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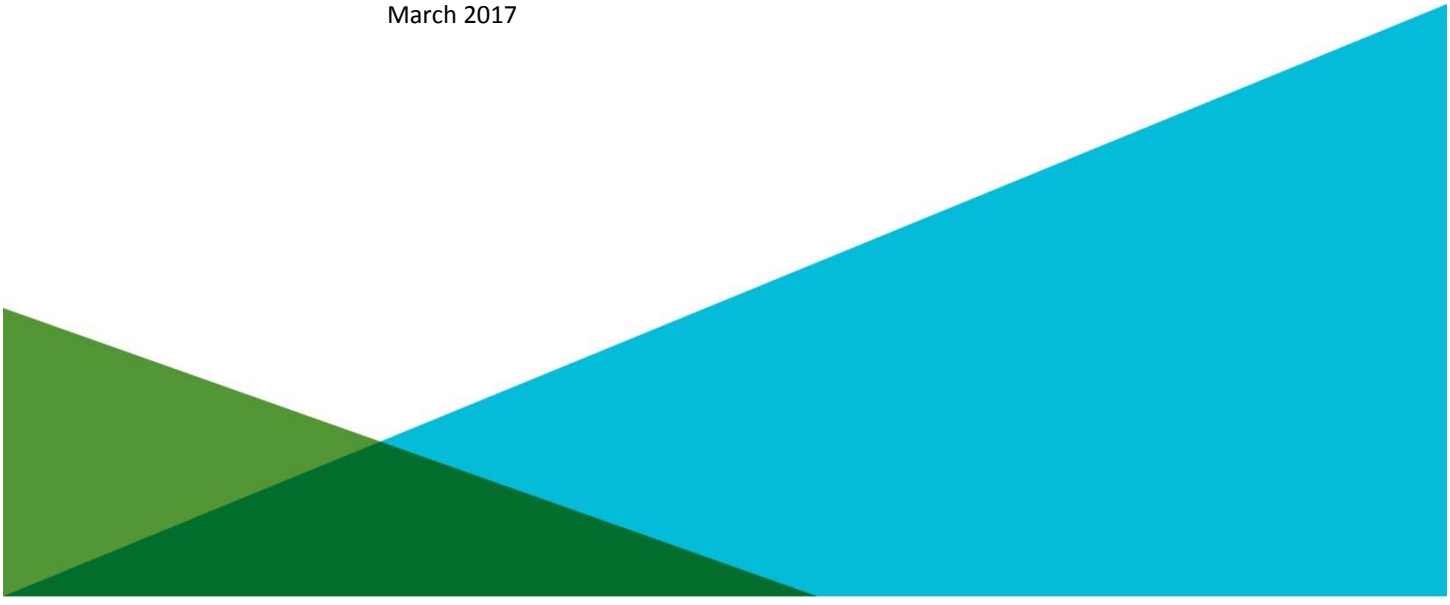
SOIL MANAGEMENT PLAN – APNS 946-1250-64 & 946-1350-3-12
FORMER HANSON AGGRGATES RADUM SITE
PLEASANTON, CALIFORNIA

by Haley & Aldrich, Inc.
Walnut Creek, California

for USL Pleasanton Lakes, L.P./SteelWave
Foster City, California

File No. 39792-707
March 2017



USL Pleasanton Lakes, L.P.

April 7, 2017

Kit Soo, PG
Senior Hazardous Materials Specialist
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Subject: Soil Management Plan – APNs 946-1250-6-4 & 946-1350-3-12
Former Hanson Aggregates Radum Facility
Pleasanton, California
(ACDEH VRAP Case No. RO0003228)

Dear Ms. Soo:

The enclosed *Soil Management Plan – APNs 946-1250-6-4 & 946-1350-3-12,* dated 29 March 2017, was prepared by Haley & Aldrich, Inc. on behalf of USL Pleasanton Lakes, L.P. for the Former Hanson Aggregates Radum Facility located at 3000 Busch Road, Pleasanton, California. This *Soil Management Plan* is being submitted pursuant to the Voluntary Remedial Action Agreement established for this site under Alameda County Department of Environmental Health Case Number RO0003228.

I certify under penalty of law that this document and all attachments are prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely yours,
USL PLEASANTON LAKES, L.P.

John W. Enerson

Enclosures

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Walnut Creek, CA 94596
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29 March 2017
File No. 39792-707

Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, California 94502

Attention: Kit Soo, P.G.
Senior Hazardous Materials Specialist

Subject: Soil Management Plan – APNs 946-1250-6-4 & 946-1350-3-12
Former Hanson Aggregates Radum Facility
Pleasanton, California
(ACDEH VRAP Case No. RO0003228)

Dear Ms. Soo:

On behalf of USL Pleasanton Lakes, L.P. (USL Pleasanton), Haley & Aldrich, Inc. (Haley & Aldrich) is pleased to submit this *Soil Management Plan* for Alameda County Assessor Parcel Numbers (APNs) 946-1250-6-4 and 946-1350-3-12, which are contained within the Former Hanson Aggregates Radum Facility located at 3000 Busch Road, Pleasanton, California. Haley & Aldrich prepared this *Soil Management Plan* as requested by Alameda County Department of Environmental Health (ACDEH) to provide guidance for the management of soils to be handled as part of the anticipated development activities, if entitled and permitted, for these two APNS. This *Soil Management Plan* is being submitted to ACDEH to replace Haley & Aldrich's previous *Soil Management Plan*, dated 19 October 2016, and has been developed in conjunction with Haley & Aldrich's *Closure Plan*, dated 29 March 2017.

If you have any questions, please contact either of the undersigned.

Sincerely yours,
HALEY & ALDRICH, INC.

Jason Grant, P.E.
Project Manager

Voytek Bajsarowicz
Senior Associate

Enclosures

c: USL Pleasanton Lakes, L.P.; Attn: Steven M. Dunn
Reis Services; Attn: Debbie Patterson
Alameda County Department of Environmental Health; Attn: Dilan Roe

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1. Introduction

Haley & Aldrich, Inc. (Haley & Aldrich) prepared this *Soil Management Plan – APNs 946-1250-6-4 & 946-1350-3-12, Former Hanson Aggregates Radum Facility, Pleasanton, California (Soil Management Plan)* on behalf of USL Pleasanton Lakes, L.P. (USL Pleasanton) for Alameda County Assessor Parcel Numbers (APNs) 946-1250-6-4 and 946-1350-3-12, which are contained within the Former Hanson Aggregates Radum Facility located at 3000 Busch Road, Pleasanton, California. This *Soil Management Plan* was requested by Alameda County Department of Environmental Health (ACDEH) as USL Pleasanton is seeking regulatory closure for these two APNs under the ACDEH Voluntary Remedial Action Program (VRAP) Case No. RO0003228. As documented in Haley & Aldrich's *Closure Plan – APNs 946-1250-6-4 & 946-1350-3-12, Former Hanson Aggregates Radum Facility, Pleasanton, California (Closure Plan)*, dated 29 March 2017, impacted soil conditions are present within these two APNs that require removal to obtain regulatory closure and approval from ACDEH for USL Pleasanton's anticipated development plans, if entitled and permitted. Presented within this document are procedures to be followed to properly remove known impacted soil conditions and to also address unknown features or suspected conditions of concern that may be encountered during the development activities.[1]

1.1 FORMER AGGREGATES FACILITY HISTORY

The Former Hanson Radum Aggregates Facility (Former Aggregates Facility) is comprised of a total of approximately 1,200 acres, of which about 320 acres is dry land and 700 acres is lakes and ponds (Figure 1). Beginning in 1938, aggregate mining operations were initiated at this facility by Kaiser Sand and Gravel under Surface Mining Permit (SMP) 31. These mining operations included excavating areas to remove the aggregate, and then backfilling the mined areas with rubble, debris and/or mine waste, or for use as disposal ponds for water, silt and the aggregate washing operations. In 1991, Hanson Aggregates purchased the facility and continued the mining operations through 2001, at which time the aggregate resource was considered depleted.

Following the cessation of the mining operations, the Former Aggregates Facility was purchased in September 2007 by Legacy Pleasanton Land, LLC. This purchase included the entire Former Aggregates Facility, except for a 16.5-acre portion located adjacent and behind the current 7-acre Pleasanton Garbage Services transfer station. During the Fourth Quarter 2010, Legacy Pleasanton Option Land, LLC, purchased the 16.5-acre portion. In the Third Quarter 2012, USL Pleasanton foreclosed on the Former Aggregates Facility, except for the 16.5-acre portion. Subsequently, on 1 January 2013, Legacy Pleasanton Option Land, LLC contributed its 16.5-acre portion of land into a joint venture partnership with USL Pleasanton.

USL Pleasanton currently owns the approximately 320 acres of land contained with the Former Aggregates Facility. The 700 acres of lakes and ponds include Lake I and Cope Pond, which are currently owned by Alameda County Flood Control and Water Conservation District – Zone 7 (Zone 7), and Lake H, which is currently owned by Pleasanton Gravel Company, but contracted to imminently transfer to Zone 7. USL Pleasanton has and retains stormwater discharge rights to Cope Pond for this land's current use and ultimate development, upon entitlement and permitting.

[1] This *Soil Management Plan* is being submitted to ACDEH to replace Haley & Aldrich's previous *Soil Management Plan*, dated 19 October 2016, which was enclosed as Appendix C to Haley & Aldrich's *Draft Closure Plan*, dated 21 February 2017.

The table below provides a summary of the 23 APNs contained within the Former Aggregates Facility, along with their current owners, and identifies whether these APNs are within the boundaries of the City of Pleasanton or County of Alameda lands. Figure 2 shows the locations of the 23 APNs within the Former Aggregates Facility.

Former Aggregate Facility APNs and Current Ownership

APN	Current Owner	City or County Land
946-1128-4-4	USL Pleasanton	County of Alameda
946-1250-6-4		County of Alameda
946-1250-7-6		City of Pleasanton
946-1250-19-5		City of Pleasanton
946-1251-7-2		City of Pleasanton
946-1350-3-8		City of Pleasanton
946-1350-3-12		County of Alameda
946-1128-4-6	Zone 7	County of Alameda
946-1128-5		County of Alameda
946-1128-6-1		County of Alameda
946-1151-1-3		County of Alameda
946-1151-11-6		County of Alameda
946-1250-6-5		County of Alameda
946-1250-41		County of Alameda
946-1350-1		County of Alameda
946-1350-3-3		City of Pleasanton
946-1350-3-9		County of Alameda
946-1350-3-10		County of Alameda
946-1350-3-13		County of Alameda
904-1-2-5	Pleasanton Gravel	County of Alameda
904-1-4-2		County of Alameda
904-1-7-8		County of Alameda
904-1-7-18		County of Alameda

1.2 FORMER AGGREGTES FACILITY REGULATORY OVERSIGHT

The Former Aggregates Facility receives regulatory oversight from ACDEH, the Alameda County Community Development Agency (ACCDA), and the Livermore-Pleasanton Fire Department (LPFD).

1.2.1 Alameda County Department of Environmental Health

ACDEH is providing oversight of the environmental concerns related to potential releases to soil and groundwater that may have resulted from the former mining operations. Environmental investigation activities began in 2006, which resulted in identifying the following nine Areas of Concern (AOCs):

- AOC1 – Former Asphalt Plant;
- AOC 2 – Idle Truck Maintenance Area;

- AOC 3 – Heavy Equipment Maintenance and Wash Rack Area;[2]
- AOC 4 – Former Concrete Batch Plant Area;
- AOC 5 – Former Mining Operation Area;
- AOC 6 – Storm Water Retention Pond ("Busch Pit");
- AOC 7 – PEC Identified by Temporary Soil Boring SS31;
- AOC 8 – PEC Identified by Temporary Soil Boring SS123; and
- AOC 9 – Vulcan Materials Company Storm Water Runoff Area.

The approximate locations and boundaries of these nine AOCs are shown on Figure 3, and the table below identifies the five APNs that contain these AOCs.

Former Aggregate Facility APNs and AOCs

APN	AOCs
946-1250-19-5	AOCs 1 & 2
946-1350-3-8	AOCs 2, 3, 4, 5*, 8* & 9*
946-1250-7-6	AOC 3
946-1250-6-4	AOC 6
946-1350-3-12	AOC 7

Note: * - A portion of AOC 5 and all of AOCs 8 and 9 are not within the City of Pleasanton's Urban Growth Boundary.

ACDEH's oversight is separated into the following three regulatory cases:

- GeoTracker Case No. RO0002941, Hanson Aggregates Radum Plant (SLT19719376) – established for AOC 1;
- GeoTracker Case No. RO0002952, Hanson Aggregates Legacy Radum Facility (SL0600101555) – originally established for AOCs 2 through 9, however, was revised to remove AOCs 6 and 7; and
- GeoTracker Case No. RO0003228, USL Pleasanton Lakes (T10000009398) – established for AOCs 6 and 7.

Further information regarding the status of the Former Aggregate Facility's AOCs and related regulatory cases are provided in Haley and Aldrich's *Summary of Environmental Status, Former Hanson Aggregates Radum Site, Pleasanton, California*, dated 20 February 2017.

1.2.2 Alameda County Community Development Agency

ACCDA is providing oversight of the Reclamation Plan being implemented on the Former Aggregates Facility under SMP 31. Activities conducted as part of this Reclamation Plan has included the reuse of soil stockpiles generated from the previous mining operations to level the ground surface in order to prevent depressions where surface water could pond and to also facilitate drainage in to Cope Pond. In

[2] AOC 3 was previously also associated with the potential environmental concern (PEC) identified by temporary soil boring EB-35. However, further investigation of this boring location revealed the PEC is related to a subsurface asphalt layer and not a former feature included within the heavy equipment maintenance and wash rack area.

addition, the previously existing storm water retention pond identified as Busch Pit was backfilled with approximately 367,000 cubic yards of on-site soil obtained from an adjacent stockpile generated from the previous mining operations. Per the SMP 31 Reclamation Plan, the land within the Former Aggregates Facility was hydroseeded to mitigate erosion and is currently being monitored to ensure compliance with this plan.

