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Renewed Remedial Action Plan (2022)

(Mitigation of Shallow, Impacted Soils / Soil Management Plan)

Vacant Commercial Land

(Former Clusters Storage Yard)
511 Ohlone Parkway, Watsonville

February 18, 2022 (rev. March 18, 2022)

View of the 11.3-acre, Multi-Terraced, Subject Site
(Google Earth Birds Eye View)

Subject Site:

Hillcrest Development Project
511 Ohlone Parkway
Watsonville, California

018-372-14
(11.3-acres)

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Acronyms & Abbreviations

bgs:	below ground surface
BTV:	Background Threshold Value
Cal/EPA:	California Environmental Protection Agency
CDFW:	California Department of Fish and Wildlife
COC:	Chemicals of Concern
COPCs:	Chemicals of Potential Concern
Cr(VI)	Hexavalent Chromium
DTSC:	Department of Toxic Substances Control
DTSC-SLs:	DTSC-modified Screening Levels
EPA:	Environmental Protection Agency
ESA:	Environmental Site Assessment
ESLs:	RWQCB-established, Environmental Screening Levels
HI	Hazard Index
ILCR	Incremental Lifetime Cancer Risk
IRAP:	Interim Remedial Action Plan
ISM	Incremental Sampling Methodology
LUC:	Land Use Covenant
MCL:	Maximum Contaminant Level
ppm (mg/kg):	parts per million (milligrams per kilogram)
RAO:	Remedial Action Objective
RBSLs:	Risk Based Screening Levels
RSLs:	USEPA-established, Regional Screening Levels
RWQCB:	California Regional Water Quality Control Board
SCM:	Site Conceptual Model
SC-HSA:	County of Santa Cruz Environmental Health Services Agency
SMP	Site Management Plan
SSP	Site Safety & Dust Monitoring Plan
TBCs:	To-Be-Considered Criteria
TPH-diesel	Total Petroleum Hydrocarbons as diesel
TPH-motor oil:	Total Petroleum Hydrocarbons as motor oil
Water Board:	California Regional Water Quality Control Board, Central Coast Region
95%-UCL	95% upper confidence limit
USA:	Underground Service Alert
USL:	Upper Simultaneous Limit
USEPA:	United States Environmental Protection Agency
VOCs:	Volatile Organic Compounds
WHA:	Weber, Hayes and Associates

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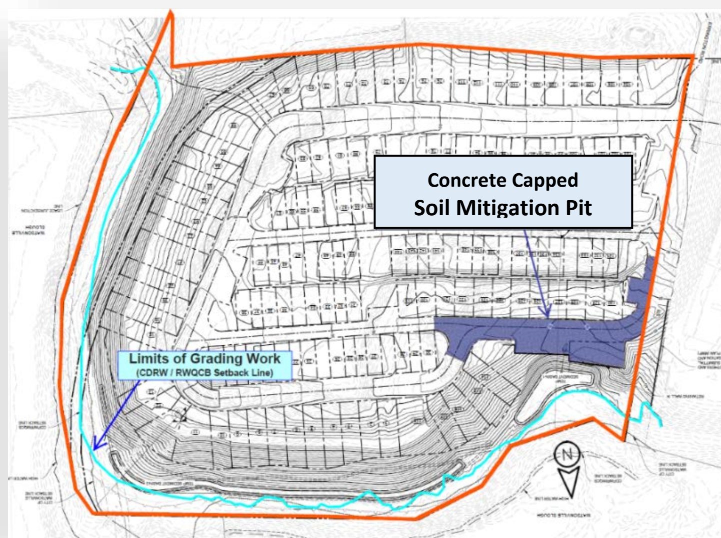
1.0 EXECUTIVE SUMMARY

This ***Renewed Remedial Action Plan (Renewed RAP)*** has been prepared on behalf of LANDCO Hillcrest, LLC in support of the construction of an 11.3-acre, residential development located at 511 Ohlone Parkway in Watsonville (the "Site", see *Topographic Location Map*, and *Aerial Vicinity Map*, Figures 1 and 2 respectively). The property is being redeveloped for residential land-use to include single-family homes and housing community amenities (a project description and design drawings for the "Hillcrest Subdivision" redevelopment are included as Appendix A).



Site Redevelopment Plan
(Transition of Vacant Commercial Lot to Residential)

This *Renewed RAP* has <u>*no significant changes*</u> to the previous plan *(Updated RAP;* WHA, 2021). The following changes have been made since the previous submittal:

1) Appendix A (updated): Now contains the <u>*final*</u> remediation and rough grading plans for the Hillcrest Development.
2) Appendix C: The transport (leachability) modeling report has been included as a reference (TH&A, 2021; previously considered a data gap).
3) Appendix D (updated): This appendix has been updated to also include a construction-based *Soil Management Plan*, which includes the previously submitted *Environmental Site Safety & Dust Monitoring Plan* for remedial excavation & post-construction earthworks within the cap footprint.

4) Appendix F: For reference, includes agency correspondence and details regarding long-term management of the residual capped contaminated soils to ensure the capped soils are protected over time. It includes a copy of the standard *Land Use Covenant* (template) and details of the *Financial Assurance* mechanism planned for the site.
5) Appendix G: For reference, this appendix includes model *Land Use Covenant* (deed restriction) and Financial Assurance details to address the long-term stewardship for a capped remediation pit (i.e., the selected cleanup alternative).
6) Appendix H: For reference, this appendix includes portions of the *Geotechnical Evaluation, Hillcrest Residential Subdivision* (MPE, 2021), which provides engineered support for the construction of the selected remedial alternative.

