made features and institutional factors, zoning requirements, and places of historical or archaeological significance. Location-specific ARARs restrict the types of removal actions that can be implemented based on site-specific characteristics or location.
3. Action-Specific ARARs: These ARARs are technology-based or activity-based limitations that can set performance and design restrictions. They specify permit requirements and engineering controls that must be instituted during site activities, or restrict particular activities.

Federal and state non-promulgated standards, policies, or guidance documents, and local requirements, are not ARARs. However, according to the NCP guidance, these items are also to be considered when evaluating and selecting removal actions necessary to protect human health and the environment. These non-promulgated, non-binding factors are designated “other criteria to be considered,” or “TBCs.” Potential chemical-, location-, and action-specific ARARs and TBCs for the Site are identified, listed, and described in Table 3.

4.2 Preliminary Cleanup Goals (PCGs)

As discussed previously, Rancho Corral de Tierra is owned by the Federal government and is managed by the NPS as a part of the Golden Gate National Recreation Area. As part of the Property Transfer Agreement between NPS and POST, it was agreed that the cleanup levels being used at the Presidio would be adopted as PCGs for the cleanup of the Trailer Disposal and Former Debris Areas on the Rancho Corral de Tierra property. Given that the geology of Moss Beach Ranch and the Presidio is very different, it was agreed that a site-specific background concentration would be developed for zinc and used as the PCG. Cleanup levels for the Presidio are included in the following documents:

- *Development of Presidio-Wide Cleanup Levels for Soil, Sediment, Groundwater, and Surface Water, Presidio of San Francisco, California* (EKI, 2002);
- RWQCB Order R2-2003-0080 (“Presidio Order”) for petroleum hydrocarbons; and
- *Draft Development of Freshwater TPH-diesel and TPH-fuel oil Point of Compliance Concentrations, Presidio of San Francisco, San Francisco, California* (BBL, 2004) for petroleum hydrocarbons in the Freshwater Protection Zone at the Presidio.

The basis of the PCGs for each of the COCs is discussed further in the sections below.

4.2.1 PCGs for Petroleum Hydrocarbons

Cleanup levels for petroleum hydrocarbons at the Presidio are presented in the Presidio Order, the Presidio Cleanup Level Document (EKI, 2002), and the Freshwater Point of Compliance Concentration (“POCC”) Document (BBL, 2004). The Presidio petroleum hydrocarbon cleanup levels that are relevant to the Site consider protection of human health, terrestrial ecological receptors, freshwater aquatic receptors (applicable to soil and sediment),⁵ and groundwater quality assuming groundwater is a potential drinking water resource. The Presidio cleanup levels have been developed for TPH as diesel and TPH as fuel oil. TPH as fuel oil includes the same carbon chain length range as TPH as motor oil, which is the heavy-end standard for which the Site data have been quantified. As such, a Presidio cleanup level for TPH as fuel oil is assumed to be applicable to TPH as motor oil.

⁵ As discussed in the POCC Document (BBL, 2004), the Freshwater Protection Zone cleanup levels are applicable for soil that could become sediment in a freshwater body or the sediment in the freshwater body. Thus, these values are appropriate for soil samples collected at the Site and along the banks of San Vicente Creek.



The Presidio soil cleanup levels for residential receptors, terrestrial ecological receptors, freshwater aquatic receptors, and groundwater protection based on drinking water standards are summarized in the table below.

POTENTIAL SOIL PCGs FOR PETROLEUM HYDROCARBONS

Receptor	TPH as diesel (mg/kg)	TPH as motor oil (mg/kg)
Residential	1,380	1,900
Terrestrial Ecological	700	980
Freshwater Aquatic Life	140	140
Drinking Water (<5 ft to gw)	115	160
Drinking Water (>5 ft to gw)	15,000	15,000

The most stringent value listed above that is applicable to the given site is established as the PCG for that site. More specifically, at the Trailer Disposal Area, the depth to groundwater is likely to be less than 5 ft bgs because of the proximity of the area to San Vicente Creek; however, at the Former Debris Area, the depth to groundwater is likely greater than 5 ft bgs. Therefore, the PCGs for TPH as diesel are 115 mg/kg at the Trailer Disposal Area and 140 mg/kg at the Former Debris Area. For TPH as motor oil, the PCG for both sites is 140 mg/kg.

4.2.2 PCG for Endrin

The Presidio cleanup levels for endrin consider protection of human health and ecological receptors. The human health cleanup level for residential receptors (i.e., unrestricted land use) is 18 mg/kg. The ecological cleanup levels were developed for the Presidio based on potential risk to wildlife only because literature values were not available for plants and soil fauna. The ecological cleanup levels at the Presidio include both protection of non-special status and special status species. EKI understands that the Site has habitat that could support special status species. As such, the Presidio special status species cleanup level of 0.004 mg/kg (EKI, 2002) is applicable to the Site. This cleanup level represents the typical laboratory reporting limit for endrin. Given that the special status species cleanup level is significantly lower than the human health cleanup level, the Presidio special status species cleanup level of 0.004 mg/kg is adopted as the PCG for endrin in soil for the Trailer Disposal Area.

4.2.3 PCG for Zinc

The Presidio Cleanup Level for zinc considers protection of human and ecological receptors, including special status species. The residential cleanup level for zinc is 22,000 mg/kg. The ecological cleanup levels for zinc consider potential exposure to wildlife as well as plants and soil fauna. The ecological risk-based goals for non-special status and special status species are 50 mg/kg and 4 mg/kg, respectively. Both of these concentrations are less than typical background concentrations of zinc in San Francisco Bay Area soils. Therefore, the zinc ecological cleanup levels at the Presidio are based on background levels found in Presidio soils. Given that the soil types at the Presidio are different from those at the Site, EKI used zinc data from the Site to develop a Site-specific background concentration for zinc. EKI developed an



estimated Site-specific background concentration for zinc of 138 mg/kg, which is adopted as the PCG for zinc in soil. This value represents the 95% upper tolerance limit (“UTL”) of the 95th percentile of the available zinc concentration data population (not including data determined to be outliers).

The methodology used to develop the zinc background concentration was documented in the draft Memorandum regarding Moss Beach Ranch Background Zinc in Soil, Rancho Corral de Tierra, San Mateo County, California, provided in Appendix B (EKI, 2012b). As the estimated background concentration represents an upper-bound concentration of zinc in soil at the Site, EKI proposes to meet the PCG by ensuring that concentrations in individual soil samples are below the PCG (i.e., this value will generally be applied as an upper bound value), with the following exception, which will be evaluated case-by-case, but is consistent with DTSC guidance (DTSC, 2009): Additional soil removal to meet the zinc PCG may not be necessary at isolated areas with zinc concentrations slightly over the PCG of 138 mg/kg where the data indicate that the extent of contamination is not significant.⁶ Such decisions will be made in consultation with POST and the NPS.

In addition, as a conservative measure, analytical data for samples with zinc concentrations between the 110 mg/kg (the 95th percentile) and 138 mg/kg will be reviewed to determine if other analytes (e.g., petroleum hydrocarbons) are present above cleanup goals. In such cases, the zinc may be representative of environmental impacts, not background conditions, and the 110 mg/kg value may be more appropriate. Again, such decisions will be made in consultation with POST and the NPS.

⁶ Given that the zinc PCG is based on the 95% UTL on the 95th percentile, zinc concentrations slightly greater than 138 mg/kg may still represent background.

5.0 IDENTIFICATION AND ANALYSIS OF REMOVAL ACTION ALTERNATIVES

The purpose of this Section of the RAW is to identify and screen possible removal action alternatives that may best achieve the RAOs discussed in Section 1.1. The removal action alternatives were screened and evaluated on the basis of their effectiveness, implementability, and cost.

The removal technologies considered for the reduction of COCs in Site soil are:

- No further action, and
- Excavation and Off-Site Disposal.

These removal technologies are described in the following sections in terms of their effectiveness, implementability, cost, and compliance with ARARs and TBCs to the extent practicable. EKI also considered including capping as a potential alternative. However, given the small size of the impacts, capping and the associated long-term obligations to maintain capped areas would not be as implementable and effective over the long-term. Therefore, only the No Further Action and Excavation and Off-Site Disposal alternatives were evaluated fully in the RAW.

The acceptance criteria of effectiveness, implementability, cost, and compliance with ARARs and TBCs were selected to determine how the alternatives compare with one another and to identify trade-offs between them.

1. Effectiveness: This criterion addresses how well a removal action satisfies the RAOs in the short and long term and addresses protection of human health and the environment during construction and implementation of removal actions.
2. Implementability: This criterion is meant to assess implementability considering the technical and administrative feasibility of each alternative, as well as the availability of needed goods and services to perform the removal action. Other implementability considerations include the ability to monitor removal action effectiveness and the ability to obtain approvals and permits.
3. Cost: This criterion evaluates the cost of removal action alternatives, including both total long-term and short-term costs.
4. Compliance with ARARs and TBCs: This criterion evaluates if the remediation technologies comply with the applicable ARARs and TBCs.