1.2.3 Livermore-Pleasanton Fire Department

LPFD, the Certified Unified Program Agency (CUPA), with assistance from ACDEH, provided oversight of the facility closure activities conducted on the mining operation's former features that were contained within the Former Aggregates Facility. The facility closure activities were performed in 2013 and 2014, and included the following activities:

- Abatement of hazardous building materials (i.e., asbestos-containing materials [ACM], lead-based paint [LBP], and other hazardous or potentially hazardous materials);
- Demolition and removal of the following structures: idle truck maintenance shop and associated fuel lines; heavy equipment maintenance shop; office buildings; plant lube storage shed/warehouse; electrical transformers; concrete batch plant; rock crusher; aboveground waste oil tank; concrete pads and footing; asphalt paving; underground storage tanks (USTs) and associated piping and fuel dispenser island; wash rack and associated piping; oil/water separator; septic tank and associated clay pipes and leach field; former rod mill; truck scale; and underground cistern and associated conveyor tunnel;
- Collection of soil samples to assess and characterize the existing conditions, and determine whether further excavation was warranted to mitigate impacted conditions;
- Off-site transportation and disposal of impacted soil; and,
- Backfilling of the areas excavated during the demolition and removal activities using a mixture of soil stockpiles generated from the previous mining operations, clean excavated material and select sand from the adjacent Vulcan Materials Company Quarry.

Reports documenting the facility closure activities are available for review in the GeoTracker Case Nos. RO0002941 and RO0002952. The facility closure was approved of by the LPFD on 1 April 2016.

1.3 APNS INCLUDED IN SOIL MANAGEMENT PLAN – THE "SITE"

If entitled and permitted, USL Pleasanton is planning the development of the entire Former Aggregates Facility. In order to initiate these development plans, USL Pleasanton is seeking regulatory closure for APNs 946-1250-6-4 and 946-1350-3-12 under ACDEH VRAP Case No. RO0003228. For the purposes of this *Soil Management Plan*, these two APNs are collectively referred to as the "Site" (see Figure 3). As part of their closure evaluation, ACDEH requested USL Pleasanton prepare this *Soil Management Plan* to specify procedures to be followed to remove the Site's known impacted soil conditions and to also address unknown features or suspected conditions of concern that may be encountered during the development activities.

2. Background

Presented below is a summary of the results of the environmental investigations performed within the boundaries of the Site. This summary focuses on the Site's remaining area of concern, EB-35, which will need to be mitigated to obtain regulatory closure from ACDEH. Further information regarding the complete results of the previous environmental investigation activities performed within the boundaries of the Site are summarized in Haley & Aldrich's *Closure Plan*.

2.1 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

The Site has undergone a series of environmental investigations to evaluate potential concerns associated with the former mining operations. The investigation activities were performed to both evaluate areas suspected to contain potential environmental concern based on the former mining operations, and also to provide a general evaluation of the soil and groundwater conditions present following the cessation of the mining operations. ACDEH was the lead regulatory agency overseeing these investigations.

Environmental investigation activities were performed on the Site between 2006 and 2008, and included the following four sampling events:[3]

- May 2006: a limited subsurface investigation was conducted that included the collection of sediment and surface water samples from the bottom of the storm water retention pond previously known as Busch Pit;
- November 2006: a Phase II Environmental Site Assessment (ESA) was conducted that included the collection of additional sediment and surface water samples from the bottom of Busch Pit, and also investigated two areas of potential environmental concern, with one soil sample collected at the location of a former electrical transformer and a second soil sample collected at a former storm water runoff discharge point to Cope Pond;
- February 2007: a due diligence environmental sampling program was conducted that included five borings advanced within the boundaries of the Site and one additional targeted boring location to investigate potential downgradient migration from an impacted area of concern, with soil and groundwater samples collected to provide an evaluation of the subsurface conditions; and,
- October 2007: a step-out soil boring sampling program was conducted based on previously identified potential areas of environmental concerns, which included for the Site two of the February 2007 boring locations, and additional sediment samples were collected from Busch Pit; this sampling program established the locations and concerns for AOCs 1 through 9.

The above environmental investigations included the collection of soil, sediment and groundwater samples, with the analytical results revealing environmental concerns based on a comparison against 2007 Environmental Screening Levels (ESLs) established by the San Francisco Bay Regional Water Quality Control Board (RWQCB). Figure 4 shows the locations of the environmental samples collected as part of

[3] Summary below is for sampling within the boundaries of the Site. The listed investigations included additional sampling at locations outside the Site and within the Former Aggregate Facility.

these previous investigation activities. The initial evaluation of the previous investigation results established AOC 6 for area of the former Busch Pit storm water retention pond and AOC 7 for the area surrounding boring SS31. Further evaluation of these two AOC's analytical results against the current 2016 ESLs[4] indicates no potential risk to human health or the environment, and therefore, these two AOCs have been addressed and require no further investigation or remedial measures. The previous environmental investigation results did identify one remaining area of concern associated with a shallow soil petroleum hydrocarbon impact in the vicinity of boring EB-35.

2.2 EB-35 AREA OF CONCERN[5]

The February 2007 investigation activities included one boring location, EB-35, drilled to investigate potential downgradient migration from an impacted subsurface zone discovered during the November 2006 Phase II ESA. The November 2006 investigation activities conducted on APN 946-1250-19-5 included drilling 13 borings to evaluate the extent a heavy, viscous, black, free phase petroleum product encountered at a depth of approximately 33 to 40 feet below ground surface (bgs).[6] In February 2007, boring location EB-35 was drilled on APN 946-1350-3-12 to evaluate potential downgradient migration from this impacted subsurface zone. Five discrete soil samples were collected from EB-35 at depths down to 40 feet bgs and one grab groundwater sample was collected. A summary of the environmental investigation and results for this boring is provided in Tables 1A, 1B and 1C. As indicated in these tables, although the deeper soil and groundwater samples collected did not reveal potential downgradient migration from the 33 to 40 feet bgs impacted zone, a shallow soil sample collected from EB-35 at 2 feet bgs contained total petroleum hydrocarbons as diesel (TPHd) and as motor oil (TPHmo) at concentrations of 400 milligrams per kilogram (mg/kg) and 3,400 mg/kg, respectively, which exceeded the former 2007 ESLs for residential shallow soil (100 mg/kg and 500 mg/kg, respectively). The detected TPHd concentration also exceeds the 2016 Tier 1 ESL (230 mg/kg). Therefore, further investigation of the shallow soil impact at this location was conducted in October 2007.

Given the EB-35 results, in October 2007 four step-out borings, EB-35A, EB-35B, EB-35C and EB-35D, were drilled surrounding this initial boring location to characterize the extent of this shallow soil impact. A total of 12 discrete soil samples, three per step-out boring, were collected at depths down to 10.5 feet bgs. A black petroleum product observed to be similar to asphalt concrete was encountered in three of the four boring locations at depths between 2.5 and 4 feet bgs.[7] Summaries of the environmental investigation and results for these step-out sampling locations are provided in Table 1A. Although some of the samples collected between 3.5 and 5 feet bgs contained TPHd and/or TPHmo concentrations exceeding the former 2007 ESLs for residential shallow soil, there were no ESL exceedances for the soil samples collected between 8.5 and 10 feet bgs. In addition, none of the soil samples collected contained TPHd or TPHmo concentrations exceeding the current 2016 Tier 1 ESLs.

In 2008, an additional investigation was conducted in the EB-35 area of concern. This investigation consisted of excavating the locations of previously drilled borings EB-35 and EB-35B, with the former excavated approximately 4 feet bgs and the latter excavated approximately 5.5 feet bgs. In the

[4] Dated 22 February 2016 (Revision 3)
[5] EB-35 was initially identified to contain a potential environmental concern (PEC) associated with AOC 3. However, as described in this section, further investigation activities revealed this PEC to be associated with an asphalt layer that is not affiliated with the former mining operation features comprising AOC 3.
[6] Following the October 2007 investigation, this deeper impacted zone was established to be within AOC 1.
[7] This shallow petroleum product is not related to the deeper zone of petroleum product that was encountered on APN 946-1250-19-5 for which boring EB-35 was initially investigating.

excavation of EB-35 an asphalt layer was encountered between approximately 2 and 3 feet bgs, while in the excavation of EB-35B this asphalt layer was encountered between approximately 3.5 and 5.5 feet bgs. Summaries of the environmental investigation and results for these excavation sampling locations are provided in Table 1A. Although the soil sample collected from within this layer at 2.5 feet bgs, sample T-35A, contained TPHd and TPHmo at concentrations of 3,500 mg/kg and 45,000 mg/kg, respectively, which exceed their Tier 1 ESLs (230 mg/kg and 5,100 mg/kg, respectively), the soil sample collected from immediately below this layer at 3.5 feet bgs, sample T-35B, contained TPHd and TPHmo at concentrations of 14 mg/kg and 150 mg/kg, respectively, which do not exceed their Tier 1 ESLs. Given these results, it was concluded that this area's petroleum hydrocarbon impacted conditions are limited to the depths of the asphalt layer and do not appear to present a leachability risk for deeper soil impacts. ACDEH agreed with this conclusion per their 13 June 2008 letter.

The investigation activities conducted in the EB-35 area of concern detected elevated petroleum hydrocarbons in the collected soil samples due to the presence of an asphalt layer encountered at depths ranging between approximately 2 and 5.5 feet bgs. Although soil samples collected from within this asphalt layer contain TPHd and TPHmo concentrations exceeding 2016 Tier 1 ESLs, soil samples collected immediately below do not. Therefore, the petroleum hydrocarbon impacted conditions are limited and contained to the subsurface soil horizon containing this asphalt layer and do not represent an immediate concern to human health or the environment that warrants remediation.

If entitled and permitted, USL Pleasanton's anticipated development plan for the vicinity of the EB-35 area of concern includes grading activities that are expected to cut this area approximately 11 to 12 feet deep.[8] Therefore, the asphalt layer encountered between 2 and 5.5 feet bgs would be removed as part of the Site's development. The procedures to be followed for the removal of the EB-35 area of concern are specified in Section 3.2 of this *Soil Management Plan*.

[8] The ground surface elevation at this location is approximately 365 to 366 feet above mean sea level (msl). USL Pleasanton's development plan for this area anticipates having the future ground surface at 354 feet above msl.

3. Soil Management Measures

If entitled and permitted, the development of the Site will require the handling and management of known and, if encountered, suspect impacted soils. These activities shall be performed according to the following measures.

3.1 PLANNING

3.1.1 Project Stakeholders and Responsibilities

Owner – The current Owner of the Site, USL Pleasanton, is represented by Mr. Steven M. Dunn. Mr. Dunn will receive all notices, comments, approvals, and other communications from Haley & Aldrich, oversight agencies, media and other parties. USL Pleasanton will contract with the future Owner responsible for the development of the Site.

Environmental Professional – The current Environmental Professional retained by the Owner is Haley & Aldrich, Inc., who acts as the primary liaison between the Owner and ACDEH. Haley & Aldrich, or another Environmental Professional to be selected by the future Owner, will be responsible for the following:

- Oversee excavation activities of impacted soils, both known and suspected, in the field;
- Observe work practices to ensure compliance with the site-specific health and safety plan (HASP); and
- Document work progress and findings, and prepare the project completion report.

Prime Contractor – A Prime Contractor will be retained by the future Owner of the Site. This contractor will identify a site supervisor who will be responsible for overseeing, coordinating and implementing the soil excavation activities in accordance with this *Soil Management Plan*. The Prime Contractor will be responsible for providing properly licensed personnel and/or subcontractors to perform the excavation, special handling and off-site transportation and disposal as required by this *Soil Management Plan*. The Prime Contractor and their subcontractors will produce and adhere to their own HASP.

Excavation Contractor – An Excavation Contractor will be retained by the Prime Contractor to provide the personnel and equipment required to conduct the excavation and grading activities. For removal of the impacted soil requiring special handling, the Excavation Contractor shall provide properly licensed personnel, including Hazardous Waste Operations and Emergency Response Standard (HAZWOPER)-certified personnel. The Excavation Contractor and their subcontractors will produce and adhere to their own HASP.

Environmental Regulator – ACDEH is providing environmental regulatory oversight of the project, review of work plans and reports, and approval of the Site's *Closure Plan* and this *Soil Management Plan*. The Site is being overseen by ACDEH under VRAP Case No. RO0003228.

The table below identifies the entity's currently project stakeholders fulfilling the above roles and provides their contact information.

Project Stakeholders

Role	Stakeholder	Contact Information
Owner	USL Pleasanton Steven M. Dunn	(650) 235-2833 sdunn@steelwavellc.com
Environmental Professional	Haley & Aldrich, Inc. Jason Grant, P.E.	(925) 949-4412 jgrant@haleyaldrich.com
Prime Contractor	(To be determined, TBD)	(TBD)
Excavation Contractor	(TBD)	(TBD)
Environmental Regulator	ACDEH Dilan Roe, P.E.	(510) 567-6767 dilan.roe@acgov.org

3.1.2 Permitting

The following permits are anticipated for the Site's development and will be obtained from the respective regulatory authorities prior to conducting the associated activities:

- County of Alameda or City of Pleasanton – Grading Permit; and
- Underground Service Alert (USA) – USA notification will be performed a minimum of 48 hours prior to commencing with the intrusive subsurface activities.

Additional permits may be required should conditions warrant.

3.1.3 Stormwater Pollution Prevention Plan

In accordance with the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction Activities (Construction General Permit; Order No. 2012-0006-DWQ; NPDES No. CAS000002), a Construction Stormwater Pollution Prevention Plan (SWPPP) will be prepared for the Site. The SWPPP will outline stormwater best management practices (BMPs) during the proposed excavation activities at the Site. A Notice of Intent (NOI) to comply with the Construction General Permit, the first annual fee, and related permit registration documents (PRDs) will be filed with the State Water Resources Control Board (SWRCB), and a Waste Discharge Identification (WDID) Number will be obtained from the SWRCB.

3.1.4 Health and Safety

A Site-specific HASP will be prepared prior to commencing with the development activities. The HASP will outline safe work practices and emergency procedures to be followed during earthwork activities involving impacted soils conducted at the Site, including job hazard analyses, personnel protection, and emergency procedures. All contractors and subcontractors working on the Site will be responsible for preparing a HASP for their own employees and associated activities.

3.2 REMOVAL OF EB-35 AREA OF CONCERN

The EB-35 area of concern contains petroleum hydrocarbon impacted soils due to the presence of a shallow subsurface layer of asphaltic material. All excavation and grading activities conducted within this area of concern shall be overseen by the Environmental Professional and performed following the procedures specified below. Additionally, should a subsurface asphalt layer be observed anywhere

within the boundaries of the Site, the procedures specified in this section shall be implemented under the direction of the Environmental Professional.

3.2.1 Soil Excavation and Stockpile

Soil removed during the excavation and grading activities identified to contain the previously encountered asphalt layer shall be segregated and stockpiled on-site. The stockpiled soil will be placed on and covered with plastic sheeting, and managed in accordance with this *Soil Management Plan* and the project SWPPP. The extent of the soil excavation will be based on the visual removal of the asphalt layer, and will extend 1 foot below this layer. During the excavation activities, two stockpiles will be generated, with one segregating the layer of asphaltic material, and the second containing the soil removed above and below this layer.