Summary of Site Conditions (from Section 2.0): The irregularly-shaped subject Site is situated on a small hilltop that has been cut and filled to create several flat-lying terrace areas. The Site is currently a vacant lot (all structures and infrastructure were cleared from the site in 2017). In addition, the property contains a large topographic depression in the northwestern corner of the planned development that will be infilled, compacted and brought up to grade (see aerial on the report cover). Over the past sixty (60) years the Site contained several residences, offices, automotive shop structures, and dirt lots that were primarily associated with automotive wrecking, dismantling, and vehicle storage (see the historical areal clip in Section 2.1). The Site is bordered by residential development to the west, light commercial land use to the south and the Watsonville Slough to the north and east. The northern and eastern perimeter lands along the slough are part of a protected riparian corridor and are not included in this *Renewed RAP*. These perimeter areas located beyond the California Department of Fish and Wildlife (CDFW) setbacks established for the Watsonville Slough will ultimately be constricted as a public walkway (path) and are being separately assessed.

A detailed description of four (4) previously completed sampling mobilizations and the associated, State-certified laboratory testing results are provided in Appendix B.

Summary of Original Development and Remediation Plan (2017): The original development plan (2017, "Sunshine Vista") included transforming the property's topographic knoll into a relatively flat-lying development using retaining walls and off-haul of approximately 44,000-yd^3 of surplus soil to balance the site. Proposed remedial clean-up actions included:

1) Removal of all junk vehicles, trash, debris, and structures from past uses (this task has been completed).
2) Remedial excavation and off-site disposal of the upper two (2) feet of soil from within the slough set back limits (the 2-ft, remedial excavation volume estimated to total approximately 33,200-

yd^3). Multiple rounds of delineation soil testing characterized the lateral and vertical extent of relic contaminants to be primarily in the upper two feet of soil across the site.

3) An additional volume of surplus soil, estimated to be approximately 10,800-yd^3, would need to be exported in order to achieve the sloped terrace design planned for this development. Section 6.1 (*Remedial Action Alternatives*) provides a cross-sectional graphic of subsurface conditions that visually shows an example of surplus soil wedge targeted of for export.

The previous selection of remedial "*Alternative 2*" was selected because the overall plan fully integrated the off-haul of contaminated soil (estimated to be 33,200-yd^3) within the redevelopment design and was deemed to be the most cost-effective option (WHA, 2017b). The selection of *Alternative 2* was approved for implementation by the overseeing agency, the County of Santa Cruz Environmental Health Services Agency (SC-HSA, 2018b).

Summary of Current (revised) Development and Remediation Plans (2021): In 2018, the development investors determined the large-volume off-haul plan (Alternative 2) was economically infeasible due to unexpected and prohibitive costs associated with soil transport and landfill disposal. As a result, a third remedial option (i.e., Alternative 3) was reevaluated, which includes 1) some off-haul of approximately half of the impacted soils and, 2) consolidation of the remaining volume of non-hazardous, contaminated soil, and emplacement a within an engineered cap area located beneath a street and parking area in the northwest corner of the development (see the *Site Environmental Grading and Mitigation Plans,* Figures 5 and 6).

This remedial design is described in detail in Sections 5.0 and 7.0 of this report, and has been determined to be the most feasible option for integrating remediation and development plans, because:

- It Addresses the *Chemicals of Potential Concern* (*COPCs*): As described in the previously approved, *Revised Remedial Action Plan* (WHA, 2017), a total of four (4), on-site were identified based on site-wide testing that showed concentration exceedances of conservative, agency-established thresholds designed to be protective of human health for a residential development and the environment (i.e., RWQCB *Environmental Screening Levels,* ESLs[1]). These *COPCs* include Lead, TPH-diesel and Motor Oil, and to a much lesser extent Naphthalene.

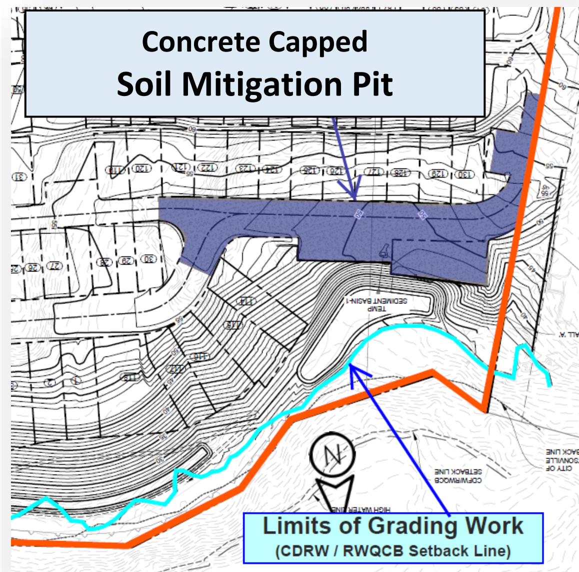
- It is an Agency-Accepted, Remedial Approach: The proposed consolidation and capping approach *(Area of Contamination)* is an accepted methodology for the remediation of these relatively low-concentration contaminants, as per guidelines established by California Department of Toxic Substances (DTSC, 2008). The proposed consolidation and isolation (capping) of existing urban-

[1]: ***Environmental Screening Levels (ESLs)***: The ESLs have been established for protection of human health and safety as well as multiple contaminant transport pathways. guideline document (RWQCB-SFB, 2019). The ESLs are intended to provide quantitative, risk-based guidance on whether further assessment or remediation of contamination is warranted.

impacted (non-hazardous) soils will completely eliminate potential exposure to future onsite receptors or the environment in order to safely facilitate the planned transition to residential land use.