5.1 Alternative 1: No Further Action

The No Further Action alternative has been included to provide a baseline for comparison to the removal alternative. The No Further Action alternative would not require implementing any measures at the Site, and no costs would be incurred. This action includes no institutional controls, no treatment of soil, and no monitoring.

Under the No Further Action alternative, COCs would remain in place at their current concentrations and there would be no reduction in the potential risks.

5.1.1 Effectiveness

Under this alternative, potential risk to human and ecological receptors would not be mitigated. This alternative does not meet the RAO of minimizing or eliminating human exposure to COC-impacted soil. No reduction in toxicity, mobility, or volume of Site COCs would result under this alternative. This alternative is, therefore, not effective.

5.1.2 Implementability

The No Further Action alternative would not require implementing any measures at the Site, so it is easily implementable.

5.1.3 Cost

No costs would be incurred under the No Further Action Alternative.

5.1.4 Compliance with ARARs and TBCs

The No Further Action Alternative does not comply with ARARs and TBCs.

5.2 Alternative 2: Excavation and Off-Site Disposal

Excavation and Off-Site Disposal entails physical removal of COC-impacted soils from the Site and transporting those soils to a permitted landfill for disposal. Costs associated with Excavation and Off-Site Disposal would include excavation equipment, soil profiling, soil removal, confirmation soil sampling, transport, disposal charges, and engineering oversight. The estimated volume of non-hazardous waste for off-Site disposal is approximately 165 bcy (265 tons). The Site will be backfilled to approximately its current conditions.

5.2.1 Effectiveness

The Excavation and Off-Site Disposal alternative would effectively reduce health risks from potential exposures to park users and ecological receptors in the long-term. Contaminated soil would be removed in areas where contamination is above the PCG and transported to an appropriate landfill for disposal. Disposing of the soil in a permitted landfill would reduce potential future human health and ecological risks associated with contaminated soil.

The anticipated duration of excavation activities under the Excavation and Off-Site Disposal alternative is approximately two weeks. The Excavation and Off-Site Disposal alternative would potentially have decreased effectiveness in the short-term as a result of dust generated during excavation that could impact on-Site workers, the workers and recreational users of the stables at Moss Beach Ranch, and threatened and endangered species that potentially inhabit the area. In

addition, the Excavation and Off-Site Disposal alternative could have short-term impacts due to transportation requirements at the Site during excavation activities (i.e., truck routes, staging, and decontamination). However, this alternative would include appropriate engineering controls such as personal protective equipment for on-Site workers, dust suppressant measures to limit exposures to workers and surrounding users of Moss Beach Ranch, stormwater management measures to control erosion, a biological monitor to screen for the presence of threatened and endangered species, special precautions to protect threatened and endangered species as determined through U.S. Fish and Wildlife Service consultation, and traffic controls that would limit construction-related impacts (i.e., would increase the short-term effectiveness) of the alternative. It is anticipated that the Excavation and Off-Site Disposal alternative would be most effective in the long-term because impacted soil would be removed from the Site.

5.2.2 Implementability

The Excavation and Off-Site Disposal alternative is easily implemented with standard construction equipment. Contaminated soil that would need to be excavated and transported off-Site could be both loaded and transported off-Site during excavation activities or stockpiled on-Site. This alternative uses readily available equipment as well as experienced and licensed contractors to perform work. Adequate transportation capacity exists in the area with numerous licensed hazardous waste haulers available. It is assumed that excavated soil would be loaded into trucks on-Site and that trucks will use the unpaved driveway through Moss Beach Ranch and Etheldore Street as a point of access to and egress from the Site. Several disposal facilities are easily accessible from the Site for disposal of non-hazardous (Class II) waste. Adequate capacity exists at many permitted disposal facilities for disposal of 265 tons of soils. The Excavation and Off-Site Disposal alternative would require additional effort to develop and execute the engineering controls described above in order to protect the health of on- and off-Site receptors, and to manage on-Site transportation.

5.2.3 Cost

Estimated costs to excavate soil from the Trailer Disposal and Former Debris Areas based on potential excavation scenarios were developed by EKI and are documented in the Memorandum regarding *Opinion of Estimated Costs for Recognized Environmental and Disposal Liabilities Associated with Selected Areas at Rancho Corral de Tierra, Montara, California* (Appendix D). These cost estimates were developed prior to the February 2012 sampling and consequent delineation of COC-impacted soil, discussed in Section 3.4 above, and included hypothetical small extent and large extent excavation scenarios for both areas. The proposed excavation volume (75 bcy) for the Trailer Disposal Area is less than the hypothetical excavation volume for the small extent scenario (120 bcy). The proposed excavation extent and volume for the Former Debris Area is the same as the hypothetical excavation volume for the small extent scenario (90 bcy). Therefore, it is anticipated that the total estimated present worth cost of this alternative would be consistent with the small extent hypothetical excavations presented in Appendix D of approximately \$284,000. Supporting information for the estimated cost for this alternative is included in Appendix D.

5.2.4 Compliance with ARARs and TBCs

The Excavation and Off-Site Disposal alternative will comply with the applicable ARARs and TBCs to the extent practicable.

6.0 REMOVAL ACTION IMPLEMENTATION

The planned removal action entails excavation of COC-impacted soils and transportation of those soils to off-Site permitted disposal facilities. Implementation of the removal action consists of a series of separate tasks. The following sections discuss each task required to implement the Excavation and Off-Site Disposal alternative.

6.1 Site Preparations and Security Measures

6.1.1 Delineation of Excavation Areas

The excavation will be performed by a licensed remediation contractor (“Contractor”). Final limits of the excavations will be generally surveyed by a licensed surveyor and the survey information will be included in the Removal Action Completion Report (see Section 7.3 below).

Soil excavated during the remediation activities may be stockpiled or, pending pre-approval of waste profiles from disposal facilities selected by the Contractor, excavated soil will be directly loaded into trucks and transported to the appropriate disposal facilities (Class II facility).

6.1.2 Utility Clearance

Prior to initiating excavation activities, Underground Services Alert (“USA”) will be notified by the Contractor at least two working days in advance of initiating Site cleanup activities to clear excavation areas of utilities. In addition, the Contractor will survey or hire a private utility located to survey the planned excavation area for the presence of existing utilities.

6.1.3 Initial Site Preparation

Prior to initiation of cleanup activities on the Site, the Contractor’s field crew will conduct initial mobilization activities that are non-invasive. The allowable activities include setting up field offices (if necessary), constructing a decontamination pad, underground utility line location, preparing dust control and stormwater management measures, setting up controls to protect threatened and endangered species (see Section 6.1.7), marking the excavation areas, and other pre-excavation activities. In addition, some of the tenant’s paddock fencing and other equipment may need to be relocated to allow access for staging and remediation activities. These activities will have to be coordinated with NPS and the tenant at Moss Beach Ranch.

6.1.4 Security Measures

Prior to cleanup activities on the Site, the Contractor will construct perimeter fencing and lockable gates to restrict access to the Site. Contractor will be responsible for maintaining Site security and will promptly repair, maintain, or install new fencing, as needed, to maintain Site security at all times.

Full-scale cleanup work described in the Section 5.2 can begin when the preparatory activities described in this section are complete.

6.1.5 Permitting and Site Preparation

The Contractor will be required to procure necessary permits prior to beginning cleanup activities on the Site. Permits required could include a California Occupational Safety and Health Administration (“OSHA”) excavation permit, as determined by the Contractor.

The Contractor will comply with the Construction Activities Storm Water General Permit (SWRCB Order No. 2010-0014-DWQ), and as such will prepare a SWPPP for the Site.

Other main tasks to be performed prior to commencement of Site cleanup activities are summarized below.

- Preparation of a RAW (this document) that describes the details of work to be implemented and the sequence of cleanup actions. The NPS will be the lead agency overseeing the public review process of the RAW. The NPS will circulate the draft for public review. Following receipt of public comments, POST will work with the NPS to respond to the comments and prepare a final RAW for NPS approval.
- Completion of Contract Documents for procurement of a Contractor to perform the cleanup activities.
- Selection of a Contractor and completion of contract negotiation and award.
- Contractor procurement of necessary permits and utility clearances prior to the commencement of excavation activities at the Site.
- Coordination of pre-approval for waste disposal classifications with potential off-Site permitted disposal facility as determined to be necessary by the Contractor.

6.1.6 Site Specific Plans for Site Cleanup Activities

The following plans are included in this RAW:

- A Transportation Plan (see Appendix E);
- A Decontamination Plan (see Appendix F);
- A Dust Control Plan (see Appendix G);
- A Storm Water Pollution Prevention Plan or SWPPP (see Appendix H);
- A Soil Sampling and Analysis Plan or SAP (see Appendix I);
- A Quality Assurance Project Plan or QAPP (see Appendix K); and
- An EKI Site-Specific Health and Safety Plan or HSP (see Appendix K).