As the previous environmental investigation results indicated that this soil impact is limited to this layer and does not leach to the soil below, no excavation confirmation samples are required. Should perched groundwater be encountered within the excavated area,[9] this water will be pumped from the excavation and securely contained. A sample of this water shall be collected and analyzed for the following:

- total petroleum hydrocarbons as gasoline (TPHg)[10] and volatile organic compounds (VOCs) using United States Environmental Protection Agency (USEPA) Method 8260;
- TPHd and TPHmo using USEPA Method 8015; and,
- California Title 22 metals (dissolved) using USEPA Method 6010/7471.

The contained groundwater will require offsite transportation and disposal (see Section 3.2.3).

3.2.2 Stockpile Characterization Sampling

The stockpile generated of the soil excavated above and below the asphalt layer will be evaluated to determine whether this soil is acceptable for reuse as part of the Site's development, or will require off-site transportation and disposal. The stockpile of the segregated asphaltic material will be evaluated by the Prime Contractor to determine whether it would be suitable for reuse in areas to be developed with impervious surfaces (e.g., roadways, parking lots, concrete foundations). Should the Prime Contractor identify reuse potential, the Environmental Professional will submit a reuse plan to ACDEH for review and approval. If no reuse potential is identified, the stockpiled asphaltic material will be evaluated for off-site transportation and disposal (see Section 3.2.3).

The reuse evaluation for the stockpile of soil from above and below the asphalt layer will be performed to comply with the RWQCB's *Draft Characterization and Reuse of Petroleum Hydrocarbon Impacted Soil as Inert Waste*, dated 20 October 2006. A copy of this RWQCB technical reference document is provided in Appendix A. As noted in this document's Table 3, Footnote 4, the detected analytical results are to be compared against the current 2016 ESLs, which are the following:

- TPHg: Tier 1 ESL = 100 mg/kg; Leaching to Groundwater ESL = 770 mg/kg;

[9] The previous environmental investigations encountered the first shallow groundwater unit underlying the Site to be present at approximately 70 to 80 feet bgs. This perched groundwater sample is not associated with this shallow groundwater unit.

[10] TPHg may also be analyzed using USEPA Method 8015.

- TPHd: Tier 1 ESL = 230 mg/kg; Leaching to Groundwater ESL = 570 mg/kg;
- TPHmo = Tier 1 ESL = 5,100 mg/kg; Leaching to Groundwater ESL = not established

The stockpile sampling results shall be preliminary reviewed by the Environmental Professional. Should these results indicate acceptable conditions based on a comparison against the respective ESLs, the soil would be deemed acceptable for reuse to either backfill the excavated area or for general grading throughout the Site. The Environmental Professional shall submit the stockpile characterization sampling results to ACDEH for review and final approval. No stockpiled soil shall be reused without prior approval from ACDEH. If the stockpile sampling indicates unacceptable conditions, the soil will require off-site transportation and disposal (see Section 3.2.3).

3.2.3 Waste Characterization Sampling and Off-site Transportation and Disposal

If either stockpile cannot be reused onsite and requires off-site transportation and disposal, waste characterization sampling will be performed to determine the appropriate disposal profile. The waste characterization sampling shall be coordinated with the disposal facility, and at a minimum will include the following analyses:

- TPHg and VOCs using USEPA Method 8260;
- TPHd and TPHmo using USEPA Method 8015; and,
- California Title 22 metals using USEPA Method 6010/7471.

Additional analyses may be required depending on the results obtained from the above and/or as requested by the disposal facility. Although not anticipated, depending on the waste characterization sampling results, the Owner (i.e., Generator) may be required to obtain a temporary USEPA hazardous waste generator identification number.

Transportation and disposal will be performed in accordance with City, County, State and Federal regulations, and under the appropriate manifest, bill of lading and/or material shipping/tracking documentation. For each shipment, documentation in the daily field notes will include:

- Date and time of loading for each truck;
- Transport company and unique truck identifier (e.g., license plate number);
- Approximate volume of waste transported by each truck;
- Destination of the waste; and
- Shipping document number (e.g., bill of lading, shipping paper, non-hazardous waste manifest or hazardous waste manifest).

3.3 CONTINGENCY PLANNING FOR SUSPECTED IMPACTED SOIL OR UNANTICIPATED SUBSURFACE FEATURES

For areas of the Site outside the EB-35 area of concern, the excavation and grading activities conducted to develop the Site may encounter soil suspected to be impacted, or unexpected subsurface features such as underground storage tanks (USTs), wells, etc. Should these conditions be encountered, the following steps shall be taken:

- The Excavation Contractor shall stop work immediately in the area where the soil is suspected to be impacted, or in the area where the unexpected subsurface feature is encountered;
- The Excavation Contractor shall notify the Prime Contractor, who will then notify the Environmental Professional;
- If not already onsite, the Environmental Professional shall mobilize to the Site with appropriate personnel and assess the newly-discovered soil suspected to be impacted, or the unexpected subsurface feature, on a case-by-case basis.
- The Environmental Professional will report their preliminary assessment findings to the future Owner of the Site, and if required, develop a mitigation plan.
- The Environmental Professional will notify ACDEH, and if necessary LPFD. This notification will identify the encountered suspected condition or feature, include the preliminary assessment findings, and identify whether a mitigation measure is required.

While not comprehensive, the following general procedures apply if unknown features are encountered:

- If a previously unknown subsurface layer of asphaltic material is encountered outside the EB-35 area of concern, the procedures specified in Section 3.2 shall be followed. ACDEH will be notified of the discovered asphalt layer(s).
- If a previously unknown UST (or similar feature associated with the use or storage of petroleum hydrocarbons or other liquids) is encountered, LPFD and ACDEH will be notified, appropriate permits will be obtained, and the UST will be removed and disposed in accordance with applicable procedures and regulatory guidance.
- If a previously unknown monitoring well or water supply well is encountered, Zone 7 Water Agency and ACDEH will be notified. If required by the well's conditions, a well destruction permit will be obtained, and the well will be destroyed in accordance with applicable procedures and with regulatory guidance.
- Soil and waste material generated during soil excavation and/or removal of unanticipated structures may be segregated into temporary stockpiles pending characterization for on-site reuse and/or off-site transportation and disposal. The stockpiles will be placed on and covered with plastic sheeting, and managed in accordance with this *Soil Management Plan* and the project SWPPP.
- Confirmation soil sampling will be conducted by the Environmental Professional as appropriate.

3.4 IMPORTED FILL MATERIAL

Fill material imported for the development of the Site shall be characterized in accordance with the California Department of Toxic Substances Control (DTSC) *Information Advisory Clean Imported Fill Material*, dated October 2001. A copy of this DTSC document is provided in Appendix A. The source location of the fill material will be identified, and the analytical characterization results shall be initially reviewed by the Environmental Professional. If these results appear acceptable, the Environmental Professional will submit to ACDEH for review and final approval. No fill material shall be brought on to the Site without prior approval from ACDEH.

The analytical characterization results will be compared against the Tier 1 ESLs established by the RWQCB. If no Tier 1 ESL is exceeded, no further evaluation is warranted and the proposed import material would be deemed acceptable for placement anywhere within the Site. If a Tier 1 ESL is exceeded, further evaluation of the analytical results will be performed by the Environmental Professional to determine if the Site's development plans can incorporate this soil using either engineering or institutional controls. The results of this evaluation will be provided in the submittal to ACDEH for their review and approval.

3.5 REPORTING

A final report shall be prepared following the completion of the earthwork activities required to develop the Site. This report will: document the removal of the EB-35 area of concern and any additional previously unknown location(s) where a subsurface asphalt layer was encountered; include the stockpile sampling results and corresponding on-site reuse and/or off-site transportation and disposal evaluation; include copies of off-site transportation and disposal waste manifests and/or bills of lading; and discuss any contingency measures and/or mitigation plans that were implemented for suspect soil or other unanticipated subsurface features. The report will be prepared by the Environmental Professional and submitted to ACDEH for review and approval. Following the submittal of this report, USL Pleasanton will request regulatory closure for the Site under VRAP Case No. RO0003228.

TABLES

TABLE 1A
HISTORICAL ANALYTICAL DATA: EB-35 AREA OF CONCERN - SOIL (mg/kg)
PLEASANTON, CALIFORNIA

								Total Petroleum Hydrocarbons (TPH) (mg/kg)		
Sample Location	**Date Sampled**	**Sample Depth (feet bgs)**	**Matrix**	**Source of Sample Data**	**Purpose of Sampling**	**Rationale for Analyses**	**Result or Conclusion**	**TPHd**	**TPHmo**	**TPHg**
EB35-2	1/10/2007	2	soil	ENV 2/2007[1]	Boring location EB-35 was advanced as part of a grouping of 13 borings to evaluate the extent of and potential downgradient migration from a zone of heavy, viscous, black, free phase petroleum product encountered in a parcel located to the south at a depth of approximately 33 to 40 feet. Discrete soil samples were collected approximately every 10 vertical feet down to 40 feet deep, with the boring then further advanced deeper for the collection of a grab groundwater sample.	The soil and groundwater samples were analyzed for potential constituents of concern based the findings of the previous investigation activities conducted on the encountered zone of petroleum product. This evaluation resulted in the samples being analyzed for: Total Petroleum Hydrocarbons as Gasoline (TPHg), as diesel (TPHd) and as Motor Oil (TPHmo); and Benzene, Toluene, Ethylbenzene and Xylenes (BTEX). Analysis for the complete list of Volatile Organic Compounds (VOCs) was determined to be unnecessary as there is no evidence of chlorinated solvents or other volatile solvents being historically used, and the previous investigation findings that did include analysis for the complete list of VOCs reported non detectable concentrations.	TPHg and BTEX were not detected at concentrations greater than laboratory reporting limits. TPHd and TPHmo were either non detected at concentrations greater than laboratory reporting limits or were not detected at concentrations exceeding the 2007 San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) Environmental Screening Levels (ESLs) for residential, shallow soil, except for one sample. Sample locations EB35-2 contained TPHd and TPHmo at concentrations exceeding the 2007 ESLs for residential, shallow soil (100 mg/kg and 500 mg/kg, respectively). The TPHmo concentration does not exceed the 2016 Tier 1 ESL (5,100 mg/kg), while the TPHd concentration does exceed the 2016 Tier 1 ESL (230 mg/kg). Therefore, further investigation was conducted. The lateral and vertical extent of this TPHd impact was delineated based on subsequent sampling activities, which included four step-out borings locations and two excavation areas (see below). These additional sampling activities conducted in this area determined that the petroleum hydrocarbon impact is due to the presence of a subsurface asphalt layer, with limited leaching risk to deeper soils. Therefore, no further evaluation is warranted. The petroleum hydrocarbon impacted soil will be removed per the procedures specified in the Soil Management Plan (SMP).	**400**	3,400	<0.24
EB35-10	1/10/2007	10	soil					2.6	<50	<0.25
EB35-20	1/10/2007	20	soil					<0.99	<49	<0.24
EB35-30	1/10/2007	30	soil					<0.96	<48	<0.24
EB35-40	1/10/2007	40	soil					9	<49	<0.24
EB-35(A)-3	7/17/2007	2.5	soil	LFR 10/2007[2]	A 2007 Site Investigation was performed for Hanson Aggregates Northern California, which included further investigation of one of the borings advanced as part of the 2006 Phase II Environmental Site Assessment as part of a grouping of 13 borings to evaluate the extent of and potential downgradient migration from a zone of heavy, viscous, black, free phase petroleum product encountered in a parcel located to the south at a depth of approximately 33 to 40 feet. Sample location EB-35 reported elevated petroleum hydrocarbon concentrations in the soil sample collected at 2 feet deep. Therefore, four step-out borings were advanced approximately 25 feet to the north, south, east and west of the initial sample location to delineate the horizontal and vertical extent of the encountered petroleum hydrocarbon soil impact. Three discrete soil samples were collected from each boring down to a depths of 8.5 to 10 feet, with the two deeper soil samples submitted for laboratory analysis.	The previous discrete soil samples collected from EB-35 at 2 feet deep contained Total Petroleum Hydrocarbons as diesel (TPHd) at a concentration exceeding a regulatory screening level. Therefore, the soil samples were analyzed for TPHd and Total Petroleum Hydrocarbons as Motor Oil (TPHmo).	TPHmo was detected in the three shallower samples at a concentration exceeding the 2007 ESLs for residential, shallow soil (500 mg/kg), while it was not detected at concentrations exceeding the 2007 ESL in the deeper soil samples. TPHd was detected in one of the shallow soil samples at a concentration exceeding the 2007 ESL for residential, shallow soil (100 mg/kg), but was not detected at concentrations greater than laboratory reporting limits in the three deeper samples. A black petroleum product was observed in three of the four step-out borings between approximately 2.5 and 4 feet deep, with this product assumed to be the same material that was sample in the initial boring that resulted in the elevated petroleum hydrocarbon concentrations. This product was observed to be dry, similar to asphalt concrete, with a trace of oil. Given these observations, it was concluded that the horizontal and vertical extent of the observed petroleum hydrocarbon impact is limited to the area of the initial boring location and has been delineated, and no further evaluation was recommended. The TPHd and TPHmo concentrations detected in the step-out boring samples do not exceed the 2016 Tier 1 ESLs (230 mg/kg and 5,100 mg/kg, respectively). Therefore, no further evaluation is warranted.	-	-	-
EB-35(A)-3.5	7/17/2007	3.5	soil					48 HY	540 H	-
EB-35(A)-9.5	7/17/2007	9	soil					<1	5.2 H	-
EB-35(B)-2.5	7/17/2007	2	soil					-	-	-
EB-35(B)-5	7/17/2007	4.5	soil					160 HY	3,600 H	-
EB-35(B)-9	7/17/2007	8.5	soil					<0.99	<5	-
EB-35(C)-2.5	7/18/2007	2	soil					-	-	-
EB-35(C)-5.5	7/18/2007	5	soil					<1	<5	-
EB-35(C)-10.5	7/18/2007	10	soil					<1	<5	-
EB-35(D)-2.5	7/18/2007	2	soil					-	-	-
EB-35(D)-5.5	7/18/2007	5	soil					38 HY	810 H	-
EB-35(D)-9.5	7/18/2007	9	soil					<0.99	<5	-