In order to eliminate shallow, impacted soils from potential exposure to future onsite receptors, *this Renewed RAP* proposes:

1. Off-haul and landfill disposal of approximately 17,200 yd^3 of shallow contaminated soils.
2. In accordance with State Department of Toxic Substances' Control remediation guidance, consolidation and on-site burial of approximately 18,000 yd^3 of shallow contaminated soils (non-hazardous) beneath an isolated, capped roadway/parking area in the northeastern corner of the development (see blue-shaded, capped area, right). And,
3. Emplacement of a clean, impervious cap (i.e., final cap surface is to be reinforced concrete) above the AOC-buried soils and implementation of a *Land Use Covenant* that includes requirements for standard of care monitoring and a *Post-Construction Site Management Plan* detailing agency notification and soil handling obligations for future cap or utility repairs.



See Figures 5 and 6 for Additional Details

As noted above, this remedial earthworks plan has been integrated into the development's grading plan (Ramsey, 2022; a copy is included as Appendix A). Site soils have already been profiled and approved for landfill disposal to: 1) John Smith Class III Landfill for acceptance of 16,700-yd^3 of non-hazardous contaminated soils, and 2) Kettleman Class I Landfill for acceptance of 1,500-yd^3 of California haz-waste classified soils. Remedial & site development activities (digging, stockpiling, loading, & trucking) can begin immediately following agency approval of this *Renewed RAP*. A Site-specific, *Stormwater Pollution Protection Plan* (SWPPP) will be managed throughout the earthworks project and the CDFW has provided written approval for completing these remedial tasks.

<u>Selected Remedial Action</u> (Section 6.1): Remedial alternatives evaluated in this report included: a) no action (baseline conditions), and b) two excavation options (Site-wide excavation of the upper 2-ft of soils and off-site disposal of impacted soils, +/- some on-site burial of impacted soils overlain by a clean soil cap. Remedial Alternative 3 ("*Burial Envelope with Soil Cap and Off-Haul"***)** has been selected as the most reasonable and appropriate remedial option because it:

- is protective of human health;
- is effective over both the short and the long term;
- is cost effective because it incorporates remedial action with redevelopment grading;
- limits the potential for a deed restriction;
- is implementable; and
- is the most cost effective based on redevelopment plans.

2.0 INTRODUCTION

This ***Renewed Remedial Action Plan (Renewed RAP*)** has been prepared on behalf of LANDCO Hillcrest, LLC in order to: 1) document the magnitude and extent of impacted soils at the subject Site, and 2) propose an acceptable remedial approach designed to eliminate potential environmental risks associated with historical industrial land use at the Site in anticipation of residential redevelopment. Agency oversight of the recommended, Site-wide remediation is provided by SC-HSA, in accordance with a Site-specific, *Voluntary Cleanup Program* agreement (SC-HSA, 2016). This *Renewed RAP* combines and incorporates the following into a single document:

1. It documents previously recommended interim remedial action tasks that included demolition of relic structures and scraping the upper 6-inches of soil across the Site in preparation for final remedial actions (WHA, 2017a).
2. It incorporates delineation of soil and groundwater testing documented in the previously submitted *Remedial Action Plan* (WHA, 2017b); and
3. It incorporates County of Santa Cruz Environmental Health Services Agency (SC-HSA) agency technical and toxicological-based comments Copies of SC-HSA comments have been included as a reference (Appendix F).

The purpose of this updated plan is to detail a soil removal action in anticipation of residential development of the property and it includes the following elements:

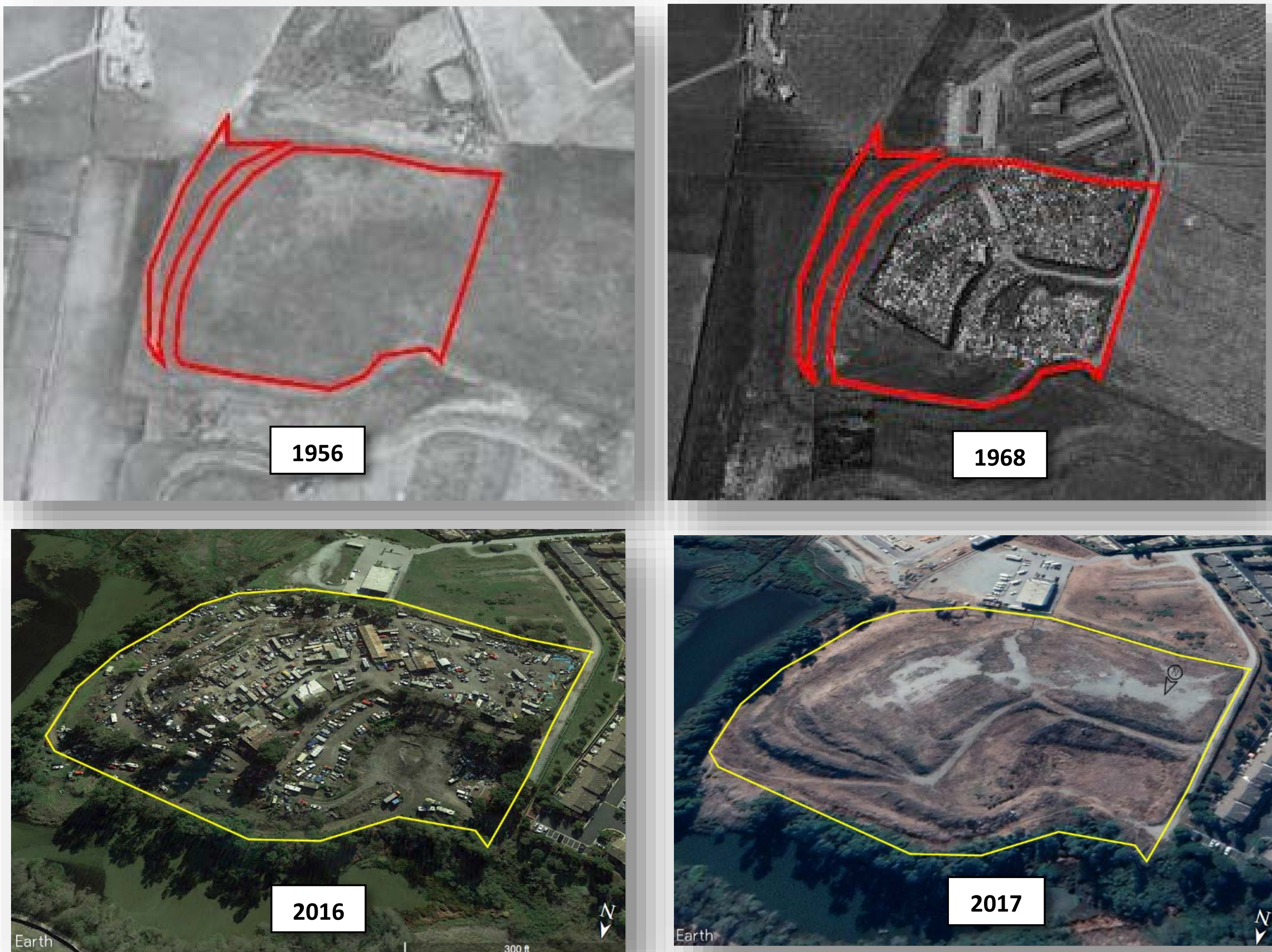
- A description of the nature and extent of the *COPCs* at the Site;
- A description of the *Remedial Action Objective (RAO),* describing the goals to be achieved;
- An analysis of the alternatives considered (including the effectiveness, implementability, and costs for each alternative);
- A description of the recommended alternative and the plan for its implementation.

2.1 Site Description & Land Use

The subject Site is an irregularly-shaped 11.27-acre parcel located at 511 Ohlone Parkway in Watsonville (Assessor Parcel Number 018-372-14). The Site contains three (3) distinct terraces that include the upper terrace which has an elevation of ~70 feet Mean Sea Level (MSL), the middle terrace at ~50 feet MSL, and the lowest terrace at ~25 feet MSL Figure 1). The property is flanked to the north and east by the Watsonville Slough, and first encountered groundwater monitored at the adjoining site confirms highwater elevation of 11-ft MSL (documentation included in Appendix B).

A number of long-term structures were demolished and removed in 2017 – see the clip of historical land use aerials presented below. Currently, the property remains an undeveloped, dirt-covered lot and the tiers of flat-lying terraces are connected by dirt and gravel access roads (see *Aerial Vicinity Map,* Figure 2). Remaining areas are vegetated, which include the steeper contoured hillsides and flatter areas adjacent to the slough. Note: The northern and eastern perimeter of the property along the slough is part of a protected riparian corridor and is not included in the current *Renewed RAP*. These areas are being separately assessed and will be kept accessible for future characterization and remedial action.

Current view of the northwestern corner (topographic depression) of the vacant Site



Historical Views of the 11.3-acre, Multi-Terraced, Subject Site
(Site cleared of all infrastructure in early 2017)

Historic grading at the Site included cutting (lowering) and filling. Up until 2017, the flat-lying terraces were primarily occupied by various automotive wrecking/dismantling and vehicle storage businesses (i.e., junkyard salvaging of vehicles, sales of dismantled parts, and towing company storage, see aerial birds eye view of the site in 2016, above).

Historical aerial photographs document that the subject Site was undeveloped, possibly used as grazing lands in the 1930s, and remained so until sometime between 1956 and 1968 (WHA, 2016). By 1968, the Site contained a mixture of automotive wrecking and salvage operations on the western and central portions of the property. Automotive salvage operations continued until approximately 2016 when the majority of vehicles, structures and trees were removed from the property in preparation for redevelopment. All structures, foundations and stored equipment were removed in 2017 and all areas of the Site remain accessible by the historic access road network, which will be utilized during remedial action activities.

Vicinity land-use has been largely agricultural up until around 2005 when historical aerials show the lands to the west, south and north were developed into residential neighborhoods. The Site is currently bordered to the north and east by Watsonville Slough, to the south by a commercial trucking warehouse, to the southeast by vacant land recently approved for residential development and to the west by residential developments (see *Aerial Vicinity Map,* Figure 2).

Multiple rounds of site characterization testing, described in detail in Section 3.0, have shown that surface and shallow soil to depths of up to 2 feet below ground surface contain residual contaminants associated with the decades-long, land use of vehicle storage activities. Exploratory trenches along the terrace perimeters have shown some non-native areas containing fill soils and debris (i.e., tires, vehicle parts, and concrete rubble).