The following subsections summarize the contents of each plan including those plans that will require Contractor-prepared addenda. The plans will assist in the management of the construction activities for Site cleanup by identifying techniques the Contractor should use to implement Site cleanup. The final plans and the Contractor plan addenda will be submitted to POST and the NPS as an amendment or addendum to the final RAW.

6.1.6.1 Summary of Transportation Plan

EKI has prepared a Transportation Plan, which is included in Appendix E. The Transportation Plan specifies procedures for general and unique handling, transportation, and disposal of excavated soil and traffic control issues at the Site during Site cleanup activities. The Transportation Plan has been prepared following the DTSC guidance *Transportation Plan – Guidance for Developing Transportation Plans for Removal or Remedial Actions* (DTSC, 2001).

The Contractor will be required to prepare an addendum to the Transportation Plan that specifies: (1) the actual off-Site disposal facilities and the transportation routes if actual disposal facilities vary from facilities listed in the Transportation Plan, (2) the Contractor's selected transportation company, and (3) any proposed deviations from procedures specified in the Transportation Plan. The Contractor will be responsible for implementing the Transportation Plan.

6.1.6.2 Summary of Decontamination Plan

EKI has prepared a Decontamination Plan, which is included in Appendix F. The Decontamination Plan specifies procedures for removal, collection, and containment of soil and other potentially contaminated material from equipment and transportation vehicles, decontamination of personnel and tools, and methods for temporary storage, characterization, treatment, and off-Site disposal of decontamination wastes generated during decontamination activities. The Contractor will be required to prepare an addendum to the Decontamination Plan if there are any proposed deviations from procedures specified in the Decontamination Plan. The Contractor will be responsible for implementing the Decontamination Plan.

6.1.6.3 Summary of Dust Control Plan

EKI has prepared a Dust Control Plan, which is included in Appendix G. The Dust Control Plan specifies measures to be undertaken to limit generation of dust during remediation activities. The Contractor will be required to prepare an addendum to the Dust Control Plan if there are any proposed deviations from procedures specified in the Dust Control Plan. The Contractor will be responsible for implementing the Dust Control Plan.

6.1.6.4 Summary of Storm Water Pollution Prevention Plan (SWPPP)

EKI has prepared a SWPPP, which is included in Appendix H. The SWPPP was prepared in accordance with the regulatory requirements for construction storm water pollution management and BMPs that will be implemented, such as those provided in the Golden Gate National Recreation Area Storm Water Management Plan Appendix C – BMP Handbook (“GGNRA BMP Handbook;” Kennedy/Jenks, 2010) and those published by the California Department of Transportation (Caltrans, 2003). The SWPPP specifies measures to be undertaken to limit storm water impacts from the Site such as reducing the sediment load to the storm water runoff from the Site during Site cleanup activities and preventing accidental spills from impacting storm water. The Contractor will not be required to file a Notice of Intent (“NOI”) with the SWRCB because the disturbed area at the Site is anticipated to be less than one acre.



The Contractor will be required to prepare an addendum to the SWPPP, which shall be prepared by a Qualified SWPPP Developer, in accordance with the General Permit requirements for the project Risk Level determined for the Site. The SWPPP addendum is anticipated to include: (1) determination of the Risk Level for the Site, (2) Material Safety Data Sheets for chemicals used or stored on the site during construction, (3) an example BMP inspection form, (4) emergency contact information, and (5) any proposed deviations from the procedures specified in this SWPPP. The Contractor will be responsible for implementing the SWPPP.

6.1.6.5 Summary of Soil Sampling and Analysis Plan (SAP)

A Soil SAP, included as Appendix I, has been prepared by EKI and describes specifications and procedures for collecting soil samples to verify that soil cleanup goals have been achieved and to characterize stockpiled soil for disposal. EKI will be responsible for implementing the SAP.

6.1.6.6 Summary of Quality Assurance/Quality Control Plan (QAPP)

A QAPP, included as Appendix K, has been prepared by EKI and provides a description of field and laboratory procedures to be followed to ensure that samples collected from the Site yield representative data. EKI will be responsible for implementing the QAPP.

6.1.6.7 Summary of the EKI Site-Specific Health and Safety Plan (HSP)

A Site-specific HSP will specify, among other things, employee training and personal protective equipment, training and medical surveillance requirements, standard operating procedures, and a contingency plan that conforms to the requirements of 29 CFR 1910.120 et seq. and other applicable Federal and State laws and regulations, including Title 8, CCR Section 5192.

EKI's Site-specific HSP, presented in Appendix K, was prepared in accordance with Federal and California OSHA standards for hazardous waste operations (29 CFR 1910.120 and Title 8, CCR Section 5192).

The Contractor will prepare its own HSP in accordance with the Contract Documents. The Contractor will be responsible for health and safety of their employees and workers sub-contracted to them at the Site. The Contractor's HSP must be reviewed and signed by a certified industrial hygienist ("CIH"). The Contractor's HSP is to address Site-specific issues, Site COCs, hazard communication, notification of workers, worker protection, and other topics required by applicable laws and regulations.

6.1.7 Measures to Protect Threatened and Endangered Species

Given that the California red-legged frog and the San Francisco garter snake may be present at the Site, the NPS is consulting with the U.S. Fish and Wildlife Service to identify the appropriate protective measures to be followed during implementation of the RAW. Typical requirements could include the following:

- The Contractor, EKI staff, and NPS staff will attend a project orientation to increase sensitivity and awareness associated with working in a national park setting with threatened and endangered species;
- NPS natural resource staff or an NPS-approved biological monitor will be present during site-preparation and implementation of the removal action;
- The biological monitor will be the point-of-contact in the event of take or injury of a threatened and endangered animal;
- Avoidance zones will be established and fenced to demarcate areas where construction activities and staging cannot occur (e.g., to limit staging areas to existing disturbed areas within the construction limits);
- Erosion and sedimentation control measures will be implemented;
- The remediated area will be regraded and rehabilitated as quickly as possible;
- Activities will be performed during the non-breeding season (e.g., from May through October for the California red-legged frog);
- Daily activities will be performed no earlier than one-half hour before sunrise and completed one-half hour before sunset;
- Prior to and during the project, the biological monitor will search the work area (and a 50-foot radius around the work area) for the presence of the red-legged frog and San Francisco garter snake;
- Vegetation suitable for California red-legged frog and San Francisco garter snake will be removed once the area is cleared by the biological monitor;
- Silt fencing will be used to exclude the California red-legged frog and San Francisco garter snake from entering the work area; and
- Downslope erosion between the work area and San Vicente Creek will be minimized.

These measures are examples of typical requirements that are implemented to protect threatened and endangered wildlife. The actual measures to be implemented will be determined in consultation with the U.S. Fish and Wildlife Service.

6.2 Excavation Methodology and Management of Unknowns

6.2.1 Excavation Equipment and Methods

The specific equipment and means that will be utilized to implement this work will be at the discretion of the Contractor. It is anticipated that this soil cleanup project can be accomplished with standard construction equipment. Some of the equipment expected to be used at the Site includes hydraulic excavators, backhoes, water trucks, end dump trucks, bulldozers, and compactors.

To the extent possible, excavated soils will be directly loaded into trucks for off-Site disposal to reduce handling and potential dust emissions. Trucks will then be covered and transported to designated disposal facilities permitted for the waste. To accomplish direct loading of trucks for soil disposal, soil has been pre-characterized and will need to be designated as acceptable to the selected, permitted disposal facility prior to the start of soil cleanup activities. Refer to the Transportation Plan in Appendix E for more specific details.

If site constraints prevent direct loading of trucks for off-Site disposal or if excavated soils require waste characterization during soil cleanup activities and prior to off-Site disposal, soil will be stockpiled on-Site. Stockpiled soil will be handled as potential hazardous waste until proven otherwise. Soil stockpiles will be managed in accordance with procedures outlined in the Dust Control Plan and the SWPPP (Appendix G and Appendix H, respectively). Stockpiled soil and segregated corrugated metal with flaking paint will be placed on plastic sheeting (minimum 10-mil thickness) and securely covered with plastic sheeting (minimum 10-mil thickness). All stockpiles and excavated metal debris will be covered at the end of each work day and when not being actively handled. After classifying the soil stockpiles, the soil will be trucked to the appropriate permitted off-Site disposal facilities. Lead-containing construction debris will be trucked to an appropriate permitted off-Site disposal facility.

Dewatering is not anticipated to be conducted during cleanup activities. If necessary, water removed from the excavation will be stored on-Site and will be transported and disposed at an appropriately permitted off-Site facility or facilities in accordance with methods and procedures described in the Transportation Plan (Appendix E).