TABLE 1A
HISTORICAL ANALYTICAL DATA: EB-35 AREA OF CONCERN - SOIL (mg/kg)
PLEASANTON, CALIFORNIA

								Total Petroleum Hydrocarbons (TPH) (mg/kg)		
Sample Location	**Date Sampled**	**Sample Depth (feet bgs)**	**Matrix**	**Source of Sample Data**	**Purpose of Sampling**	**Rationale for Analyses**	**Result or Conclusion**	**TPHd**	**TPHmo**	**TPHg**
T-35A	3/25/2008	2.5	soil	ENV 4/2008[3]	A 2008 Soil Excavation was conducted in the location of previous borings EB-35 and EB-35(B) to further investigate the extent of petroleum hydrocarbon impacted soil. The excavation activities encountered an asphalt layer between approximately 2 and 3 feet deep in the excavation of EB-35, and between approximately 3.5 and 5.5 feet deep in the excavation of EB-35B. In order to evaluate potential leaching concerns associated with this layer, for excavation EB-35, one soil sample was collected from within this layer at 2.5 feet deep and a second soil sample was collected immediately below at 3.5 feet deep.	Each soil sample was analyzed for this area's constituents of concern, TPHd and TPHmo.	TPHd and TPHmo were detected in the soil sampled collected from within the asphalt layer exceeding 2007 ESLs for residential, shallow soil, however, the ESL was not exceeded in the soil sample collected immediately below this layer. Therefore, it was concluded that leaching of petroleum hydrocarbons from the asphalt layer to deeper soils does not appear to pose a risk and the petroleum hydrocarbon impacted conditions are limited to this layer. No further excavation or investigation activities were recommended. Alameda County Environmental Health (ACEH) agreed with this conclusion in a June 18, 2008, letter.	**3,500**	**45,000**	-
T-35B	3/25/2008	3.5	soil				The TPHd and TPHmo concentrations detected in the soil sample collected from within the asphalt layer exceeds the 2016 Tier 1 ESLs (230 mg/kg and 5,100 mg/kg, respectively. As this area will be excavated as part of the site's development, no further evaluation is warranted.	14	150	-
							SFBRWQCB Tier 1 ESL for Soil (February 2016, Revision 3)	230	5,100	100

feet bgs = feet below ground surface
mg/kg = milligrams per kilogram
H = heavier hydrocarbons contributed to the quantitation
L = lighter hydrocarbons contributed to the quantitation
Y = sample exhibits chromatographic pattern which does not resemble standard
Z = sample exhibits unknown single peak or peaks
"-" = sample not analyzed
Bold indicates concentration exceeds SFBRWQCB Tier 1 ESL for Soil or Groundwater (February 2016, Revision 3)

1. ENV 2/2007 = Analytical Data from February 2007, ENV America Incorporated Report
2. LFR 10/2007 = Analytical Data from October 2007, LFR Inc. Report
3. ENV 4/2008 = Analytical Data from April 2008, ENV America Incorporated Report

TABLE 1B
HISTORICAL ANALYTICAL DATA: EB-35 AREA OF CONCERN - SOIL (µg/kg)
PLEASANTON, CALIFORNIA

Sample Location	Date Sampled	Sample Depth (feet bgs)	Matrix	Source of Sample Data	Purpose of Sampling	Rationale for Analyses	Result or Conclusion	BTEX Compounds (µg/kg)			
								Benzene	Toluene	Ethyl-benzene	Xylenes (total)
EB35-2	1/10/2007	2	soil	ENV 2/2007[1]	Boring location EB-35 was advanced as part of a grouping of 13 borings to evaluate the extent of and potential downgradient migration from a zone of heavy, viscous, black, free phase petroleum product encountered in a parcel located to the south at a depth of approximately 33 to 40 feet. Discrete soil samples were collected approximately every 10 vertical feet down to 40 feet deep, with the boring then further advanced deeper for the collection of a grab groundwater sample.	The soil and groundwater samples were analyzed for potential constituents of concern based the findings of the previous investigation activities conducted on the encountered zone of petroleum product. This evaluation resulted in the samples being analyzed for: Total Petroleum Hydrocarbons as Gasoline (TPHg), as diesel (TPHd) and as Motor Oil (TPHmo); and Benzene, Toluene, Ethylbenzene and Xylenes (BTEX). Analysis for the complete list of Volatile Organic Compounds (VOCs) was determined to be unnecessary as there is no evidence of chlorinated solvents or other volatile solvents being historically used, and the previous investigation findings that did include analysis for the complete list of VOCs reported non detectable concentrations.	TPHg and BTEX were not detected at concentrations greater than laboratory reporting limits. TPHd and TPHmo were either non detected at concentrations greater than laboratory reporting limits or were not detected at concentrations exceeding the 2007 San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) Environmental Screening Levels (ESLs) for residential, shallow soil, except for one sample. Sample locations EB35-2 contained TPHd and TPHmo at concentrations exceeding the 2007 ESLs for residential, shallow soil (100 mg/kg and 500 mg/kg, respectively). The TPHmo concentration does not exceed the 2016 Tier 1 ESL (5,100 mg/kg), while the TPHd concentration does exceed the 2016 Tier 1 ESL (230 mg/kg). Therefore, further investigation was conducted. The lateral and vertical extent of this TPHd impact was delineated based on subsequent sampling activities, which included four step-out borings locations and two excavation areas (see below). These additional sampling activities conducted in this area determined that the petroleum hydrocarbon impact is due to the presence of a subsurface asphalt layer, with limited leaching risk to deeper soils. Therefore, no further evaluation is warranted. The petroleum hydrocarbon impacted soil will be removed per the procedures specified in the Soil Management Plan (SMP).	<0.0049	<0.0049	<0.0049	<0.0097
EB35-10	1/10/2007	10	soil					<0.0049	<0.0049	<0.0049	<0.0099
EB35-20	1/10/2007	20	soil					<0.0048	<0.0048	<0.0048	<0.0096
EB35-30	1/10/2007	30	soil					<0.0048	<0.0048	<0.0048	<0.0095
EB35-40	1/10/2007	40	soil					<0.0048	<0.0048	<0.0048	<0.0096
EB-35(A)-3	7/17/2007	2.5	soil	LFR 10/2007[2]	A 2007 Site Investigation was performed for Hanson Aggregates Northern California, which included further investigation of one of the borings advanced as part of the 2006 Phase II Environmental Site Assessment as part of a grouping of 13 borings to evaluate the extent of and potential downgradient migration from a zone of heavy, viscous, black, free phase petroleum product encountered in a parcel located to the south at a depth of approximately 33 to 40 feet. Sample location EB-35 reported elevated petroleum hydrocarbon concentrations in the soil sample collected at 2 feet deep. Therefore, four step-out borings were advanced approximately 25 feet to the north, south, east and west of the initial sample location to delineate the horizontal and vertical extent of the encountered petroleum hydrocarbon soil impact. Three discrete soil samples were collected from each boring down to a depths of 8.5 to 10 feet, with the two deeper soil samples submitted for laboratory analysis.	The previous discrete soil samples collected from EB-35 at 2 feet deep contained Total Petroleum Hydrocarbons as diesel (TPHd) at a concentration exceeding a regulatory screening level. Therefore, the soil samples were analyzed for TPHd and Total Petroleum Hydrocarbons as Motor Oil (TPHmo).	TPHmo was detected in the three shallower samples at a concentration exceeding the 2007 ESLs for residential, shallow soil (500 mg/kg), while it was not detected at concentrations exceeding the 2007 ESL in the deeper soil samples. TPHd was detected in one of the shallow soil samples at a concentration exceeding the 2007 ESL for residential, shallow soil (100 mg/kg), but was not detected at concentrations greater than laboratory reporting limits in the three deeper samples. A black petroleum product was observed in three of the four step-out borings between approximately 2.5 and 4 feet deep, with this product assumed to be the same material that was sample in the initial boring that resulted in the elevated petroleum hydrocarbon concentrations. This product was observed to be dry, similar to asphalt concrete, with a trace of oil. Given these observations, it was concluded that the horizontal and vertical extent of the observed petroleum hydrocarbon impact is limited to the area of the initial boring location and has been delineated, and no further evaluation was recommended. The TPHd and TPHmo concentrations detected in the step-out boring samples do not exceed the 2016 Tier 1 ESLs (230 mg/kg and 5,100 mg/kg, respectively). Therefore, no further evaluation is warranted.	-	-	-	-
EB-35(A)-4	7/17/2007	3.5	soil					-	-	-	-
EB-35(A)-9.5	7/17/2007	9	soil					-	-	-	-
EB-35(B)-2.5	7/17/2007	2	soil					-	-	-	-
EB-35(B)-5	7/17/2007	4.5	soil					-	-	-	-
EB-35(B)-9	7/17/2007	8.5	soil					-	-	-	-
EB-35(C)-2.5	7/18/2007	2	soil					-	-	-	-
EB-35(C)-5.5	7/18/2007	5	soil					-	-	-	-
EB-35(C)-10.5	7/18/2007	10	soil					-	-	-	-
EB-35(D)-2.5	7/18/2007	2	soil					-	-	-	-
EB-35(D)-5.5	7/18/2007	5	soil					-	-	-	-
EB-35(D)-9.5	7/18/2007	9	soil					-	-	-	-

TABLE 1B
HISTORICAL ANALYTICAL DATA: EB-35 AREA OF CONCERN - SOIL (µg/kg)
PLEASANTON, CALIFORNIA

								BTEX Compounds (µg/kg)			
Sample Location	**Date Sampled**	**Sample Depth (feet bgs)**	**Matrix**	**Source of Sample Data**	**Purpose of Sampling**	**Rationale for Analyses**	**Result or Conclusion**	**Benzene**	**Toluene**	**Ethyl-benzene**	**Xylenes (total)**
T-35A	3/25/2008	2.5	soil	ENV 4/2008[3]	A 2008 Soil Excavation was conducted in the location of previous borings EB-35 and EB-35(B) to further investigate the extent of petroleum hydrocarbon impacted soil. The excavation activities encountered an asphalt layer between approximately 2 and 3 feet deep in the excavation of EB-35, and between approximately 3.5 and 5.5 feet deep in the excavation of EB-35B. In order to evaluate potential leaching concerns associated with this layer, for excavation EB-35, one soil sample was collected from within this layer at 2.5 feet deep and a second soil sample was collected immediately below at 3.5 feet deep.	Each soil sample was analyzed for this area's constituents of concern, TPHd and TPHmo.	TPHd and TPHmo were detected in the soil sampled collected from within the asphalt layer exceeding 2007 ESLs for residential, shallow soil, however, the ESL was not exceeded in the soil sample collected immediately below this layer. Therefore, it was concluded that leaching of petroleum hydrocarbons from the asphalt layer to deeper soils does not appear to pose a risk and the petroleum hydrocarbon impacted conditions are limited to this layer. No further excavation or investigation activities were recommended. Alameda County Environmental Health (ACEH) agreed with this conclusion in a June 18, 2008, letter.	-	-	-	-
T-35B	3/25/2008	3.5	soil				The TPHd and TPHmo concentrations detected in the soil sample collected from within the asphalt layer exceeds the 2016 Tier 1 ESLs (230 mg/kg and 5,100 mg/kg, respectively. As this area will be excavated as part of the site's development, no further evaluation is warranted.	-	-	-	-
							SFBRWQCB Tier 1 ESL for Soil (February 2016, Revision 3)	44	2,900	1,400	2,300

feet bgs = feet below ground surface
µg/kg = micrograms per kilogram
"-" = sample not analyzed
Bold indicates concentration exceeds SFBRWQCB Tier 1 ESL for Soil or Groundwater (February 2016, Revision 3)

1. ENV 2/2007 = Analytical Data from February 2007, ENV America Incorporated Report
2. LFR 10/2007 = Analytical Data from October 2007, LFR Inc. Report
3. ENV 4/2008 = Analytical Data from April 2008, ENV America Incorporated Report

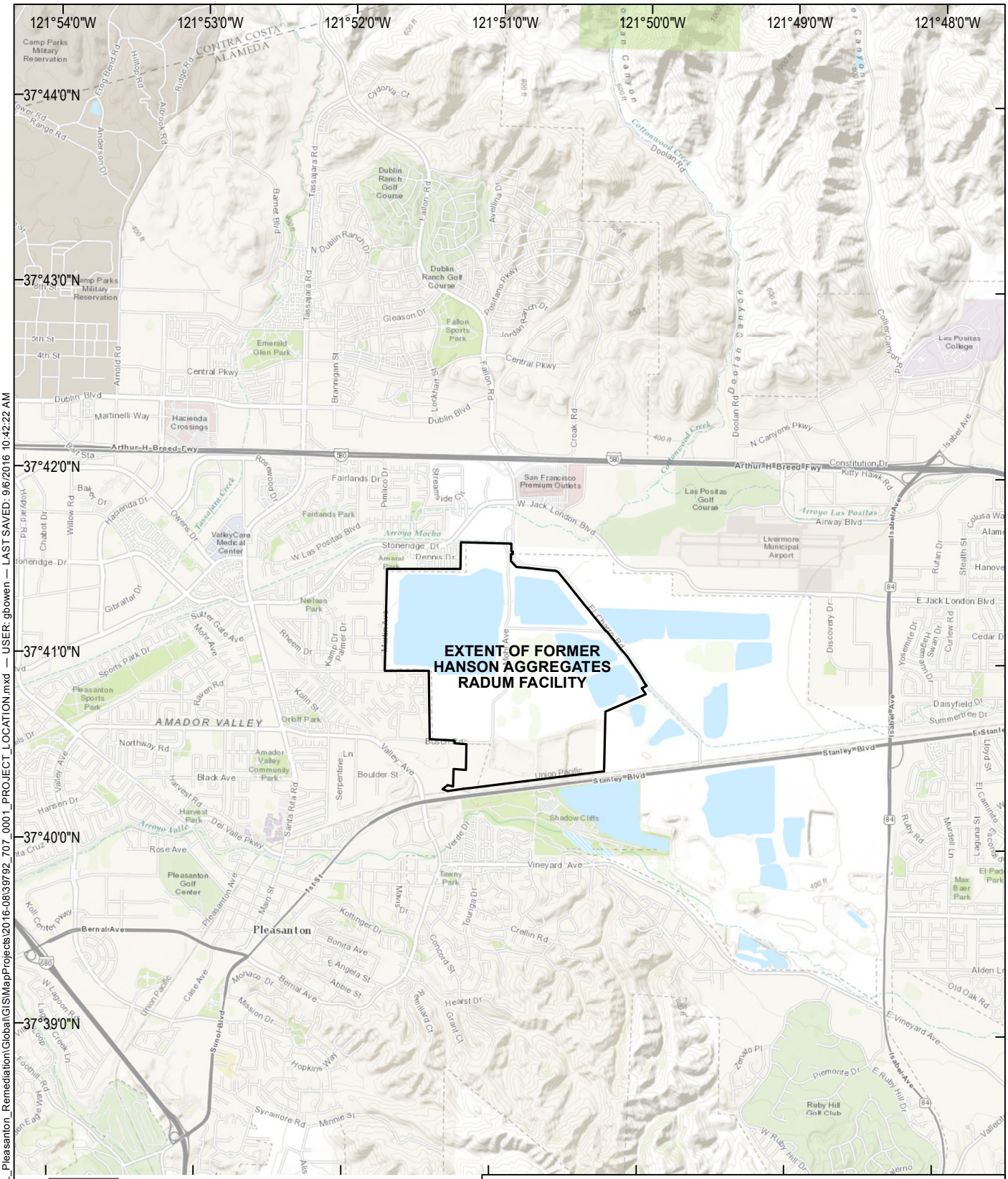
TABLE 1C
HISTORICAL ANALYTICAL DATA: EB-35 AREA OF CONCERN - GROUNDWATER
PLEASANTON, CALIFORNIA