The Hillcrest Subdivision Development project proposes to remediate shallow contaminated soils and construct a residential development in this location, including new road access to Ohlone Parkway and new stormwater treatment facilities. Planned Site redevelopment will involve extensive grading to lower the upper elevations at the Site (design plans show there will be a significant surplus of soils that need to be exported from the Site; design drawings included as Appendix A).

2.2 Site Subsurface Conditions

The Site is located near the north end of Monterey Bay, at the western base of the Santa Cruz Mountains (Coast Ranges Geomorphic Province). Regional geologic maps and reports indicate that surface soils underlying the Site and vicinity area generally consist of pliestocene-aged fluvial facies ('Qwf', see Regional Geologic Map, right), which are reported to consist of semi-consolidated, moderately to poorly sorted silt, sand, silty clay, and gravel. Gravel, approximately 50 feet thick, is generally present 50 feet below ground surface (bgs). The areas to the immediate north and east of the Site have surface soils consisting of Basin deposits (Qb), which are generally unconsolidated, plastic, silty clay and clay rich in organic material.

Regional Geologic Map
Pleistocene-aged fluvial facies (Qwf) underlie the Site.

Phase II Site Assessment drilling completed in July 2016 (WHA, 2016), and details of the drilling and sampling program are included in Appendix B. Investigative tasks included fourteen (14) direct push borings that were continuously cored to depths of 8-12 feet below the ground surface (bgs). These borings generally encountered clay to depths of approximately 4 to 8 feet bgs, underlain with silty sand. These shallow soil conditions are relatively consistent across the Site, regardless of elevation. Non-native surficial fill material was encountered in the majority of the 14 borings ranging in thickness of about 0.5 to 2 feet. Six (6) perimeter borings were extended to groundwater which was encountered at depths ranging from 19.7 to 33.7 feet bgs (not necessarily stabilized water table conditions). On-site shallow groundwater is assumed to flow northerly and easterly, towards the adjoining, low-lying slough. First encountered groundwater at an adjoinig fuel leak stie has documented a highwate elevation of ~11 ft above MSL (docuentation included in Appendix B).

2.3 Purpose of this *Renewed RAP* and Planned Future Land Use

Environmental investigations conducted at the Site identified the presence of TPH and select metals in near surface soil at concentrations exceeding Tier 1, risk-based residential soil screening levels. The property owner intends to develop the Site for residential use. Soil removal and consolidation proposed for the Site follow DTSC-approved protocols for remediation of an impacted property.

2.4 Environmental Screening Levels

Site-specific, *Chemicals of Potential Concern* ("*COPCs*") have been identified based on a review of land uses and laboratory analysis results obtained from multiple soil and groundwater sampling investigations at the subject property. The significance of all *COPC* detections in soil and groundwater were evaluated by comparing all detectable concentrations with agency-published screening levels. The screening thresholds have been established by several agencies that include:

- Federal screening levels (United States Environmental Protection Agency[2], USEPA), and
- State screening levels: a) one established by the California Department of Toxic Substances[3] (DTSC);

[2]: *Regional Screening Levels* ***(USEPA-RSLs)***: Federally established, human health and safety, risk-based threshold concentrations established by the USEPA for use in the human health risk assessment process at chemical release sites. These screening levels are derived at a target cancer risk level of 1×10-6, and a target non-cancer (hazard quotient value) of 1 (USEPA, 2021)

[3]: *DTSC-modified Screening Levels* ***(DTSC-modified SLs)***: California-established, human health and safety, risk-based threshold concentrations established by California DTSC in their guideline document (DTSC, 2020). These DTSC-modified screening levels are used in conjunction with the USEPA's RSLs to evaluate chemical concentrations in environmental media at California sites and facilities (i.e., for those chemicals not posted on the Note 3 website, DTSC-HERO endorses USEPA-RSLs). These screening levels are also derived for a target cancer risk level of 1×10^{-6}, and a target non-cancer (hazard quotient value) of 1 but for select chemicals, California uses a more conservative toxicity evaluation for a select number of urban chemicals.

- and b) the second established by the California Regional Water Quality Control Board[4] (RWQCB).

These established "Tier 1" screening levels have been developed using a set of conservative exposure and risk assumptions considered to be protective of the human health and the environment and based on appropriate land use parameters (i.e., residential-specific, or commercial/industrial-specific).

The Tier 1 screening levels have been used to evaluate sampling results of laboratory tested soil and groundwater. *COPC* concentrations that exceed media-specific screening thresholds provide the basis where further evaluations, general response actions, or specific mitigation measures may be needed. Aside from naturally-occurring metals having a site-specific, *Background Threshold Value* (BTV), this assessment uses the lowest (most conservative), agency-derived threshold as a cleanup goal for chemical compounds (see Tables for additional details).

<u>Soil Screening Levels</u>: As described in Section 4.1 (overview of chemicals of concern), site-specific cleanup standards have been based on either:

1. Agency-established Tier 1 thresholds [i.e., quantitative, worst-case, risk-based guidance based on multiple pathways that include potential threats to groundwater (leaching), human health (ingestion, inhalation, dermal), and ecological (surface soils, surface waters)]; or,
2. Site-specific, *Background Threshold Value* (BTV) for naturally occurring metals.

The soil tables presented in this *Renewed RAP* (Tables 2-4) present the multi-pathway RWQCB-ESL, as well as the DTSC-modified SLs (and the relevant USEPA RSLs for those chemical compounds that do not have an established DTSC-modified screening level).