6.2.2 Soil Management Protocols for Stained or Odorous Soil

If potentially contaminated soil is encountered during excavation that appears to be significantly different from staining and odors previously observed at the Site, the protocols summarized below will be followed:

- If visibly stained or odorous soil is observed during excavation activities and such staining or odors are significantly different than previously observed at the Site, POST and NPS will be notified and a representative Evaluation Soil Sample will be collected and analyzed to evaluate chemical concentrations in the soil. Chemical analyses of soil samples collected from visibly contaminated or odorous soil if encountered will be

determined in consultation with NPS, but may include VOCs, petroleum hydrocarbons, pesticides, and Title 22 metals.

- If chemical concentrations in the Evaluation Soil Sample exceed applicable Presidio cleanup levels, the impacted soil will be excavated, characterized for disposal purposes, and disposed of off-Site at an appropriately licensed facility. Confirmation soil samples will be collected to verify that the impacted soil has been removed.

6.2.3 Management of Unknown Underground Structures Uncovered During Remediation Activities

In the event an unknown underground container or structure (e.g., underground storage tank, sump, drum or pipe) is discovered during Site remediation activities, all work in the vicinity of the underground container or structure will cease. POST and NPS will be contacted to determine the appropriate course of action.

The above requirement does not apply to an encountered pipe if it is an active or abandoned utility, such as water, gas, or steam lines, because they are not anticipated to have contained potentially hazardous materials.

6.3 Control Measures

Control measures to be implemented during excavation activities associated with the removal of impacted soil include measures for decontamination (see Decontamination Plan in Appendix F), dust control (see Dust Control Plan in Appendix G), and measures to reduce or prevent the discharge of pollutants associated with storm water discharges (see SWPPP in Appendix H).

6.4 Field Variances

Variances from the workplan will be discussed with POST and NPS prior to any action being taken except for emergencies (i.e., when an immediate response is required). POST and NPS will be notified if an emergency response is implemented. The field variances will be documented in the Removal Action Completion Report to be prepared for the project (see Section 7.3).

6.5 Confirmation Soil Sampling

Confirmation soil samples will be collected once the initial lateral and vertical extents of the excavation have been reached, as described in the SAP (see Appendix I).

6.6 Backfill and Site Restoration

After excavation activities are completed, the extents of the excavation areas will be surveyed by a licensed land surveyor. Excavations will be backfilled with clean import fill that complies with NPS requirements and compacted to specifications to be provided by NPS in the bid documents for the remediation. Final grading of the backfill will be accomplished in accordance with



specifications provided by NPS. Analytical data of potential backfill materials will be reviewed by the POST, NPS, and EKI prior to being transported to the Site. The Site will be roughly graded such that drainage velocities do not result in soil erosion. After rough grading, the Site will be covered with weed-free rice straw and any areas that are sloped near the creek bank will include erosion control blankets with natural fiber (non-plastic) netting and/or willow-stake waddles. The Site will remain fenced from the start of remediation phase and through site grading.

7.0 PROJECT SCHEDULE AND REPORT OF COMPLETION

7.1 Public Outreach

The draft RAW will be made available for public comment with a 30-day public comment period. Any comments received will be addressed in the Final RAW.

7.2 Schedule of Removal Activities

Removal activities are anticipated to commence in 2013, after the U.S. Fish and Wildlife Service consultation is complete. Removal activities will be completed within approximately four weeks. EKI has assumed that one to two weeks will be required for setup and staging prior to excavation activities, up to two weeks will be required for excavation and soil off-haul, and an additional week will be required for final confirmation sampling, overexcavation, and surveying.

7.3 Removal Action Completion Report

After the completion of Site cleanup activities, EKI will prepare a completion report on behalf of POST that describes implementation of the Site cleanup activities. The report will contain the following items:

- Summary of Site cleanup field activities and observations;
- Documentation of implementation of and conformance with the Plans specified as Appendix E to K;
- Documentation of laboratory analytical results for confirmation soil sampling, or other sampling needs as deemed necessary based on field observations and conditions;
- Documentation of quantities of soil disposed off-Site, including manifests or bills of lading for the disposed soil; and
- Documentation of final extent of excavation, backfilling, and site restoration.

8.0 REFERENCES

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TABLE 1
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS FOR COCS
Moss Beach Ranch

Rancho Corral de Tierra, Moss Beach, California

Sample ID	Sample Date	Sample Type	Sample Depth (ft bgs)	Analytical Results (mg/kg dry weight)				
				TPH Diesel	TPH Motor Oil	Endrin	Lead	Zinc
Trailer Disposal Area								
TRA-0.5	2/22/2012	Discrete	0.5	133	124	<0.00218	--	60.0
TRA-2	2/22/2012	Discrete	2	<12	<12	<0.00241	--	68.4
TRA-4.5	2/22/2012	Discrete	4.5	<11.2	<11.2	<0.00223	--	33.4
TRB-0.5	2/22/2012	Discrete	0.5	242	121	<0.0024	--	76.4
TRB-2	2/22/2012	Discrete	2	<11.8	<11.8	<0.00236	--	47.8
TRB-4	2/22/2012	Discrete	4	<11.2	<11.2	<0.00223	--	29.9
TRC-0.5	2/22/2012	Discrete	0.5	<11.7	<11.7	<0.00235	--	90.9
TRD-0.5	2/22/2012	Discrete	0.5	96 (a)	106	<0.00237	--	54.1
TRD-2	2/22/2012	Discrete	2	<13	<13	<0.00259	--	59.4
TRE-1	2/22/2012	Discrete	1	145 (a)	223	<0.00255	--	145
TRE-3	2/22/2012	Discrete	3	<13.7	<13.7	<0.00274	18.8	86.7
TRE-4	2/22/2012	Discrete	4	<11.6	<11.6	<0.00233	--	24.3
TRF-1	2/22/2012	Discrete	1	<13.2	<13.2	<0.00264	10.1	94.6
TRF-3	2/22/2012	Discrete	3	<12.3	<12.3	<0.00247	3.71	42.5
TRG-0.75	2/22/2012	Discrete	0.75	102 (a)	119	<0.00235	--	87.7
TRG-2	2/22/2012	Discrete	2	<12.1	<12.1	<0.00243	--	25.2
TRH-2	2/22/2012	Discrete	2	<13	<13	<0.0026	--	94.4
TRH-4.5	2/22/2012	Discrete	4.5	<10.9	<10.9	<0.00218	--	37.1
TRI-0.75	2/22/2012	Discrete	0.75	140 (a)	165	<0.00231	--	85.1
TRI-2	2/22/2012	Discrete	2	<12	<12	<0.0024	--	69.9
TRI-4	2/22/2012	Discrete	4	<12.4	<12.4	<0.00249	--	43.4
TRJ-1	2/22/2012	Discrete	1	<11.6	<11.6	<0.00232	--	239
TRJ-3.5	2/22/2012	Discrete	3.5	<10.8	<10.8	<0.00216	--	22.3
TRK-1	2/22/2012	Discrete	1	<11.7	<11.7	<0.00233	--	56.9
TRK-3	2/22/2012	Discrete	3	<10.8	<10.8	<0.00216	--	21.9
CREEK A	2/24/2012	Discrete	surface	<13.8	<13.8	<0.00277	--	60.8
CREEK B	2/24/2012	Discrete	surface	<13.2	<13.2	<0.00263	--	61.9
CREEK C	2/24/2012	Discrete	surface	<12.7	<12.7	<0.00254	--	88.8
CREEK D	2/24/2012	Discrete	surface	139 (b)	90.4 (b)	<0.00263	--	92.3
CREEK E	2/24/2012	Discrete	surface	95.3 (c)	<14.9	<0.00298	--	61.7
Soil Screening Criteria								
RWQCB ESL for Residential Shallow Soil (<3 meters) (d)				83	370	0.00065	200	600
Presidio Cleanup Levels for:								
Residential (unrestricted) land use (e,f)				1,380	1,900	18	400	22,000
Terrestrial ecological populations (e,f)				700	980	0.11	300	50
Special status species (f)				na	na	0.004	160	4 (j)
Freshwater Ecological Protection Zone for soil (e,g)				140	140	na	na	na
Water quality protection at DW standards (GW <5 feet) (e,f,g)				115	160	na	na	na
Water quality protection at DW standards (GW >5 feet) (e,f,g)				15,000	15,000	na	na	na
Site Preliminary Cleanup Goals (h)				115/ 140	140	0.004	na	138 (i)

TABLE 1
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS FOR COCS
Moss Beach Ranch