								Total Petroleum Hydrocarbons (TPH) (µg/L)			BTEX Compounds (µg/L)			
Sample Location	**Date Sampled**	**Sample Depth (feet bgs)**	**Matrix**	**Source of Sample Data**	**Purpose of Sampling**	**Rationale for Analyses**	**Result or Conclusion**	**TPHd**	**TPHmo**	**TPHg**	**Benzene**	**Toluene**	**Ethyl-benzene**	**Xylenes (total)**
EB35-GW-68	1/10/2007	68	groundwater	ENV 2/2007[1]	Boring location EB-35 was advanced as part of a grouping of 13 borings to evaluate the extent of and potential downgradient migration from a zone of heavy, viscous, black, free phase petroleum product encountered in a parcel located to the south at a depth of approximately 33 to 40 feet. Discrete soil samples were collected approximately every 10 vertical feet down to 40 feet deep, with the boring then further advanced deeper for the collection of a grab groundwater sample.	The soil and groundwater samples were analyzed for potential constituents of concern based the findings of the previous investigation activities conducted on the encountered zone of petroleum product. This evaluation resulted in the samples being analyzed for: Total Petroleum Hydrocarbons as Gasoline (TPHg), as diesel (TPHd) and as Motor Oil (TPHmo); and Benzene, Toluene, Ethylbenzene and Xylenes (BTEX). Analysis for the complete list of Volatile Organic Compounds (VOCs) was determined to be unnecessary as there is no evidence of chlorinated solvents or other volatile solvents being historically used, and the previous investigation findings that did include analysis for the complete list of VOCs reported non detectable concentrations.	TPHg, TPHd, TPHmo and BTEX were not detected at concentrations greater than laboratory reporting limits. No further evaluation is warranted.	<50	<500	<50	<0.50	<0.50	<0.50	<1.0
							SFBRWQCB Tier 1 ESL for Groundwater (February 2016, Revision 3)	100	-	100	1.0	40	13	20

feet bgs = feet below ground surface
µg/L = micrograms per liter
"-" = sample not analyzed
Bold indicates concentration exceeds SFBRWQCB Tier 1 ESL for Groundwater (February 2016, Revision 3)

1. ENV 2/2007 = Analytical Data from February 2007, ENV America Incorporated Report

FIGURES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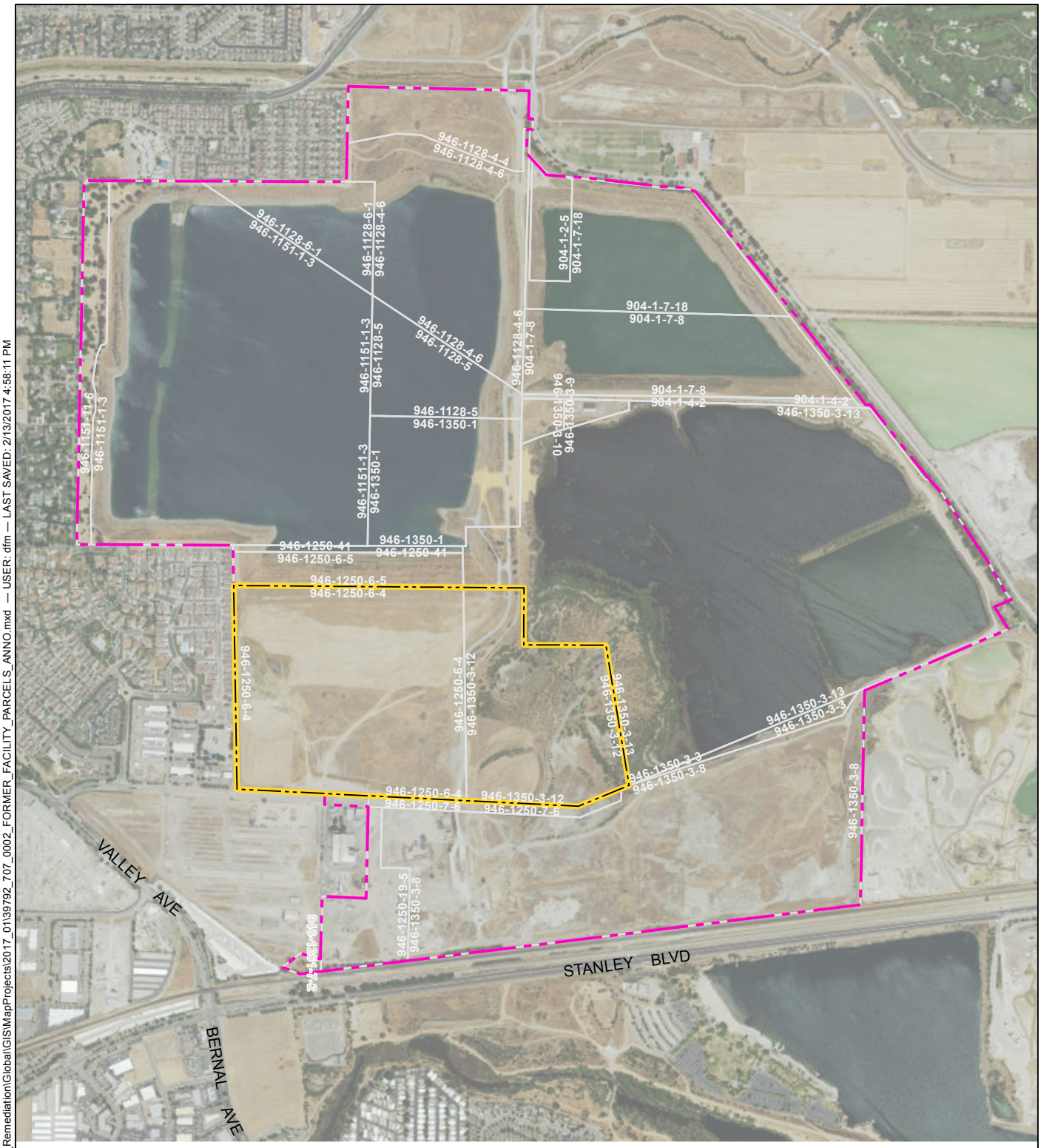
121°53'0"W
121°52'0"W
121°51'0"W
121°50'0"W
121°49'0"W
121°48'0"W
37°44'0"N
37°43'0"N
37°42'0"N
37°41'0"N
37°40'0"N
37°39'0"N
EXTENT OF FORMER HANSON AGGREGATES RADUM FACILITY
Pleasanton
AMADOR VALLEY
Livermore Municipal Airport
Las Positas College
Las Positas Golf Course
San Francisco Premium Outlets
Shadow Cliffs
Ruby Hill Golf Club
Pleasanton Golf Center
Dublin Ranch Golf Course
Fallon Sports Park
Emerald Glen Park
Pleasanton Sports Park
Amador Valley Community Park
Harvest Park
Nielsen Park
Fairlands Park
Tawny Park
Max Baer Park
Arthur H Breed Fwy
Stanley Blvd
Isabel Ave
Dublin Blvd
Central Pkwy
Bernal Ave
Vineyard Ave
Las Positas Blvd
W Jack London Blvd
E Jack London Blvd
Airway Blvd
Valley Ave
Hopyard Rd
Foothill Rd
Sunol Blvd
Doolan Rd
Croak Rd
Fallon Rd
Tassajara Rd
Santa Rita Rd
Main St
Hacienda Crossings
ValleyCare Medical Center
Camp Parks Military Reservation
CONTRA COSTA
ALAMEDA
CA
N
MAP SOURCE: ESRI
USGS QUAD: LIVERMORE
SITE COORDINATES: 37°41'04"N, 121°50'58"W
HALEY ALDRICH
FORMER HANSON AGGREGATES RADUM FACILITY
3000 BUSCH ROAD
PLEASANTON, CALIFORNIA
PROJECT LOCATION
APPROXIMATE SCALE: 1 IN = 1 MILE
SEPTEMBER 2016
FIGURE 1
GIS FILE PATH: \\oak\Common\39792_USL_Pleasanton_Remediation\Global\GIS\MapProjects\2016-08\39792_707_0001_PROJECT_LOCATION.mxd — USER: gbowen — LAST SAVED: 9/6/2016 10:42:22 AM



LEGEND

- ALAMEDA COUNTY APN
- SITE BOUNDARY
- FORMER FACILITY BOUNDARY

N

0 650 1,300

SCALE IN FEET

NOTES

1. AERIAL IMAGERY SOURCE: ESRI

HALEY ALDRICH

FORMER HANSON AGGREGATES RADUM FACILITY
3000 BUSCH ROAD
PLEASANTON, CALIFORNIA

FORMER FACILITY'S ALAMEDA COUNTY ASSESSOR PARCEL NUMBERS

FEBRUARY 2017

FIGURE 2

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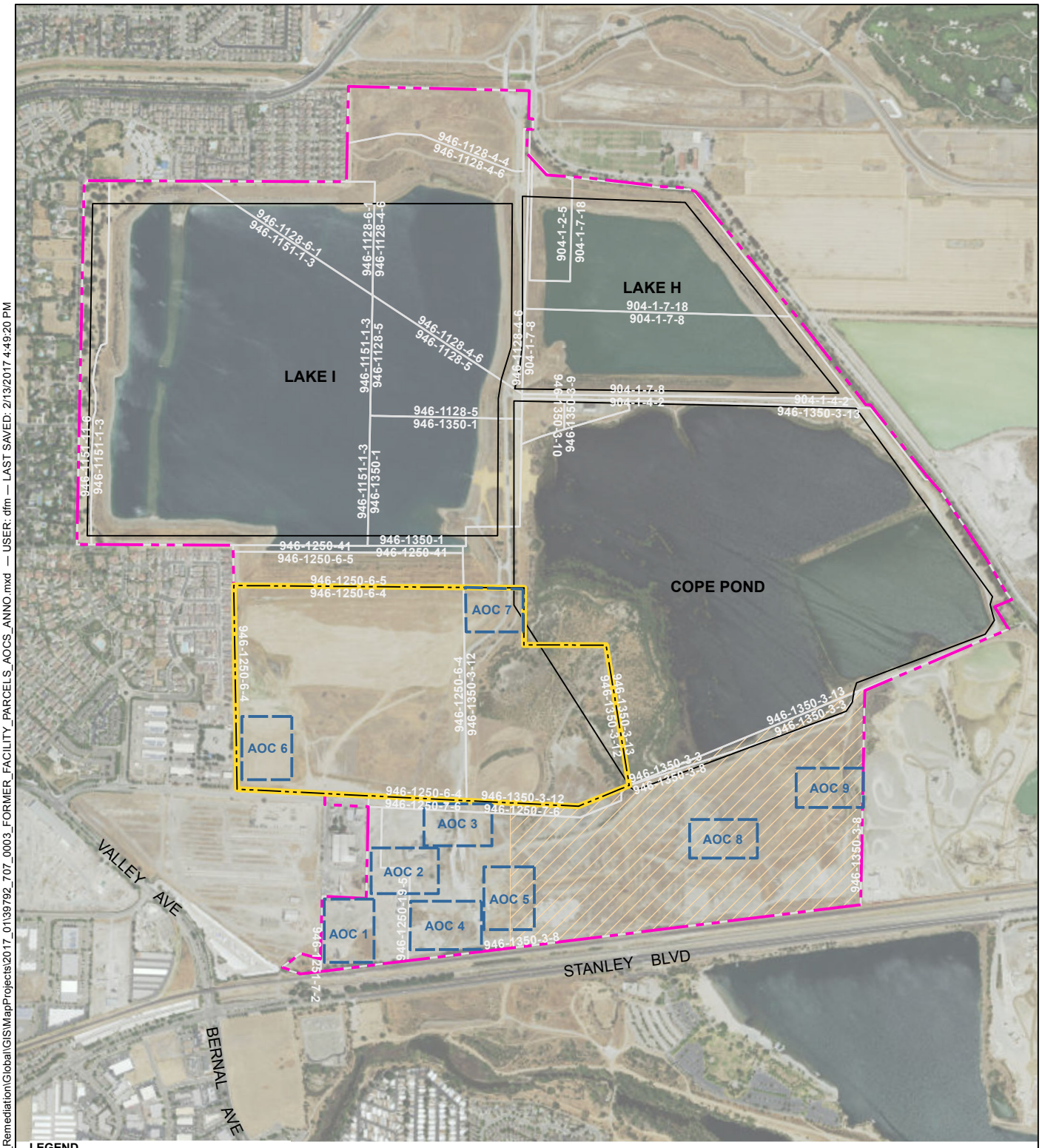


LEGEND

- AREAS OF CONCERN (BOUNDARIES AND LOCATIONS ARE APPROXIMANTE)
- SITE BOUNDARY
- FORMER FACILITY PARCELS
- FORMER FACILITY BOUNDARY
- NOT WITHIN CITY OF PLEASANTON'S URBAN GROWTH BOUNDARY