<u>Groundwater Screening Levels</u>: The subject property is located within the jurisdiction of the Central Coast Regional Water Quality Control Board (Water Board) and the regulatory guidance used to evaluate potential impacts to groundwater is the California State Water Resources Control Board's *Maximum Contaminant Levels* ("MCLs") for drinking water resources (CCR Title 22). Summary tables of laboratory tested groundwater are included in Appendix B and include the State MCLs as well as RWQCB-ESLs for those contaminant compounds where no MCL exists (i.e., Total Petroleum Hydrocarbons).

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[4]: *<u>Environmental Screening Levels</u>* ***(RWQCB-ESLs)****:* The California Regional Water Quality Control Board (San Francisco Bay Region) also provides screening threshold guidance (RWQCB-SFB, 2019). The ESLs are intended to provide quantitative, worst-case, risk-based guidance (based on multiple pathways that include potential threats to groundwater (leaching), human health (ingestion, inhalation, dermal), and ecological (surface soils, surface waters). The final ESLs are not cleanup goals but are meant to assist risk managers in determining whether further assessment or remediation of contamination is warranted.

3.0 SUMMARY OF COMPETED SITE INVESTIGATIONS

Due to the decades of vehicle storage activities, surface and shallow soil beneath the Site contains contaminants associated with the land use. Detected contaminants have been well characterized through multiple rounds of soil and groundwater testing that included laboratory analysis of 249 soil samples collected from 145 locations across the Site. Because of the variable sampling nomenclature used by the different consulting firms, all samples have been renamed by quadrant for uniformity and ease of finding the location: Figure 4a presents the quadrants and sample location (A through E on the north-south axis, and #1 through 7 on the east-west axis), and Table 1 presents this information in a tabulated form. Specifically, Table 1 provides a chronological list of all samples obtained at the Site (original consultant ID), the quadrant where the sample is located, and the quadrant sampling ID (updated sample ID).

The following tables and figures and charts have been compiled to better show the overlapping data collected at this property over the last 12 years.

	Tables
Table 1:	Master Table of All Previously Collected Soil Samples
Table 2:	Soil Sample Test Results: CAM 17 METALS Analysis
Table 3:	Soil Sample Test Results: Total Lead Analysis
Table 4:	Soil Sample Test Results: Volatile Organic Compounds & Fuel Fingerprint

	Figures
Figure 3:	Soil - Sample Locations (identified by quadrant)
Figure 4a:	Soil - Contaminant Exceedances in Shallow Soil (< 2 ft depths)
Figure 4b:	Soil - Contaminant Exceedances (> 2-ft depths)
Figure 4c:	Soil - Contaminant Exceedances w/o Clean Base Sample (confirmation sample required)
Appendix B:	Summary description of previous soil & groundwater investigations (including summary tables & figures). Tabulated results of groundwater samples are included in Appendix B which include 8 grab samples tested in 2004, 6 grab samples in 2016, and analysis of the Site's domestic water supply well. Only trace to non-detectable results were detected in any of the groundwater samples.

Consultant reports from 2004 and 2016 concluded that chemical impacts exceeding agency screening levels for residential land use were generally limited to the upper two feet of soil. Results of the four (4), on-site environmental investigations are summarized below (a more detailed description of these evaluations including copies of the original sample location maps/tabulated results for each round of sampling is presented in Appendix B).

3.1 Phase I/II Environmental Site Assessment (ESA) (WHA, 2004)

This initial round of property transaction screening and preliminary shallow soil screening assessment identified three *Recognized Environmental Conditions*[5] including:

- Long term storage and dismantling of vehicles on native soils
- Long term handling, containerization, and disposal of hazardous materials
- Fill wedges contained tires, debris and non-native fill soils

Based on these potential liabilities, a *Phase II Soil and Groundwater Testing Program* was implemented that included the collection and laboratory analysis of representative soil collected at sixty-five (65) locations across the Site. Soil samples were analyzed for Total Petroleum Hydrocarbons (TPH), Volatile Organic Compounds (VOCs), metals, and anti-freeze. Laboratory-tested shallow soil samples identified isolated areas of shallow soil contamination, but were generally limited to relatively low-level, motor oil-range petroleum hydrocarbons. Results did not indicate evidence of any significant chemical release at the Site. Isolated pockets of elevated Lead contamination were identified (mostly on the southwestern portion of the Site) relative to regulatory-established, screening thresholds (see Tables 2, 3, and 4 for results and Appendix B for an in-depth summary of this subsurface testing investigation).

First encountered groundwater contained only *trace* concentrations of TPH-diesel and 1,1,1-Trichloroethane (1,1,1-TCA) at levels well below their respective drinking water threshold limits (i.e., the *Maximum Contaminant Levels*,[6] *MCLs*). The results were provided to the Central Coast Regional Water Quality Control Board, and that agency did not require additional investigation for the trace detections in groundwater. For reference, original copies of the 2004 sampling location maps and tabulated lab results are included in Appendix B.

3.2 Follow-up *Soil Quality Evaluation* (Lowney, 2004)

Additional investigation was completed by a potential buyer of the property (KB Homes) to further evaluate the Lead and Total Petroleum Hydrocarbon impacts detected during the initial Phase I/II screening of soils and groundwater (described above). Specifically, thirty-three (33) soil borings were sampled throughout the Site ranging in depth from four (4) to sixteen (16) feet below ground surface. Results indicated only one (1) of seventy-six (76) total samples had a detection of Lead (110 mg/kg) that exceeded the established human health-risk screening level of 80 mg/kg for residential land use. There

[5] : A *recognized environmental condition* (**REC**) is defined as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment (ASTM, 2013).