Rancho Corral de Tierra, Moss Beach, California

Sample ID	Sample Date	Sample Type	Sample Depth (ft bgs)	Analytical Results (mg/kg dry weight)				
				TPH Diesel	TPH Motor Oil	Endrin	Lead	Zinc
Trailer Disposal Area								
MS1-1	2/24/2012	Discrete	1	93.9 (c)	81.6 (b)	--	--	--
MS1-2	2/24/2012	Discrete	2	68.3 (c)	78.4 (b)	--	--	--
MS2-1	2/24/2012	Discrete	1	64.2 (c)	66.8 (b)	--	--	--
MS2-2.5	2/24/2012	Discrete	2.5	<13	<13	--	--	--
MBSTR1-1.5	4/19/2011	Discrete	1.5	42,500	60,300	<0.81	24.5	1,130
MBRTR1-5	4/19/2011	Discrete	5	<13	<26	<0.0038	4.6	44.7
MBRTRS	4/18/2011	MIS	surface	248	1,260	0.00511 (k)	21	79.5
MBRSHS	4/19/2011	Discrete	surface	144	296	<0.031	6.9	185
Former Debris Area								
FDA-1	2/23/2012	Discrete	1	<12.3	<12.3	--	--	--
FDA-2.5	2/23/2012	Discrete	2.5	--	--	--	--	37.8
FDB-1	2/23/2012	Discrete	1	<12.3	<12.3	--	--	--
FDB-2.5	2/23/2012	Discrete	2.5	<11.8	<11.8	--	--	--
FDC-1	2/23/2012	Discrete	1	<12	<12	--	--	--
FDC-2.5	2/23/2012	Discrete	2.5	<12.2	<12.2	--	--	--
FDD-1	2/23/2012	Discrete	1	<11.4	<11.4	--	--	--
FDD-2.5	2/23/2012	Discrete	2.5	<11.5	<11.5	--	--	--
FDE-1	2/23/2012	Discrete	1	<11.3	<11.3	--	--	--
FDE-2.5	2/23/2012	Discrete	2.5	<11.6	<11.6	--	--	--
FDF-1	2/23/2012	Discrete	1	70.9 (c)	81.6 (b)	--	--	--
FDF-2.5	2/23/2012	Discrete	2.5	<12.9	<12.9	--	--	--
FDG-1	2/23/2012	Discrete	1	<11.6	<11.6	--	--	--
FDG-2.5	2/23/2012	Discrete	2.5	--	--	--	--	36.7
FDH-1	2/23/2012	Discrete	1	<12	<12	--	--	--
FDH-2.5	2/23/2012	Discrete	2.5	--	--	--	--	29.4
FDI-1	2/23/2012	Discrete	1	<12	<12	--	--	--
FDI-2.5	2/23/2012	Discrete	2.5	--	--	--	--	55.8
FDJ-1	2/23/2012	Discrete	1	<12.3	<12.3	--	--	--
FDK-1	2/23/2012	Discrete	1	<11.7	<11.7	--	--	--
FDK-2.5	2/23/2012	Discrete	2.5	<11.7	<11.7	--	--	--
FDL-1	2/23/2012	Discrete	1	<12.4	<12.4	--	--	--
FDL-2.5	2/23/2012	Discrete	2.5	<11.6	<11.6	--	--	--
Soil Screening Criteria								
RWQCB ESL for Residential Shallow Soil (<3 meters) (d)				83	370	0.00065	200	600
Presidio Cleanup Levels for:								
Residential (unrestricted) land use (e,f)				1,380	1,900	18	400	22,000
Terrestrial ecological populations (e,f)				700	980	0.11	300	50
Special status species (f)				na	na	0.004	160	4 (j)
Freshwater Ecological Protection Zone for soil (e,g)				140	140	na	na	na
Water quality protection at DW standards (GW <5 feet) (e,f,g)				115	160	na	na	na
Water quality protection at DW standards (GW >5 feet) (e,f,g)				15,000	15,000	na	na	na
Site Preliminary Cleanup Goals (h)				115/140	140	0.004	na	138 (i)

TABLE 1
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS FOR COCS
Moss Beach Ranch

Rancho Corral de Tierra, Moss Beach, California

Sample ID	Sample Date	Sample Type	Sample Depth (ft bgs)	Analytical Results (mg/kg dry weight)				
				TPH Diesel	TPH Motor Oil	Endrin	Lead	Zinc
Former Debris Area								
FDM-1	2/23/2012	Discrete	1	<12.6	<12.6	--	--	--
FDM-2.5	2/23/2012	Discrete	2.5	--	--	--	--	44.3
FDN-1	2/23/2012	Discrete	1	<12.2	<12.2	--	--	--
FDN-2.5	2/23/2012	Discrete	2.5	<12	<12	--	--	--
FDO-1	2/23/2012	Discrete	1	<12.4	<12.4	--	--	--
FDO-2.5	2/23/2012	Discrete	2.5	<11.6	<11.6	--	--	--
FDP-1	2/23/2012	Discrete	1	<11.2	<11.2	--	--	--
FDP-2.5	2/23/2012	Discrete	2.5	<12.3	<12.3	--	--	--
MBR9S	4/18/2011	MIS	surface	1,880	3,060	<0.00399	17	213
Soil Screening Criteria								
RWQCB ESL for Residential Shallow Soil (<3 meters) (d)				83	370	0.00065	200	600
Presidio Cleanup Levels for:								
Residential (unrestricted) land use (e,f)				1,380	1,900	18	400	22,000
Terrestrial ecological populations (e,f)				700	980	0.11	300	50
Special status species (f)				na	na	0.004	160	4 (j)
Freshwater Ecological Protection Zone for soil (e,g)				140	140	na	na	na
Water quality protection at DW standards (GW <5 feet) (e,f,g)				115	160	na	na	na
Water quality protection at DW standards (GW >5 feet) (e,f,g)				15,000	15,000	na	na	na
Site Preliminary Cleanup Goals (h)				115/ 140	140	0.004	na	138 (i)

Abbreviations:

"--" - not analyzed for this compound
<0.50 - Compound not detected at or above indicated laboratory detection limit
DW - drinking water
ESL - Environmental Screening Level
ft bgs - Feet below ground surface
GW - groundwater
mg/kg - Milligrams per kilogram
MIS - Multi-Increment Sample
na - not available
RWQCB - California Regional Water Quality Control Board, San Francisco Bay Region
TPH - Total Petroleum Hydrocarbons

Notes:

- (a) The analytical laboratory noted that heavier hydrocarbons were contributing to the diesel range quantitation.
- (b) The analytical laboratory noted that the chromatogram indicated an unknown hydrocarbon with a single peak, rather than a pattern indicative of diesel. EKI requested that K-Prime review the results for this sample to evaluate whether the detected hydrocarbon was likely of natural origins. After reviewing the chromatogram for sample Creek D, K-Prime determined that the hydrocarbons detected within the diesel range did not resemble typical synthetic hydrocarbons and were most likely of natural origins.
- (c) The analytical laboratory noted that the chromatogram indicated an unknown hydrocarbon with a several peaks, rather than a pattern indicative of heavy-range organics or motor oil.

TABLE 1
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS FOR COCS
Moss Beach Ranch

Rancho Corral de Tierra, Moss Beach, California

- (d) RWQCB ESL - Table A-1, Shallow Soil Screening Levels (≤ 3 m bgs), Residential Land Use, Groundwater is a current or potential drinking water resource, from *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final*, California Regional Water Quality Control Board, San Francisco Bay Region ("RWQCB"), November 2007 (revised May 2008). Value represents the lesser of residential direct exposure, urban ecological toxicity, gross contamination, and protection of water quality for both drinking water and aquatic toxicity.
- (e) Presidio cleanup levels from *Draft Development of Freshwater TPH-diesel and TPH-fuel oil Point of Compliance Concentrations, Presidio of San Francisco, San Francisco, California*, July 2004 (BBL, 2004).
- (f) Presidio cleanup levels from *Development of Presidio-Wide Cleanup Levels for Soil, Sediment, Groundwater, and Surface Water, Presidio of San Francisco, California*, October 2002 (EKI, 2002).
- (g) Presidio cleanup levels from RWQCB Order R2-2003-0080, Revised Site Cleanup Requirements and Rescission of Order No. 91-082 and Order No. 96-070 for the Property Located at the Presidio of San Francisco, City and County of San Francisco.
- (h) Preliminary Cleanup Goals ("PCGs") are based on the Presidio Cleanup Levels for special status species habitat areas for non-petroleum constituents (EKI, 2002) and freshwater protection zone values for petroleum constituents (RWQCB Order R2-2003-0080). The PCG for the Freshwater Ecological Protection Zone for TPH-diesel contamination in soil is 115 mg/kg where depth to groundwater is less than 5 feet and 144 mg/kg where groundwater is greater than 5 feet (BBL, 2004; EKI, 2002). Because of the close proximity to San Vicente Creek and the likely variable depth to groundwater in the Trailer Disposal Area, the more conservative PCG of 115 mg/kg is used. Groundwater in the Former Debris Area is assumed to be greater than 5 ft bgs; therefore, the PCG of 144 mg/kg is used.
- (i) The Presidio Cleanup Level for zinc is based on background levels at the Presidio, which are below background concentrations of zinc at the Site. Therefore, a site-specific background concentration for zinc in soil was calculated and will be used as the PCG (Appendix B).
- (j) Risk-based value is less than background, so the background concentration in soil is used as the cleanup level. Value shown is the risk-based value.
- (k) Laboratory reported that the relative percent difference between the primary and confirmatory analysis exceeded 40% and the lower value was reported by the laboratory.