NOTES
1. AERIAL IMAGERY SOURCE: ESRI

N

0 650 1,300
SCALE IN FEET

HALEY ALDRICH

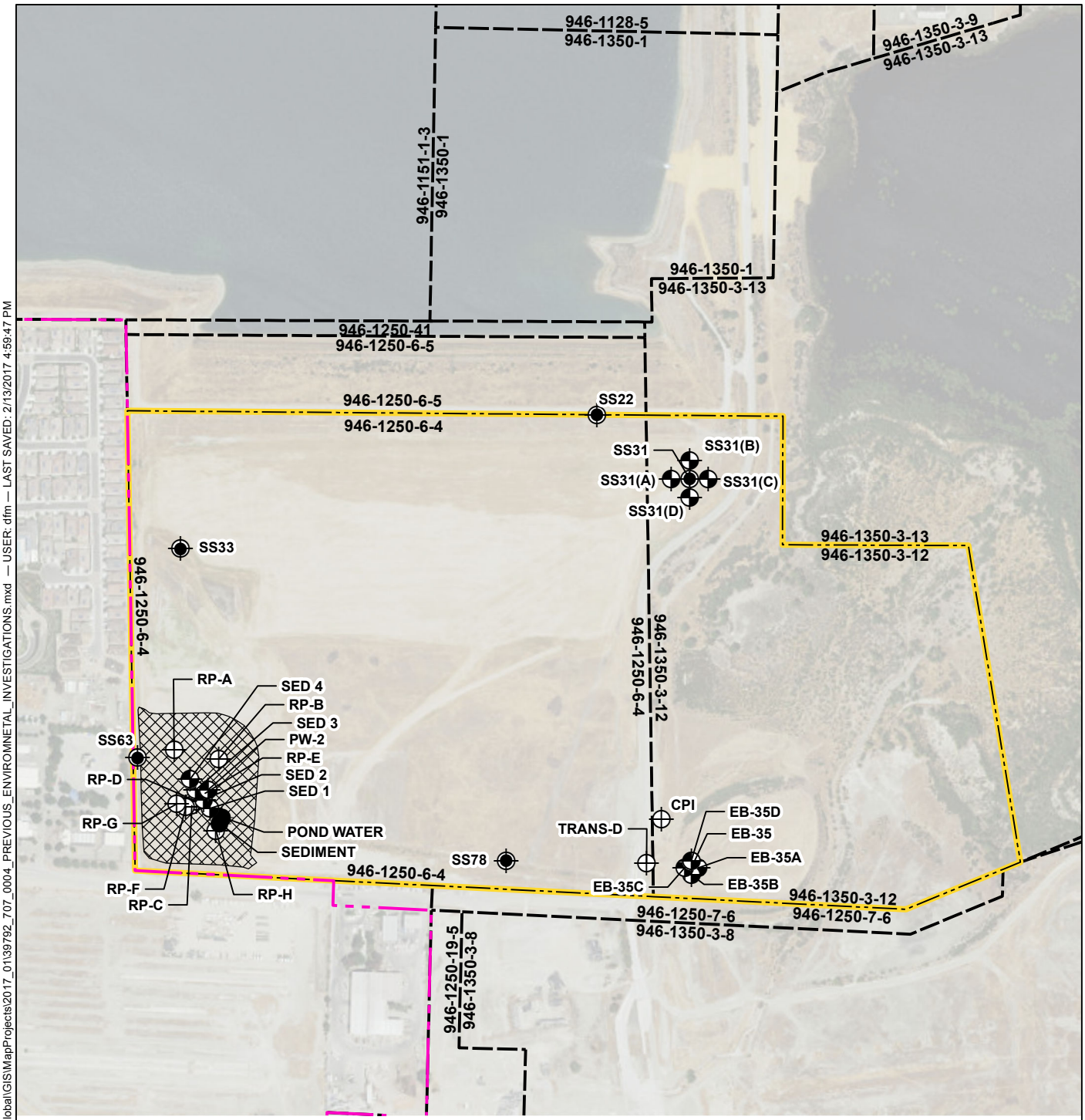
FORMER HANSON AGGREGATES RADUM FACILITY
3000 BUSCH ROAD
PLEASANTON, CALIFORNIA

FORMER FACILITY'S AREAS OF CONCERN

FEBRUARY 2017

FIGURE 3

GIS FILE PATH: \\oak\Common\39792_USL_Pleasanton_Remediation\Global\GIS\MapProjects\2017_01\39792_707_0003_FORMER_FACILITY_PARCELS_AOCS_ANNO.mxd — USER: dfm — LAST SAVED: 2/13/2017 4:49:20 PM



LEGEND

SAMPLING LOCATIONS

- MAY 2006, BROWN AND CALDWELL
- NOVEMBER 2006, ENV AMERICA INCORPORATED
- FEBRUARY 2007, ENV AMERICA INCORPORATED
- OCTOBER 2007, LRF INC.

ALAMEDA COUNTY APN

SITE BOUNDARY

BUSCH PIT (STORMWATER RETENTION POND)

FORMER FACILITY BOUNDARY

N

0 310 620

SCALE IN FEET

AERIAL IMAGERY SOURCE: ESRI

HALEY ALDRICH

FORMER HANSON AGGREGATES RADUM FACILITY
3000 BUSCH ROAD
PLEASANTON, CALIFORNIA

PREVIOUS ENVIRONMENTAL INVESTIGATIONS

FEBRUARY 2017

FIGURE 4

GIS FILE PATH: \\oak\Common\39792_USL_Pleasanton_Remediation\Global\GIS\MapProjects\2017_01\39792_707_0004_PREVIOUS_ENVIROMNETAL_INVESTIGATIONS.mxd — USER: dfm — LAST SAVED: 2/13/2017 4:59:47 PM

APPENDIX A

Regulatory Guidance Documents

California Regional Water Quality Control Board
San Francisco Bay Region

Linda S. Adams
Secretary for
Environmental Protection

1515 Clay Street, Suite 1400, Oakland, California 94612
(510) 622-2300 • Fax (510) 622-2460
http://www.waterboards.ca.gov/sanfranciscobay

Arnold Schwarzenegger
Governor

D R A F T

TECHNICAL REFERENCE DOCUMENT

CHARACTERIZATION AND REUSE OF PETROLEUM HYDROCARBON IMPACTED SOIL AS INERT WASTE

October 20, 2006

1.0 INTRODUCTION

Staff of the San Francisco Bay Regional Water Quality Control Board (Water Board) has prepared a ***draft*** technical reference document entitled *Characterization and Reuse of Petroleum Hydrocarbon Impacted Soil as Inert Waste* (Interim Final – October 2006). This document presents a method for characterizing non-hazardous petroleum hydrocarbon impacted soil that is proposed for reuse (or disposal) on the same contiguous property where it was generated (i.e., "**on-site**"). Furthermore, the document presents petroleum hydrocarbon testing requirements and conditions/restrictions for the soil reuse. The testing requirements and restrictions are intended to address human and ecological health concerns and protect the beneficial uses of waters of the State.

The Water Board typically considers requests for on-site reuse of soil based on the overall threats to human and environmental health and water quality. Such threats are a function of petroleum constituent concentrations, toxicity, soil volume, contaminant mass, and the reuse location among others. The intent of this document is to assure that the reuse (or disposal) of PHIS is protective of human and environmental health and the beneficial uses of waters of the State by establishing testing requirements and conditions for reuse.

The petroleum hydrocarbon standards applied in this document meet risk-based screening levels for industrial and residential reuse. Furthermore, the standards are intended to demonstrate that the soil is inert as defined in Title 27, Section 20230 of the California Code of Regulations with respect to the water quality objectives set forth in the San Francisco Bay Regional Water Quality Control Board's Water Quality Control Plan. Due to these conditions, the Water Board does not intend to issue Waste Discharge Requirements (WDRs) or WDR waivers for soil reuse in accordance with this document.

For the purpose of this document petroleum hydrocarbon impacted soil (PHIS) is defined as soil impacted with gasolines and/or middle distillates, including diesel, kerosene, and jet fuel, collectively referred to as "diesel". Inert waste is defined in Title 27, Section 20230 of the California Code of Regulations, to be “a subset of solid waste that does not contain hazardous waste or soluble pollutants at concentrations in excess of applicable water quality objectives, and does not contain significant quantities of decomposable waste”. On-site refers to the same contiguous property where the PHIS was generated.

This document does not apply to hazardous waste, nor does it apply to the off-site reuse or disposal of soil, or the import of soil for construction or other uses. The Department of Toxic Substances Control has prepared an Information Advisory that addresses the import of fill material on sensitive lands (DTSC, Oct. 2001).

This guidance is intended to address the reuse of soils impacted with gasolines and middle distillate fuels. It is not intended to address reuse of soils impacted with heavier petroleum products (e.g., fuel oil Nos. 4, 5, and 6, lubricating oils, motor oil, etc.) or any other contaminant. Used motor oil, hydraulic fluids and other common types of heavy petroleum products/wastes may contain significant amounts of polynuclear aromatic hydrocarbons (PAHs), heavy metals, polychlorinated biphenyls (PCBs), chlorinated solvents, pesticides, volatile organic compounds (VOCs) and other potentially harmful chemicals. Evaluation of soil impacted with heavy petroleum hydrocarbons or other contaminants for reuse should be based on a more complete assessment of potential constituents and exposure concerns.

In order to expedite reuse issues, this document is intended to establish a “self-certification” process whereby the property owner and waste discharger retain the necessary documentation, but no formal approval by Water Board staff is provided. For sites under Water Board oversight, documentation (see Section 6.0) must be submitted to the Water Board staff case handler. For sites not under Water Board oversight, documentation should be retained by the property owner and waste discharger and provided to the Water Board only upon request.

This document is <u>not</u> intended to establish policy or regulation. Use of this document is entirely optional on the part of the discharger. This document provides conservative guidance to streamline the request/approval process for on-site soil reuse. Site-specific decisions made by the Water Board or other lead agencies regarding the reuse of PHIS and/or the management of impacted or suspect soil may supersede the guidance provided in this document. Conversely, this document is not intended to supersede any site-specific Water Board or other lead agency decisions regarding cleanup, cleanup standards, or reuse of impacted soil.

This document will be periodically updated as needed. Please send comments in writing to the contact noted below. Water Board staff overseeing work at a specific site should be contacted prior to use of this document in order to ensure that the document is applicable to the site and that the user has the most up-to-date version available.

For further information, please contact:

Alec W. Naugle
California RWQCB - San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
tel: 1-510-622-2510
e-mail: anaugle@waterboards.ca.gov

2.0 DEFINITIONS

Petroleum Hydrocarbon Impacted Soil (PHIS) is defined as soil impacted with gasolines (C_6 - C_{12}) and/or middle distillates (C_9 - C_{25}) including diesel, kerosene, and jet fuel, collectively referred to as "diesel".

Inert Waste is defined in the California Code of Regulations, Division 2, Title 27, Subdivision 1, Chapter 3, Subchapter 2, Article 2, Section 20230, to be “a subset of solid waste that does not contain hazardous waste or soluble pollutants at concentrations in excess of applicable water quality objectives, and does not contain significant quantities of decomposable waste”.

Water Quality Objectives are those specified in the San Francisco Bay Regional Water Quality Control Board’s Water Quality Control Plan (Basin Plan)

On-Site refers to the same contiguous property where the PHIS was generated.

3.0. CONDITIONS FOR REUSE

3.1 Restrictions

1. The PHIS proposed for reuse must be inert waste as defined in Title 27, Section 20230 (e.g., non-hazardous solid waste that does not contain soluble pollutants of any kind in excess of applicable water quality objectives).

2. The proposed reuse location must be on-site (e.g., the same contiguous property where the PHIS was generated). The Department of Toxic Substances Control and local regulatory agencies should be contacted for proposed off-site reuse or disposal at non-permitted (e.g., landfill) locations.

3.2 Site Conditions

The proposed reuse location shall meet the following conditions to the extent practicable. In all cases, the discharger shall demonstrate that the reuse location is protective of beneficial uses of waters of the State in a manner consistent with Title 27.

1. Separation from Ground Water: The PHIS shall be placed at least five feet above the highest anticipated level of ground water.

2. Separation from Surface Water: The PHIS shall be placed at least 100 feet from the nearest surface water body.

3. Flood Plain Protection: The PHIS shall be protected against 100-year peak stream flows as defined by the County flood control agency.

4. Cover and Erosion Protection: The PHIS shall be buried at least three feet beneath the surface grade. It shall also be capped with erosion-resistant materials such as compacted soil, rock, asphalt, concrete, etc. The PHIS shall be protected from erosion and exposure at the ground surface for as long as it remains in place and has detectable concentrations of petroleum hydrocarbons.

5. Property Owner Acknowledgement: By written correspondence to Water Board staff, the owner of the property where the PHIS is proposed for reuse shall acknowledge their acceptance of the placement of the PHIS and any maintenance required to comply with the above conditions.

4.0 SAMPLING AND CHARACTERIZATION

All stockpiled soil must be characterized in accordance with the methodology set forth in the most recently promulgated edition of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846", U.S. Environmental Protection Agency (EPA SW-846).

4.1. Sampling Frequency

Procedures in EPA Publication SW-846 provide a method for determining the mean concentration of a given contaminant within a soil mass and the appropriate number of samples necessary to calculate this mean to within a specified confidence level. Initial sampling should generate a minimum number of samples/analyses as described below. Additional sample analyses may be required to meet the confidence levels specified in EPA SW-846, therefore, archiving of samples may be appropriate. Archived samples must be appropriately preserved and analyzed within maximum holding times.

The minimum number of discrete samples necessary to adequately characterize the PHIS shall be determined in accordance with the statistical procedure in EPA SW-846. The following schedule can be used to estimate the minimum number of samples necessary to meet the statistical requirements in EPA SW-846, in most cases. If the number of samples collected is fewer than indicated in the following schedule, then the statistical basis for the deviation must be provided.

- Stockpiles less than 500 cubic yards: One sample for every 25 cubic yards (*e.g., 20 samples for a 500 cubic yard stockpile*).

- Stockpiles from 500 to 1,000 cubic yards: Twenty (20) samples plus one sample for every 100 cubic yards in excess of the initial 500 cubic yards (*e.g., 25 samples for a 1000 cubic yard stockpile*).

- Stockpiles from 1,000 to 10,000 cubic yards: Twenty-five (25) samples plus one sample for every 500 cubic yards in excess of the initial 1,000 cubic yards (*e.g., 43 samples for a 10,000 cubic yard stockpile*).

- Stockpiles greater than 10,000 cubic yards: Forty-three (43) samples plus one sample for every 5,000 cubic yards in excess of the initial 10,000 cubic yards (*e.g., 61 samples for a 100,000 cubic yard stockpile*).

Table 1 and Figure 1 illustrate the relationship between soil volume and the minimum number of samples provided in the above schedule.