[6]: *Maximum Contaminant Levels (**MCLs**)*: the groundwater cleanup goals based on the region's *Water Quality Control Plan* (Basin Plan) for the Central Coast Regional Water Quality Control Board (CCRWQCB) and SWRCB guidelines (RWQCB-2019).

were no exceedances of TPH-diesel or motor oil in a limited set of samples analyzed for these petroleum hydrocarbon based fuels and oils. See Tables 2, 3 and 4 for a summary of the results and Appendix B for original copies of the investigation results and figures.

3.3 Subsequent *Phase I/II ESA* (WHA, 2016)

Twelve years after the initial soil and groundwater testing described above, a second *Phase I/II ESA* was completed to evaluate whether there were apparent environmental changes since the 2004 assessment. Since land use remained the same, the Phase I land use evaluation identified the same potential liabilities that were identified in the earlier *Phase I ESA* (WHA, 2004). An updated *Phase II soil and groundwater testing program* was implemented in June 2016 that included the collection and laboratory analysis of soil at twenty-three (23) locations across the Site, and grab-groundwater samples collected from six (6) borings positioned around the perimeter of the Site. Specifically, samples were collected from fill and native soils and analyzed for TPH-gasoline, TPH-diesel, and TPH-motor oil, CAM 17 metals, and selected samples were analyzed for volatile organic compounds. See Tables 2, 3, and 4 for results and Appendix B for an in-depth summary of this subsurface testing investigation). Results indicated the following:

- Shallow Soil Inspection and Sampling: Fifteen (15) shallow soil borings were cored at depths ranging from 0.5 to 4 feet bgs. These shallow soil borings were intended to confirm representative conditions of near surface soils at heavy land-use areas.
- Deeper Soil Inspection and Sampling: Eight (8) deeper soil borings were cored to depths of 8 to 12 feet bgs. The borings targeted industrial/commercial land use areas adjacent to established Site structures/workshops, with a few of the borings targeting vehicle dismantling areas, a reported potential underground/aboveground fuel storage tank (UST/AST) locations, and a reported vehicle burn area.
- Grab Groundwater Sampling: Six (6) grab groundwater samples were collected around the perimeter of the Site, in the apparent downgradient direction from the automotive salvage facilities. Depth to groundwater in these borings ranged from 19.7 to 33.7 feet bgs.

This 2016 *Phase I/II ESA* concluded that based on field observations and laboratory results: 1) the long-term automotive maintenance, salvaging/wrecking activities had not caused significant negative impacts to Site soils, and 2) confirmed that impacted soils were generally limited to the top one to two feet bgs, and 3) confirmed that groundwater was not impacted by current/historical land use site activities.

3.4 Additional *Phase II Sampling Report* (Trinity, 2016)

Trinity Source Group (Trinity) completed additional exploratory trenching to visually inspect fifty-five (55) locations across the Site, primarily located along the slopes of the existing cut-and fill terraces where there was potential for imported fill and debris (trench and sample locations are shown on a plan view map included in Appendix B). In addition, nine (9) exploratory borings were cored to evaluate a reported car burn area. Additional testing of *COPCs* included organochlorine pesticides, polychlorinated biphenyls, polynuclear aromatic hydrocarbons, and dioxins.[7] The work tasks and testing included:

- Debris Fill Areas: Backhoe trenching was used to provide additional assessment of slope debris areas which showed various levels of debris including tires, vehicle parts, and concrete. The assessment concluded that debris fill areas are typically located on steep slopes separating the terraces, which appeared to have been developed with (cut and) fill materials.
- No Pesticides, PCBs or Dioxins: Additional testing for organochlorine (persistent) pesticides and PCBs indicated that tested soils did not contain contaminant concentrations above screening levels. In addition, worst-case testing for Dioxins (adjacent to a reported fire pit location) showed risk-based residential screening thresholds were not exceeded.
- Shallow Soil Contamination: Stained surface soils at some locations contained concentrations of naphthalene, TPH-motor oil, Arsenic and Hexavalent Chromium above Tier 1 agency screening levels. Generally, elevated concentrations were localized and confined to shallow soil in the top two (2) feet bgs. Site-wide detections of Lead was the most widespread *COPC*. Statistical analysis of detected Nickel, Hexavalent Chromium and Arsenic indicated concentrations were at conditions (see Section 3.5, below).
- Adjoining Perimeter Land: Perimeter land beyond the north and east boundary of the planned development is protected as part of the Watsonville Slough riparian protection setbacks (see Figure 3). This parcel is targeted for development as a public pathway and bird watching area (separate from the current residential development). Observations of trenches completed as part of the 2016 assessment showed some debris fill and soil impacts that exceeded agency screening. This perimeter land is located in protected, sensitive habitat and further delineation sampling has recently been completed in accordance with an agency-approved *Workplan* (WHA, 2018). The perimeter walkway lands area will remain accessible for any necessary remedial actions during development activities that may be necessary, and upon approval of the California Department of Fish and Wildlife (CDFW).

[7]: Note: Boring logs show indicate that Trinity defined their measured sample collection depth to be the base of their sample (i.e., a "two-foot" deep sample was actually collected from 1-ft, 6-inches to 2-ft). The sample depths for the three other phases of soil sampling (2004 & 2016) are measured from the starting point (i.e., a "two-foot" deep sample was collected from 2-ft to 2-ft, 6-inches). In either case, remediation will extend to the more conservative depth and this *Remedial Action Plan* has been updated accordingly.