References:

- BBL, 2004. *Draft Development of Freshwater TPH-diesel and TPH-fuel oil Point of Compliance Concentrations*, Presidio of San Francisco, San Francisco, California, Blasland, Bouck & Lee, Inc., 15 July 2004.
- EKI, 2002. *Development of Presidio-Wide Cleanup Levels for Soil, Sediment, Groundwater, and Surface Water*, Presidio of San Francisco, California, October 2002.
- RWQCB, 2003. Order R2-2003-0080, Revised Site Cleanup Requirements and Rescission Of Order No. 91-082 and Order No. 96-070 for the Property Located at the Presidio of San Francisco, City and County of San Francisco.

TABLE 2
SUMMARY OF WASTE CHARACTERIZATION SAMPLE ANALYTICAL RESULTS
Moss Beach Ranch
Rancho Corral de Tierra, Moss Beach, California

Area	Sample ID	Sample Type	Sample Date	Analytical Results (mg/kg, as received) (a)												
				TPH Diesel	TPH Motor Oil	Benzene	Toluene	Ethylbenzene	Xylenes (total)	Chlordane	Other Pesticides	Cadmium	Chromium	Lead	Nickel	Zinc
Trailer Disposal Area	TR-DISP	soil	2/28/2012	1,680	2,760	<0.00126	<0.00126	<0.00126	<0.00126	0.0526	ND	<2.5	25	7.94	15.8	70.3
Trailer Disposal Area	TR PAINT	paint chip	2/22/2012	--	--	--	--	--	--	--	--	--	--	4,430	--	--
Former Debris Area	FD-DISP	soil	2/28/2012	<10	<10	<0.00118	<0.00118	<0.00118	<0.00118	<0.050	ND	<2.5	33.5	7.55	38.5	54
Hazardous Waste Criteria (b)																
Total Threshold Limit Concentration (mg/kg)				na	na	na	na	na	na	2.5	na	100	2,500	1,000	2,000	5,000
Soluble Threshold Limit Concentration (mg/L)				na	na	na	na	na	na	0.25	na	1	5	5	20	250
10 x Soluble Threshold Limit Concentration (CA) (mg/kg)				na	na	na	na	na	na	2.5	na	10	50	50	200	2,500
20 x Toxicity Characteristic Leaching Procedure (RCRA) (mg/kg)				na	na	10	na	na	na	0.6	na	20	100	100	na	na

Abbreviations:

- "--" - not analyzed for this compound
- <0.50 - Compound not detected at or above indicated laboratory detection limit
- CA - California
- mg/kg - milligrams per kilogram
- mg/L - milligrams per liter
- na - not available
- STLC - Soluble Threshold Limit Concentration
- TCLP - Toxicity Characteristic Leaching Procedure
- TPH - Total Petroleum Hydrocarbons
- TTLC - Total Threshold Limit Concentration
- WET - Waste Extraction Test
- RCRA - Resource Conservation and Recovery Act

Notes:

- (a) The TTLC was not exceeded for soil samples and, therefore, soil from the Site is anticipated to be classified as non-hazardous waste if it is excavated and disposed of offsite. Lead was detected in a sample of paint chips flaking off of buried corrugated metal at a concentration in exceedance of the TTLC. It is anticipated that the corrugated metal and associated lead-based paint chips will be segregated from soil spoils and disposed of offsite as lead-containing construction debris
- (b) A solid waste is a California hazardous waste if the total concentration of a constituent exceeds its TTLC criterion or if the concentration of a constituent in the extract from a WET (22 CCR §66261, Appendix II) exceeds its STLC criterion. A solid waste is a RCRA hazardous waste due to the toxicity characteristic (40 CFR §261.24) if the concentration of a chemical in the extract from the TCLP exceeds the regulatory criterion for that chemical. Soil samples that exceed 10 times the STLC or 20 times the RCRA regulatory level potentially meet the definition of a hazardous waste. If the 10 times the STLC, and/or 20 times the TCLP criterion were exceeded for soil samples, WET and TCLP extractions are performed to verify the hazardous waste classification.

Table 3
Applicable or Relevant and Appropriate Requirements (ARARs)
Trailer Disposal and Former Debris Areas, Rancho Corral de Tierra
Moss Beach, San Mateo, County, California

ARAR	Citation	Description	ARAR Determination	Actions to be Taken ⁽²⁾
CHEMICAL-SPECIFIC ARARs AND TBCs				
Federal Chemical-Specific ARARs and TBCs				
Safe Drinking Water Act (SDWA)	42 USC § 300g-1	The National Contingency Plan (NCP) at 40 CFR §§300.43(e)(2)(i)(B)-(D) states that maximum contaminant level goals (MCLGs), established under the SDWA, that are set at levels above zero should be attained by remedial actions for surface water or groundwater that are current or potential sources of drinking water. For contaminants of concern (COCs) in groundwater that do not have MCLGs, or if the MCLGs have been set at zero, the remedial actions should achieve Maximum Contaminant Levels (MCLs).	Relevant and appropriate	Although no impacts to surface or groundwater are known, the planned cleanup is intended to be protective of water quality.
U.S. EPA Office of Superfund and Oak Ridge National Laboratory (ORNL) Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites	U.S. EPA and ORNL (July, 2008) (http://epa-prgs.ornl.gov/chemicals/index.shtml)	RSLs are risk-based concentrations which can be used to evaluate whether a chemical release may pose a risk that warrants further investigation. RSLs are not legally enforceable standards. They are used for site "screening" and should not be used as cleanup levels for a CERCLA site until the other remedy selections identified in the relevant portions of the National Contingency Plan (NCP), 40 CFR Part 300, have been evaluated and considered.	To be considered	The cleanup levels adopted for Rancho Coral de Tierra were developed using a risk-based approach similar to the development of RSLs. If a chemical is detected during remedial actions and no cleanup level was previously developed for the Presidio, the Water Board ESL or U.S. EPA RSL will be used as a screening concentration. If the concentrations are below the ESL or RSL, as applicable, no further action will be taken. If the ESL or RSL is exceeded by site concentration(s), EKI will discuss with POST and the NPS appropriate cleanup levels, likely the ESL or RSL.
California Toxics Rule (CTR)	33 USC §1313(c)(2)(B); 40 CFR §131.38(b)(1), (2)	The California Toxics Rule sets forth freshwater and saltwater criteria for a number of metals and chemical compounds.	Relevant and appropriate	Although no impacts to surface or groundwater are known, the planned cleanup is intended to be protective of water quality.
State Chemical-Specific ARARs and TBCs				
California Regional Water Quality Control Board, San Francisco Bay Region (Water Board), Water Quality Control Plan (Basin Plan) – Chapter 3: Water Quality Objectives	Porter-Cologne Water Quality Control Act promulgated under California Water Code § 13240-13241, Basin Plan, Chapter 3	Chapter 3 of the Basin Plan sets forth water quality objectives for surface water and groundwater.	Relevant and appropriate	Although no impacts to surface or groundwater are known, the planned cleanup is intended to be protective of water quality.
Domestic Water Quality and Monitoring Regulations	Cal. Health and Safety Code §11635, 22 CCR §§64431, 64432, 64432.1, 64432.2, 64444, 64444.5	These sections of the California Code of Regulations, part of the state water quality standards, establish MCLs for organic and inorganic chemicals in drinking water.	Relevant and appropriate	Although no impacts to surface or groundwater are known, the planned cleanup is intended to be protective of water quality.
Safe Drinking Water Act (SDWA)	Cal. Health and Safety Code § 116375, 22 CCR § 64449	This section of the SDWA establishes secondary MCLs for chemicals in drinking water that adversely affect its odor, taste, or appearance. They are desirable goals and are not enforceable.	Relevant and appropriate	Although no impacts to surface or groundwater are known, the planned cleanup is intended to be protective of water quality.
State Water Resources Control Board (SWRCB) Resolution No. 88-63	Porter-Cologne Water Quality Control Act promulgated under California Water Code § 13140	The resolution states that all surface and groundwaters of the State are considered to be suitable, or potentially suitable, for municipal or domestic water supply, unless the surface or groundwaters contain total dissolved solids ("TDS") in excess of 3,000 milligrams per liter ("mg/L"), the waters contain high levels of contamination, or the water source does not provide sufficient water to supply a well capable of producing 200 gallons per day.	Relevant and appropriate	Although no impacts to surface or groundwater are known, the planned cleanup is intended to be protective of water quality.