4.2 Discrete vs. Composite Sampling

The statistical method in EPA SW-846 assumes that contaminants are heterogeneously distributed within the soil mass and that hotspots exist and are of concern. Composite sampling is not well suited for identifying hotspots because of the "dilution" or

"averaging" effect of mixing samples to create a single composite. Furthermore, composite sampling is not appropriate when sampling for volatile organic compounds, due to the losses inherent in the composite mixing process. Therefore, discrete sampling is required for volatile compounds.

Additionally, the statistical method in EPA SW-846 requires a reasonably accurate measure of sample variability in order to estimate a reasonably accurate confidence interval (CI) about the mean for each constituent in the soil mass. Variability between composite sample results tends to be muted due to the averaging effect of the mixing process, which generally leads to a falsely narrow CI about the mean. It is the upper limit of the CI that is compared to the regulatory limit to determine if a sufficient number of samples have been collected to identify hotspots and capture the true range of contaminant concentrations. Therefore, if contaminants are heterogeneously distributed, and if hotspots are a concern, composite sampling is not appropriate and discrete sampling is required.

4.3 Sample Location

Sample locations should be random, uniform, or biased toward hotspot areas, based on professional judgment and field screening indications.

4.4 Analyses

A two-tiered evaluation approach is required to determine if soil is suitable for reuse under this guidance. Therefore, two types of sample analyses may be required. The Tier 1 analyses consist of measuring the total concentrations of contaminants in the soil. The Tier 2 analyses consist of measuring the leachable concentration of contaminants from the soil. Section 5.0 discusses how the results from the Tier 1 and 2 analyses are evaluated.

Tier 1 Analyses

The Tier 1 analyses necessary to adequately characterize the PHIS shall be in accordance with protocol described below and in Table 2 (attached).

a. Gasolines ($C_6 - C_{12}$)

Soils impacted with gasolines shall be analyzed using the DHS/EPA Method 8015 modified to quantify the total petroleum hydrocarbons (TPH) through the carbon range C_6 to C_{12}. The minimum laboratory reporting limit for this method of analysis shall be no greater than 10 mg/kg. Additionally, soil sample results for TPH shall be ranked from highest concentration to lowest. The highest 25% of samples for TPH (minimum of four samples) shall be further analyzed using EPA Method 8021, 8260B (or equivalent) to quantify the concentrations of benzene, toluene, ethylbenzene, total xylenes (BTEX), methyl-tertiary butyl ether (MtBE) and other fuel oxygenates as required on a case-by-case basis. The minimum

laboratory reporting limit for volatile organic compounds in soil using EPA method 8021, 8260B (or equivalent), shall be no greater than 5 ug/kg.

b. Middle Distillates ($C_9 – C_{25}$)

Soils impacted with middle distillate petroleum fuels such as diesel shall be analyzed using the DHS/EPA Method 8015 modified to quantify the total petroleum hydrocarbons through the carbon range C_9 to C_{25}. The minimum laboratory reporting limit for this method of analysis shall be no greater than 10 mg/kg. Additionally, soil sample results for TPH shall be ranked from highest concentration to lowest. The highest 25% of samples for TPH (minimum of four samples) shall be further analyzed using EPA Method 8021, 8260B (or equivalent) to quantify the concentrations of BTEX and naphthalene. Analysis for MtBE and other fuel oxygenates may be required on a case-by-case basis. The minimum laboratory reporting limit for volatile organic compounds in soil using EPA method 8021, 8260B (or equivalent), shall be no greater than 5 ug/kg.

Tier 2 Analyses

The Tier 2 analyses necessary to adequately characterize the PHIS shall be in accordance with protocol described below and in Table 3 (attached).

a. Gasolines ($C_6 – C_{12}$)

The same 25% of soil samples with the highest TPH concentrations as ranked in the Tier 1 analyses (minimum of four samples) shall be extracted using the Synthetic Precipitation Leaching Procedure (SPLP). Procedures for the SPLP are described in EPA SW-846 (EPA Method 1312). The SPLP extract shall be analyzed for gasolines using DHS/EPA Method 8015 modified to quantify the total petroleum hydrocarbons in the carbon range C_6 through C_{12}, BTEX, MtBE and other fuel oxygenates as required on a case-by-case basis using Method 8021, 8260B (or equivalent). The minimum laboratory reporting limit for this method of analysis for gasolines in water shall be no greater than 100 ug/L. The minimum laboratory reporting limit for volatile organic compounds in water using EPA method 8021, 8260B (or equivalent), shall be no greater than 1.0 ug/L.

b. Middle Distillates ($C_9 – C_{25}$)

The same 25% of soil samples with the highest TPH concentrations as ranked in the Tier 1 analyses (minimum of four samples) shall be analyzed using the SPLP described above. The SPLP extract shall be analyzed for diesel using DHS/EPA Method 8015 modified to quantify the total petroleum hydrocarbons in the carbon range C_9 through C_{25}, plus BTEX and naphthalene using Method 8021, 8260B (or equivalent). The minimum laboratory reporting limit for this method of analysis for middle distillates in water shall be no greater than 100 ug/L. The minimum laboratory reporting limit for volatile organic compounds in water using EPA method 8021, 8260B (or equivalent), shall be no greater than 1.0 ug/L.

5.0 EVALUATION CRITERIA AND REGULATORY LIMITS

There are three types of regulatory limits applicable to the reuse of PHIS. These include 1) the Not-to-Exceed soil concentration limits, 2) the Tier 1 soil concentration limits, and 3) the Tier 2 leachate concentration limits. The Tier 1 and Not-to-Exceed soil limits are listed in Table 2 and the Tier 2 leachate limits are listed in Table 3.

5.1 Evaluation Process

Figure 2 illustrates the process for determining if the PHIS is acceptable for reuse in accordance with this guidance.

Category 1

After ranking the soil results from highest to lowest, if the highest concentration for each constituent does not exceed the Tier 1 soil limits (Table 2), then no further evaluation is necessary and the soil is suitable for reuse in accordance with this document.

Category 2

Conversely, if any constituent concentration exceeds the Not-to-Exceed soil limits (Table 2), then the soil is **not** suitable for reuse, without further remedial action, such as hotspot removal or treatment, confirmation sampling, and re-evaluation.

Category 3

If the soil does not fall into categories 1 or 2, then the 95% upper confidence limit (UCL) of the mean, as computed from the soil characterization data for each constituent, can be used for comparison to the applicable regulatory limits for each constituent.

Tier 1 Soil Limits:

If the 95% UCL of the mean for any constituent exceeds its Tier 1 soil concentration limit listed in Table 2 (but is less than its Not-to-Exceed soil limit per Category 2 restrictions), then the Tier 2 leachability analyses described in section 4.4 must be performed.

Tier 2 Leachate Limits:

If the 95% UCL of the mean of the leachate concentrations, for any constituent, exceeds its Tier 2 leachate limit listed in Table 3, then the soil is **not** suitable for reuse in accordance with this document, without further remedial action and re-evaluation.

5.2 Computing the 95% UCL of the Mean

The 95% UCL of the mean must be determined for each constituent of concern after an appropriate number of samples has been collected from the stockpiled soil (see Section 4.1). If a data set is not normally distributed, it must be appropriately transformed. Guidance on determining the 95% UCL of the mean is found in EPA SW-846 (see Section 4.0) and in the EPA publication titled "Supplemental Guidance to RAGS: Calculating the Concentration Term" as presented in "Risk Assessment Guidance for Superfund (RAGS) Volume I, Human Health Evaluation Manual", publication 9285.7, May 1992.

6.0 REPORTING REQUIREMENTS

For sites under Water Board oversight, a technical report, containing the compliance information summarized below, must be submitted to the Water Board staff case handler for review and placement in the public record. For sites not under Water Board oversight, the compliance documentation must be retained by the property owner and waste discharger and provided to the Water Board only upon request:

1. Source of the PHIS (e.g., gas station, tank farm, refinery, industrial facility, etc.)
2. An estimate of the volume of impacted soil
3. A description of the contaminant(s) (e.g., gasoline, diesel, aviation fuel, etc.)
4. A description of the sampling methodology and the sample location/selection process
5. A plot plan detailing the stockpile and sample locations
6. A copy of all sample results, chain of custody documents, and QA/QC supporting data (electronic format preferred)
7. A one-page summary table of the laboratory results for the stockpile sampling
8. Statistical calculations for all stockpiles
9. A tabular comparison of the statistical results for each constituent for each stockpile to the Table 2 and Table 3 regulatory limits
10. A statement signed by the discharger/responsible party and a registered professional certifying compliance with the restrictions, site conditions, sampling and analysis, and evaluation criteria described in this guidance
11. Description and map of the reuse location and site
12. A statement signed by the property owner acknowledging the reuse of the impacted soil on his/her property and responsibility for maintaining compliance with the conditions of this guidance

Attachments: Attachment 1 - Table 1, Figure 1
Attachment 2 - Tables 2 & 3
Attachment 3 - Figure 2
Attachment 4 - References

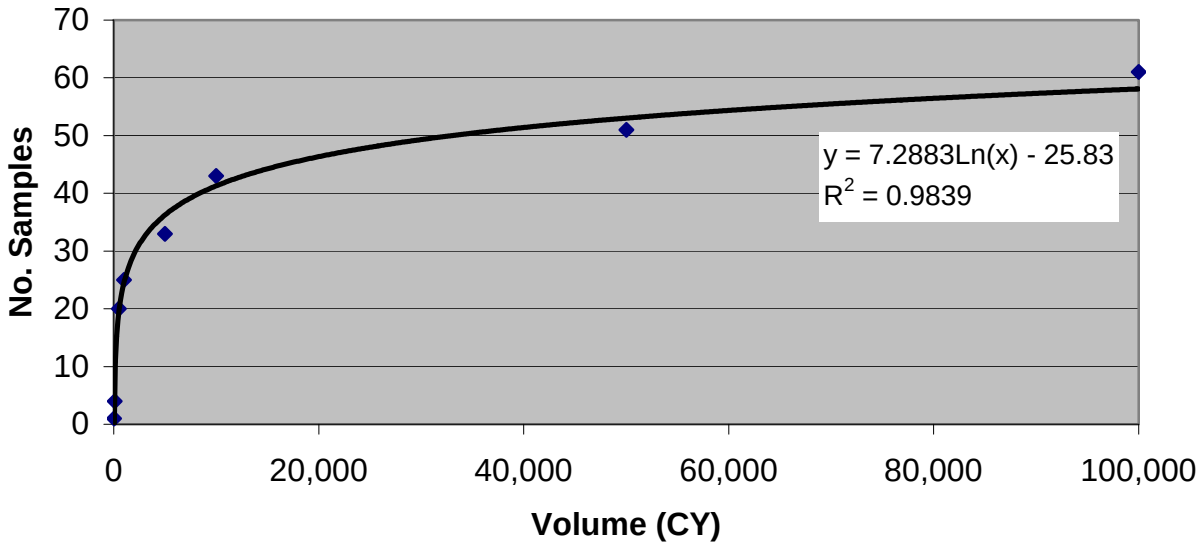
ATTACHMENT 1

Table 1. Number of Samples per Soil Volume in Cubic Yards (cy)

	< 500 cy	500 to 1,000 cy	1,000 to 10,000 cy	10,000 to 100,000 cy	> 100,000 cy
Frequency[1]	1 per 25 cy	1 per 100 cy	1 per 500 cy	1 per 5,000 cy	1 per 5,000 cy
Min. No. Samples	2 to 20	20 to 25	25 to 43	43 to 61	> 61

[1] Frequency is for the portion of the stockpile within the specified volume range.

Figure 1: Relationship of No. Samples to Soil Volume



ATTACHMENT 2

Table 2: Tier 1 Analytical Methods and Concentration Limits for Gasoline and Diesel[1] in Soil

Contaminant	Constituent of Concern	Carbon Range	Preparation Method[3]	DHS/EPA Method of Analysis[3]	Soil Concentration Limits[4] (mg/kg)	Not To Exceed Limits[5] (mg/kg)
Gasoline	TPH-Gasoline	C_6-C_{12}	3550	8015M	100	400
Diesel	TPH Diesel	C_9-C_{25}	3550	8015M	100	400
Gasoline/Diesel	Benzene		5030	8021/8260B	0.044	0.18
Gasoline/Diesel	Toluene		5030	8021/8260B	2.9	100
Gasoline/Diesel	Ethylbenzene		5030	8021/8260B	3.3	390
Gasoline/Diesel	Xylenes		5030	8021/8260B	2.3	310
Gasoline	MtBE[2]		5030	8021/8260B	0.023	2
Diesel	Naphthalene		5030	8021/8270	0.46	1.5

1. Includes comparable middle distillates ($C_9 – C_{25}$) including diesel, kerosene, and jet fuel.
2. Testing for other fuel oxygenates may be required on a case-by-case basis.
3. Or equivalent laboratory method.
4. Soil concentration limits may be compared to the 95% upper confidence limit of the mean calculated from the stockpile sample data for each constituent. Soil concentration limits are based on the lowest Environmental Screening Level ("ESL") as presented in the Region 2 Technical Document, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, February 2005, Appendix 1, Volume 2, Table A-1 for protection of 1) human health via drinking water consumption, 2) human health via direct contact, 3) human health via indoor air exposure, or 4) nuisance concerns. Additional assumptions include residential landuse, groundwater is a source of drinking water, and soils are shallow (< 10 feet). Soil concentration limits for TPH as gasoline & diesel are based on gross contamination ceiling (i.e., nuisance) limits. Soil concentration limits for BTEX and MtBE are based on a generalized leaching model for the protection of groundwater as a potential source of drinking water. Soil concentration limits for naphthalene are based on protection of human health via indoor air exposure. Updates to the Region 2 ESLs will supersede the concentration limits listed in this table.
5. Soil not-to-exceed limits must be compared to individual stockpile sample results for each constituent. Soil not-to-exceed limits are based on the second lowest ESL as presented in the Region 2 Technical Document, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, February 2005, Appendix 1, Volume 2, Table A-1 for protection of 1) human health via drinking water consumption, 2) human health via direct contact, 3) human health via indoor air exposure, or 4) nuisance concerns. Additional assumptions include residential landuse, groundwater is a source of drinking water, and soils are shallow (< 10 feet). Soil not-to-exceed limits for TPH as gasoline & diesel, BTEX, MtBE, and naphthalene are based on protection of human health via direct exposure. Updates to the Region 2 ESLs will supersede the concentration limits listed in this table.