Table 3
Applicable or Relevant and Appropriate Requirements (ARARs)
Trailer Disposal and Former Debris Areas, Rancho Corral de Tierra
Moss Beach, San Mateo, County, California

ARAR	Citation	Description	ARAR Determination	Actions to be Taken ⁽²⁾
Water Board Order No. R2-2003-0080, Revised Site Cleanup Requirements and Rescission of Order No. 91-082 and Order No. 96-070. 96-070; U.S. Army Corps of Engineers (USACE), Fuel Product Action Level Development Report (FPALDR), Final, Oct. 1995 (soil cleanup levels)	Porter-Cologne Water Quality Control Act promulgated under California Water Code	Order No. R2-2003-0080 for the Presidio includes soil cleanup levels for petroleum hydrocarbons and a number of petroleum-related constituents including carcinogenic and noncarcinogenic polynuclear aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, xylenes (BTEX), methyl tert-butyl ether (MTBE), and lead: soil cleanup levels for the protection of human health (Table 1); soil cleanup levels for the protection of ecological receptors (Table 2); soil cleanup levels for the protection of water quality at detectable levels (Table 3); soil cleanup levels for the protection of water quality at drinking water standards (Table 4); and soil cleanup levels for Crissy Field (Table 5).	To be considered	The cleanup levels for petroleum hydrocarbons and related constituents in soil at the Site are consistent with Board Order R2-2003-0080 Site Cleanup Requirements for the Presidio.
		Order No. R2-2003-0080 also includes point-of-compliance concentrations for soil and water for petroleum hydrocarbons, BTEX, and/or MTBE for the saltwater protection zone of the Presidio (Table 6) and the proposed freshwater stream (Table 7).		Although no impacts to surface or groundwater are known, the planned cleanup is intended to be protective of water quality.
		Order No. R2-2003-0080 also specifies that groundwater cleanup levels shall meet drinking water standards (i.e. MCLs) using EPA/California MCLs as a basis.		Although no impacts to surface or groundwater are known, the planned cleanup is intended to be protective of water quality.
Water Board Environmental Screening Levels (ESLs)	Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May 2008	ESLs can be used to evaluate whether a chemical release may pose a risk that warrants further investigation. ESLs are not legally enforceable standards. They are used for site "screening".	To be considered	The cleanup levels adopted for Rancho Coral de Tierra were developed using a risk-based approach similar to the development of ESLs. If a chemical is detected during remedial actions and no cleanup level was previously developed for the Presidio, the Water Board ESL or U.S. EPA RSL will be used as a screening concentration. If the concentrations are below the ESL or RSL, as applicable, no further action will be taken. If the ESL or RSL is exceeded by site concentration(s), EKI will discuss with POST and the NPS appropriate cleanup levels, likely the ESL or RSL.
LOCATION-SPECIFIC ARARs AND TBCs				
Federal Location-Specific ARARs and TBCs				
National Historic Preservation Act (NHPA)	16 USC §§ 470-470x-6; 36 CFR §§ 800.1-.16, 60.2 (effect of listing in National Register), 65.2 (effect of designation as National Historic Landmark), 68.1-4 (Dept. of Interior [DOI] standards for historic property projects assisted by the National Historic Preservation Fund)	NPS has not made a determination yet whether the Site is eligible to be listed as a National Historical Landmark under NHPA. NPS is using conservative approach in making this relevant and appropriate ARAR.	Relevant and appropriate	NPS NHPA compliance review determined that no historic structures will be affected by this project.
Archeological Resources Protection Act (ARPA)	16 USC §§ 470aa-470mm; 43 CFR §§ 7.1-.37 (DOI regulations for protection of archeological and historical resources)	ARPA prohibits excavation of, damage to, or destruction of archeological resources on public lands without a permit issued by the federal land manager.	Applicable	Although no impacts to cultural and archeological resources are expected, an NPS Archeologist will be on site to monitor the cleanup activities so no impacts occur.
Federal Endangered Species Act (ESA)	16 USC §§ 1531(c)(1); 1532; 1533(d); 1536(a)-(d), (g), (h); 1538(a)(1)(B), (a)(1)(G), (a)(2)(B), (a)(2)(E); 1539(a), (c), (d); 1540(a)-(c); 50 CFR §§ 11.1-11.26, 13.1-13.29, 402.01-402.16, 424.01-424.21	Under the ESA, federal agencies must make sure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or cause the destruction or adverse modification of their habitat.	Applicable	NPS will enter into a formal consultation with U.S. Fish and Wildlife Service to ensure protection of the threatened and endangered species. Site activities will not be initiated until such consultation is complete. Requirements from the consultation shall be implemented during the cleanup activities.

Table 3
Applicable or Relevant and Appropriate Requirements (ARARs)
Trailer Disposal and Former Debris Areas, Rancho Corral de Tierra
Moss Beach, San Mateo, County, California

ARAR	Citation	Description	ARAR Determination	Actions to be Taken ⁽²⁾
Archeological and Historic Preservation Act (AHPA)	16 USC §§ 469–469c-2; 43 CFR §§ 7.1-3.7 (DOI regulations for protection of archeological and historic resources)	AHPA requires federal agencies, prior to engaging in activities that could cause irreparable loss of scientific, prehistorical, historical, or archeological data, to notify the Secretary of the Interior of the threatened data and the proposed activities, and to preserve the data or request that the Secretary do so. The DOI must conduct a survey and recovery effort if it finds the data are significant and may be irrevocably lost without such action.	Applicable	Although no impacts to archeological resources are expected, an NPS Archeologist will be on site to monitor the cleanup activities so no impacts occur. A preliminary survey has been completed and no archeological resources were found.
Migratory Bird Treaty Act	16 USC §§ 703–708; 50 CFR §§ 10.12, 10.13	The Act prohibits the taking of migratory birds, their nests and their eggs, unless permitted by the Secretary of the Interior.	Applicable	Although no impacts to migratory birds are expected, the planned cleanup will happen during non-breeding season to limit any impacts. In addition, an NPS biological monitor will be on site so no impacts occur.
National Park Service (NPS) Organic Act	16 USC §§ 1 et seq.	The NPS Organic Act is intended to protect and conserve park resources and to provide for the enjoyment of those resources in a manner that will leave them unimpaired for future generations. The Act requires NPS to administer use of national parkland in a manner that conserves the scenery and natural and historic objects and wildlife therein. Also, Section 19jj states that a person who destroys, causes the loss of, or injures any park system resource is liable to the U.S. for response costs and damages.	Applicable	POST will protect park resources in accordance with the NPS Organic Act while performing remedial activities.
Golden Gate National Recreation Area (GGNRA) Act	16 USC § 460bb–460bb-5, purposes of Section 1	Among the purposes stated in Section 1 of the GGNRA Act are to preserve the recreation area, to the degree possible, in its natural setting, and protect it from development and uses that would destroy the scenic beauty and natural character of the area.	Applicable	POST will protect the scenic beauty and natural character of the area during remedial activities. The cleanup actions will be consistent with the GGNRA Act.
NPS Management Policies 2006	16 USC § 460bb–460bb-5 Sections 4.4.1 (General Principles for Managing Biological Resources), 4.4.1.2 (Genetic Resource Management Principles), 4.4.2.2 (Restoration of Native Plant and Animal Species), 4.4.2.4 (Management of Natural Landscapes), 4.4.2.5 (Maintenance of Altered Plant Communities), 4.4.4 (Management of Exotic Species), 4.4.4.2 (Removal of Exotic Species Already Present)	The GGNRA Act as a whole contains other general directives. The NPS management policies contain Natural Resource Management preservation policies aimed at maintaining park natural resources in an unimpaired condition. The NPS Management Policies are to be considered for the Site.	Applicable To be considered	POST will protect park resources in accordance with the NPS Management Policies during remedial activities.
State Location-Specific ARARs and TBCs				
California Endangered Species Act (CESA)	Cal. Fish & Game Code §§ 2053–2054, 2081, 2080.1, 2081.1; 14 CCR §§ 670.2, 670.5, 783.1-783.6; Cal. Fish & Game Code § 2014	The California ESA provides authority similar to the Federal ESA for the protection of threatened and endangered species listed by the State. Two California endangered or threatened species have been recorded in the vicinity of the Site and include San Francisco Garter Snake and Red-legged frog. Both are also listed and protected under the Federal ESA.	Applicable	NPS will enter into a formal consultation with U.S. Fish and Wildlife Service to ensure protection of the threatened and endangered species. Site activities will not be initiated until such consultation is complete. NPS will enter into a formal consultation with U.S. Fish and Wildlife Service to ensure protection of the threatened and endangered species. Site activities will not be initiated until such consultation is complete. Requirements from the consultation shall be implemented during the cleanup activities.