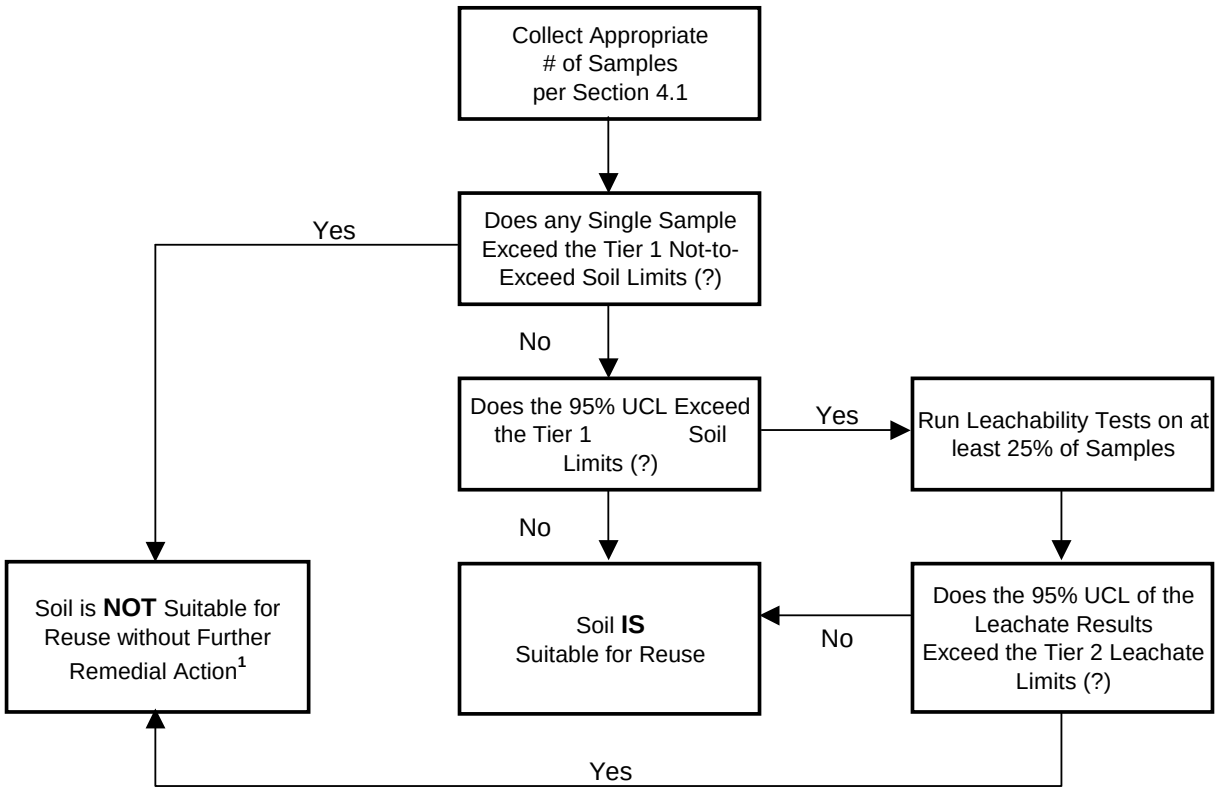
Table 3: Tier 2 Analytical Methods and Concentration Limits for Gasoline and Diesel[1] Leachable Extract

Contaminant	Constituent of Concern	Extraction Method	Carbon Range	Preparation Method[3]	DHS/EPA Method of Analysis[3]	Leachate Concentration Limits[4] (ug/l)
Gasoline	TPH-Gas	SPLP	C_6-C_{12}	3510	8015M	100
Diesel	TPH-Diesel	SPLP	C_9-C_{25}	3510	8015M	100
Gasoline/Diesel	Benzene	SPLP		5030	8021/8260B	1.0
Gasoline/Diesel	Toluene	SPLP		5030	8021/8260B	40
Gasoline/Diesel	Ethylbenzene	SPLP		5030	8021/8260B	30
Gasoline/Diesel	Xylenes	SPLP		5030	8021/8260B	20
Gasoline	MtBE[2]	SPLP		5030	8021/8260B	5
Diesel	Naphthalene	SPLP		5030	8021/8270	17

1. Includes comparable middle distillates ($C_9 – C_{25}$) including diesel, kerosene, and jet fuel.
2. Testing for other fuel oxygenates may be required on a case-by-case basis.
3. Or equivalent laboratory method.
4. The leachate concentration limits for all constituents are based on the lowest groundwater screening level that is protective of nuisance odors or human health (via drinking water or indoor air impacts), as presented in the Region 2 Environmental Screening Levels ("ESLs") Technical Document, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, February 2005, Appendix 1, Volume 2, Table F-1a (groundwater is a current or potential drinking water resource). Updates to the Region 2 ESLs will supersede the concentration limits listed in this table.

ATTACHMENT 3

Figure 2: Evaluation Process for Reuse of Non-Hazardous PHIS



[1] Additional remedial action may include removal and/or treatment of the hotspot with additional confirmation sampling and re-evaluation.

ATTACHMENT 4

References:

1. California Code of Regulations, Division 2, Title 27, Subdivision 1, *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*.

2. California Department of Toxic Substances Control, Information Advisory, *Clean Imported Fill Material*, October 2001.

3. California Regional Water Quality Control Board, San Francisco Bay Region, *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater*, Interim Final, February 2005.

4. San Francisco Bay Regional Water Quality Control Board, *Water Quality Control Plan*, June 1995.

5. San Francisco Bay Regional Water Quality Control Board, Technical Memorandum, *Regulatory Status of Soils Excavated During Installation, Maintenance, or Repair of Underground Equipment*, April 1995.

6. State Water Resources Control Board, Chapter 15 Program Note #8, *Management of Petroleum Contaminated Soils*, November 1993.

7. U.S. Environmental Protection Agency, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, Publication SW-846, Third Edition, 1986.

8. U.S. Environmental Protection Agency, *Supplemental Guidance to RAGS: Calculating the Concentration Term*, Publication 9285.7-081, May 1992.

9. U.S. Environmental Protection Agency, Region 9, *Preliminary Remediation Goals*, November 2000.

Information Advisory
Clean Imported Fill Material

October 2001

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

It is DTSC's mission to restore, protect and enhance the environment, to ensure public health, environmental quality and economic vitality, by regulating hazardous waste, conducting and overseeing cleanups, and developing and promoting pollution prevention.

State of California

California Environmental Protection Agency

Executive Summary

This fact sheet has been prepared to ensure that inappropriate fill material is not introduced onto sensitive land use properties under the oversight of the DTSC or applicable regulatory authorities. Sensitive land use properties include those that contain facilities such as hospitals, homes, day care centers, and schools. This document only focuses on human health concerns and ecological issues are not addressed. It identifies those types of land use activities that may be appropriate when determining whether a site may be used as a fill material source area. It also provides guidelines for the appropriate types of analyses that should be performed relative to the former land use, and for the number of samples that should be collected and analyzed based on the estimated volume of fill material that will need to be used. The information provided in this fact sheet is not regulatory in nature, rather is to be used as a guide, and in most situations the final decision as to the acceptability of fill material for a sensitive land use property is made on a case-by-case basis by the appropriate regulatory agency.

Introduction

The use of imported fill material has recently come under scrutiny because of the instances where contaminated soil has been brought onto an otherwise clean site. However, there are currently no established standards in the statutes or regulations that address environmental requirements for imported fill material. Therefore, the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) has prepared this fact sheet to identify procedures that can be used to minimize the possibility of introducing contaminated soil onto a site that requires imported fill material. Such sites include those that are undergoing site remediation, corrective action, and closure activities overseen by DTSC or the appropriate regulatory agency. These procedures may also apply to construction projects that will result in sensitive land uses. The intent of this fact sheet is to protect people who live on or otherwise use a sensitive land use property. By using this fact sheet as a guide, the reader will minimize the chance of introducing fill material that may result in potential risk to human health or the environment at some future time.

Overview

Both natural and manmade fill materials are used for a variety of purposes. Fill material properties are commonly controlled to meet the necessary site specific engineering specifications. Because most sites requiring fill material are located in or near urban areas, the fill materials are often obtained from construction projects that generate an excess of soil, and from demolition debris (asphalt, broken concrete, etc.). However, materials from those types of sites may or may not be appropriate, depending on the proposed use of the fill, and the quality of the assessment and/or mitigation measures, if necessary. Therefore, unless material from construction projects can be demonstrated to be free of contamination and/or appropriate for the proposed use, the use of that material as fill should be avoided.

Selecting Fill Material

In general, the fill source area should be located in nonindustrial areas, and not from sites undergoing an environmental cleanup. Nonindustrial sites include those that were previously undeveloped, or used solely for residential or agricultural purposes. If the source is from an agricultural area, care should be taken to insure that the fill does not include former agricultural waste process byproducts such as manure or other decomposed organic material. Undesirable sources of fill material include industrial and/or commercial sites where hazardous ma-

Potential Contaminants Based on the Fill Source Area

Fill Source:	Target Compounds
Land near to an existing freeway	Lead (EPA methods 6010B or 7471A), PAHs (EPA method 8310)
Land near a mining area or rock quarry	Heavy Metals (EPA methods 6010B and 7471A), asbestos (polarized light microscopy), pH
Agricultural land	Pesticides (Organochlorine Pesticides: EPA method 8081A or 8080A; Organophosphorus Pesticides: EPA method 8141A; Chlorinated Herbicides: EPA method 8151A), heavy metals (EPA methods 6010B and 7471A)
Residential/acceptable commercial land	VOCs (EPA method 8021 or 8260B, as appropriate and combined with collection by EPA Method 5035), semi-VOCs (EPA method 8270C), TPH (modified EPA method 8015), PCBs (EPA method 8082 or 8080A), heavy metals including lead (EPA methods 6010B and 7471A), asbestos (OSHA Method ID-191)

**The recommended analyses should be performed in accordance with USEPA SW-846 methods (1996). Other possible analyses include Hexavalent Chromium: EPA method 7199*

Recommended Fill Material Sampling Schedule

Area of Individual Borrow Area	Sampling Requirements
2 acres or less	Minimum of 4 samples
2 to 4 acres	Minimum of 1 sample every 1/2 acre
4 to 10 acres	Minimum of 8 samples
Greater than 10 acres	Minimum of 8 locations with 4 subsamples per location
Volume of Borrow Area Stockpile	**Samples per Volume**
Up to 1,000 cubic yards	1 sample per 250 cubic yards
1,000 to 5,000 cubic yards	4 samples for first 1000 cubic yards +1 sample per each additional 500 cubic yards
Greater than 5,000 cubic yards	12 samples for first 5,000 cubic yards + 1 sample per each additional 1,000 cubic yards

terials were used, handled or stored as part of the business operations, or unpaved parking areas where petroleum hydrocarbons could have been spilled or leaked into the soil. Undesirable commercial sites include former gasoline service stations, retail strip malls that contained dry cleaners or photographic processing facilities, paint stores, auto repair and/or painting facilities. Undesirable industrial facilities include metal processing shops, manufacturing facilities, aerospace facilities, oil refineries, waste treatment plants, etc. Alternatives to using fill from construction sites include the use of fill material obtained from a commercial supplier of fill material or from soil pits in rural or suburban areas. However, care should be taken to ensure that those materials are also uncontaminated.

Documentation and Analysis

In order to minimize the potential of introducing contaminated fill material onto a site, it is necessary to verify through documentation that the fill source is appropriate and/or to have the fill material analyzed for potential contaminants based on the location and history of the source area. Fill documentation should include detailed information on the previous use of the land from where the fill is taken, whether an environmental site assessment was performed and its findings, and the results of any testing performed. It is recommended that any such documentation should be signed by an appropriately licensed (CA-registered) individual. If such documentation is not available or is inadequate, samples of the fill material should be chemically analyzed. Analysis of the fill material should be based on the source of the fill and knowledge of the prior land use.

Detectable amounts of compounds of concern within the fill material should be evaluated for risk in accordance with the DTSC Preliminary Endangerment Assessment (PEA) Guidance Manual. If

metal analyses are performed, only those metals (CAM 17 / Title 22) to which risk levels have been assigned need to be evaluated. At present, the DTSC is working to establish California Screening Levels (CSL) to determine whether some compounds of concern pose a risk. Until such time as these CSL values are established, DTSC recommends that the DTSC PEA Guidance Manual or an equivalent process be referenced. This guidance may include the Regional Water Quality Control Board's (RWQCB) guidelines for reuse of non-hazardous petroleum hydrocarbon contaminated soil as applied to Total Petroleum Hydrocarbons (TPH) only. The RWQCB guidelines should not be used for volatile organic compounds (VOCs) or semi-volatile organic compounds (SVOCS). In addition, a standard laboratory data package, including a summary of the QA/QC (Quality Assurance/Quality Control) sample results should also accompany all analytical reports.

When possible, representative samples should be collected at the borrow area while the potential fill material is still in place, and analyzed prior to removal from the borrow area. In addition to performing the appropriate analyses of the fill material, an appropriate number of samples should also be determined based on the approximate volume or area of soil to be used as fill material. The table above can be used as a guide to determine the number of samples needed to adequately characterize the fill material when sampled at the borrow site.

Alternative Sampling

A Phase I or PEA may be conducted prior to sampling to determine whether the borrow area may have been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with DTSC or appropriate regulatory agency. However, if it is not possible to analyze the fill material at the borrow area or determine that it is appropriate for use via a Phase I or PEA, it is recommended that one (1) sample per truckload be collected and analyzed for all compounds of concern to ensure that the imported soil is uncontaminated and acceptable. (See chart on Potential Contaminants Based on the Fill Source Area for appropriate analyses). This sampling frequency may be modified upon consultation with the DTSC or appropriate regulatory agency if all of the fill material is derived from a common borrow area. However, fill material that is not characterized at the borrow area will need to be stockpiled either on or off-site until the analyses have been completed. In addition, should contaminants exceeding acceptance criteria be identified in the stockpiled fill material, that material will be deemed unacceptable and new fill material will need to be obtained, sampled and analyzed. Therefore, the DTSC recommends that all sampling and analyses should be completed prior to delivery to the site to ensure the soil is free of contamination, and to eliminate unnecessary transportation charges for unacceptable fill material.

Composite sampling for fill material characterization may or may not be appropriate, depending on quality and homogeneity of source/borrow area, and compounds of concern. Compositing samples for volatile and semivolatile constituents is not acceptable. Composite sampling for heavy metals, pesticides, herbicides or PAH's from unanalyzed stockpiled soil is also unacceptable, unless it is stockpiled at the borrow area and originates from the same source area. In addition, if samples are composited, they should be from the same soil layer, and not from different soil layers.

When very large volumes of fill material are anticipated, or when larger areas are being considered as borrow areas, the DTSC recommends that a Phase I or PEA be conducted on the area to ensure that the borrow area has not been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with the DTSC.

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