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Moss Beach, San Mateo, County, California

ARAR	Citation	Description	ARAR Determination	Actions to be Taken ⁽²⁾
California Fish & Game Code regarding protection of birds, mammals, reptiles, or amphibia	Cal. Fish & Game Code §§ 3503, 3503.5, 3511, 3513; 14 CCR § 747	The California Fish & Game Code prohibits taking, possessing, or destroying certain birds, their nests, and their eggs; mammals; reptiles; or amphibia. Migratory birds may be present at the Site. The red-legged frog and San Francisco garter snake may be present at the site. Remedial actions that include removal of vegetation and excavation of soil may require additional review.	Applicable	Although no impacts to migratory birds are expected, the planned cleanup will happen during non-breeding season to limit any impacts. In addition, an NPS biological monitor will be on site to monitor activities. With regard to the red-legged frog and the San Francisco garter snake, NPS will enter into a formal consultation with U.S. Fish and Wildlife Service to ensure protection of the threatened and endangered species. Site activities will not be initiated until such consultation is complete. NPS will enter into a formal consultation with U.S. Fish and Wildlife Service to ensure protection of the threatened and endangered species. Site activities will not be initiated until such consultation is complete. Requirements from the consultation shall be implemented during the cleanup activities.
ACTION-SPECIFIC ARARs and TBCs				
Federal Action-Specific ARARs and TBCs				
Resource Conservation and Recovery Act (RCRA)	40 CFR §§260-299; Subtitle C (hazardous waste requirements); State of California citation: Cal. Health & Safety Code, Title 22	RCRA is the primary federal law governing the disposal of hazardous and non-hazardous or municipal solid waste passed by Congress in 1976 and amended in 1984 by Hazardous and Solid Waste Amendments (HSWA). RCRA Subtitle C sets standards for the classification of hazardous waste, and requirements governing handling, management, transportation, treatment, and off-site disposal of these wastes.	Applicable	RCRA applies to moving waste materials. Hazardous waste management efforts at the sites will be performed in accordance with RCRA, with review, approval, and oversight by NPS.
Clean Water Act (CWA)	33 USC §1342	Section 402 of the CWA regulates discharges of pollutants under the National Pollutant Discharge Elimination System (NPDES). The storm water discharges program is regulated by the State Water Board for certain municipal, industrial, and construction storm water discharges through NPDES permits. NPDES permits include requirements to prevent or reduce discharges of pollutants that cause or contribute to violations of water quality objectives.	Relevant and appropriate	Any construction storm water discharges will use controls to reduce pollutant loads in storm water in order to prevent violations of water quality objectives.
State Action-Specific ARARs and TBCs				
Land Use Covenants on Federal Property	CCR tit. 22 § 67391.1(e)	This Code provides that whenever the Department of Toxic Substances Control determines that it is not feasible to record a land use covenant for property owned by the federal government, such as transfers from one federal agency to another, the Department and federal government shall use other mechanisms to ensure that future land use will be compatible with the levels of hazardous materials, hazardous wastes or constituents, or hazardous substances which remain on the property. Examples include: amendments to the federal government facility master plan, physical monuments, or agreements between the federal government facility and the Department.	Relevant and appropriate	The removal action is intended to remediate COCs to unrestricted land use, such that land use covenants shall not be needed at the Site.
Basin Plan - Chapter 4: Effluent Limitations	Porter-Cologne Water Quality Control Act promulgated under California Water Code § 13240-13241, Basin Plan, pages 4-8 to 4-11	Limitations to construction-related storm water discharges are described in this provision.	Relevant and appropriate	Any remediation-related storm water discharges will use controls to reduce pollutant loads in storm water in a manner that will not adversely impact groundwater or surface water, in accordance with the Basin Plan. BMPs will be implemented in accordance with the GGNRA SWMP BMP Handbook.

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-- Surface Water Protection	Porter-Cologne Water Quality Control Act promulgated under California Water Code, § 13240-13241, Basin Plan pp. 4-28, 4-32, 4-40 to 4-41	Surface Water Protection and Management through nonpoint source control is regulated by the Water Board. Under the Construction General Permit 2010-014-DWQ, the Water Board requires a Notice of Intent (NOI) to be filed prior to construction, a Storm Water Pollution Prevent Plan (SWPPP) to be prepared and implemented, and a Notice of Termination to be filed upon construction completion for construction activities involving disturbance of one acre or greater total land. Permit conditions address pollutant and waste discharges occurring during construction activities and the discharge of pollutants in runoff after construction. The Erosion and Sediment Control program establishes guidelines for the regulation of erosion and sedimentation for the protection of beneficial uses of water due to the impairment by sediment.	Relevant and appropriate	Erosion control measures such as jute netting, silt fencing, and straw wattles will be implemented and SWPPs will be prepared and implemented as part of the remedial actions, as necessary, in accordance with the Basin Plan. A NOI is not required if the construction area is less than 1 acre.
Hazardous Waste Requirements - Generation, Transport, and Disposal Regulations	State of California citation: Cal. Health & Safety Code §§ 25100–25249, 25250–25250.26, 25260–25929; 22 CCR §§ 66260.1–68500.35. Federal citation: 42 USC §§ 6901–6991i; 40 CFR Parts 260–282. §§ 25100-25166.5, 25179.1–.12 (land disposal restrictions [LDRs]), 25244–25244.24 (waste reduction and recycling); 22 CCR §§ 66260.10–66262.41, 66264.1–.172, 66265.16–199; 66268.10–.44, .105–113 (LDRs + treatment standards); 49 CFR Parts 172, 173, 178, 179 (transportation) [incorporated by reference]	Pursuant to 42 USC § 7926, the State of California is authorized to implement the federal Resource Conservation and Recovery Act (RCRA) Program. Federal statutes may apply to areas not covered by the state program, or where incorporated by reference.	Applicable	All hazardous wastes generated from the remedial activities at the sites will be stored, handled, transported, and disposed in accordance with the pertinent provisions of these requirements. POST will also comply with requirements for proper manifesting and recordkeeping.
Solid (Nonhazardous) Waste Requirements	Cal. Pub. Res. Code §40000-40201, 43000-44820; 27 CCR §§ 20005-20278	These requirements govern off-site disposal of nonhazardous solid waste and closure and post closure of solid waste management units.	Relevant and appropriate	The transport and disposal of nonhazardous waste generated from the remedial activities will be performed in accordance with the pertinent sections of Title 27.
Federal Clean Air Act (CAA), certain Bay Area Air Quality Management District (BAAQMD) Regulations	BAAQMD Regulations (see citations below)	Implementation of federal Clean Air Act requirements has been delegated, in part, to the State of California. The BAAQMD is the local implementing agency. Where BAAQMD requirements have been incorporated into the State Implementation Plan (SIP) and approved by EPA, they are federally-enforceable. Where BAAQMD requirements have not been incorporated into the SIP and approved by EPA, they are not federally enforceable.	Relevant and appropriate	Remedial actions at the site will be conducted in accordance with the substantive requirements of the cited BAAQMD regulations.
	BAAQMD Regulation 6	Regulation 6 limits emissions of particulates. Regulation 6 is not SIP-approved and is not a federally enforceable requirement.	Relevant and appropriate	Excavation activities at the site may result in particulate emissions. Dust suppression measures will be implemented during the remedial activities at the sites in compliance with the pertinent provisions of these rules.
California prohibitions on polluting waters of the State	Cal. Fish & Game Code § 5650	Cal. Fish & Game Code § 5650(a) prohibits depositing enumerated substances, including “any substance or material deleterious to fish, plant life, or bird life” into the waters of the state.	Relevant and appropriate	POST will implement erosion control measures such as jute netting, silt fencing, and straw wattles, as necessary, to contain runoff from the work areas so that site soils are not transported to waters of the state in accordance with this requirement.
California restrictions on means of taking birds or mammals	Cal. Fish & Game Code § 3005	Section 3005 of the Cal. Fish & Game Code prohibits taking birds or mammals with “any net, pound, cage, trap, set line or wire, or poisonous substance, or to possess birds or mammals so taken,” except as provided in the Fish & Game Code.	Relevant and appropriate	Although considered an unlikely event, if remedial actions at the sites involve the “take” of any bird or mammal, POST will comply with the substantive requirements of this section.

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Underground Storage Tank (UST) Regulations	California Code of Regulations, Title 23, Chapter 16, Article 11	UST regulations protect waters of the state from discharges of hazardous substances from USTs.	Relevant and appropriate	No USTs are known to be present at the site. Although not anticipated, if remedial actions involve the removal of a UST, POST will comply with the substantive requirements of these regulations.
San Francisco Bay Water Board UST Program	California Health and Safety Code, Division 20, Chapters 6.7 and 6.75	The San Francisco Bay Water Board UST Program gives local agencies the authority to oversee investigation and cleanup of UST leak sites.	Relevant and appropriate	No USTs are known to be present at the sites. Although not anticipated, if remedial actions involve the removal of a UST, POST will coordinate with the Local Oversight Program (LOP) regarding the substantive requirements for UST removal and closure.