3.5 Support Documentation: Statistical Evaluation of Naturally-Occurring Metals (TH&Co, 2018)

Thomas Harder and Company (TH&Co), an experienced toxicological and groundwater modeling firm, completed a statistical evaluation of Arsenic, Hexavalent Chromium (Cr[VI]), and Nickel was completed using a multiple-lines-of-evidence approach to establish whether detected concentrations indicate background conditions or a Site-related release of these metals (a copy of the statistical evaluation is included in Appendix C as a reference). The analysis was conducted to determine whether or not concentrations of these naturally-occurring metals indicated a chemical release, thereby making them *'chemicals of potential concern'* (*COPCs*), and ultimately included in quantitative risk calculations.

The statistical analysis presented was conducted in accordance with CalEPA and USEPA guidance using USEPA's statistical software ProUCL. The statistical evaluation concluded that based on the population of naturally-occurring metal concentrations detected in soil during multiple investigation mobilizations, there were no Site-related chemical releases of Arsenic, Cr(IV), and Nickel at the Site. A summary of the analysis is presented below:

- Site-Specific Arsenic Detections: The data evaluation of sixty (60) samples showed a relatively narrow range of Arsenic concentrations (0.6 to 14 mg/kg) having a relatively low coefficient of variation (0.482). Additionally, box and Q-Q plots (visual analyses) showed the Site's Arsenic dataset followed a normal distribution with relatively few potential outliers (i.e., four samples at 11 mg/kg, and one sample at 14 mg/kg). A follow-up statistical (quantitative) analysis of the visual plots (i.e., a Rosner Test, ProUCL) did not identify any outliers in the Site's Arsenic dataset so no outliers were removed from the Site's Arsenic dataset.
  - The Site-specific *Background Threshold Value* (BTV), quantified as the 95% USL (**13.97 mg/kg**), is essentially equal to the maximum detected concentration (14 mg/kg). The analysis concluded that a Site-related release of Arsenic has not occurred, and Arsenic is reasonably is eliminated as a *COPC*. As noted, Appendix C contains a copy of the analysis as a reference.
- Site-Specific Hexavalent Chromium [Cr(VI)] Detections: The data evaluation of twenty-three (23) samples showed a relatively narrow range of Cr(VI) concentrations (0.61 to 4.9 mg/kg); having a coefficient of variation of 1. Additionally, visual (Box and Q-Q plots) and quantitative analyses (Dixon's Test, ProUCL) showed the log-transformed Cr(VI) Site dataset to contain no statistical outliers.
  - The site-specific *Background Threshold Value* for Cr(VI), was quantified as
    a) 6.1 mg/kg for the 95% USL, and
    b) **5.2-5.3 mg/kg** for a more conservative gamma distribution analysis.

Both BTV *thresholds* exceed the maximum detected Cr(VI) concentration (4.9 mg/kg), which indicates that a Site-related release of Cr(VI) has not occurred, and Cr(VI) is reasonably is eliminated as a *COPC*. Appendix C contains a copy of the analysis as a reference.

- Site-Specific Nickel Detections: The data evaluation of ninety-six (96) samples showed the Nickel dataset to follow a normal distribution with potential outliers of 0.76 mg/kg (one sample) and 150 mg/kg (two samples) and have a coefficient of variation of less than 1. Additionally, visual (Box and Q-Q plots) and quantitative analyses (Rosner's Test, Pro UCL) showed an approximate normal distribution site dataset with no statistical outliers.
  - The site-specific Background *Threshold Value* for Nickel was quantified as the 95% USL (**168.1 mg/kg**), which exceeds the maximum detected concentration (150 mg/kg). The analysis concluded that a Site-related release of Nickel has not occurred, and Nickel is reasonably is eliminated as a *COPC*. As noted, the full analysis is included in Appendix C as a reference.

3.6 Transport Modeling (TH&Co, 2021)

In order to defensibly demonstrate long-term protection of shallow groundwater underlying the Site with respect to remedial alternatives that potentially could include the on-site burial of metal and petroleum hydrocarbon impacted soils, an experienced groundwater risk modeling consultant evaluated contaminant transport. Transport modeling evaluated the potential for vertical migration, predications of travel time, and the potential for future concentrations of solute *COPCs* to affect groundwater beneath the subject property (TH&Co, 2021). The transport modeling evaluated forecasts of both travel time and future concentrations of the Site *COPCs* [lead, total petroleum hydrocarbons as diesel (TPH-diesel), and as motor oil (TPH-motor oil), and naphthalene] to potentially impact groundwater beneath the subject property. The complete transport modeling report is in included as Appendix C.

As part of the analysis, additional samples were collected from native soils and analyzed at a materials testing laboratory (Cooper Testing Laboratory) for grain size classification, hydraulic conductivity and permeability. The results provided site-specific input parameters for the selected leachability model (VLeach) as well as conservative assumptions to evaluate for worst case scenarios (i.e., assumes that the reinforced concrete cap/cover would impede only 50% of the Watsonville area precipitation which reasonably would also account for potential leakage from utilities). The model calculations verified potential migration of *COPCs* through the soil column would be extremely slow. Specifically, the report concluded:

> *The burial and engineered cap/cover system as modeled shows that migration of the COPC towards the water table will occur at exceedingly slow rates thus leading to exceedingly long times for which the system will not impact groundwater.*

The time required for the Site's relatively low concentration COPCs to migrate from the base of the impacted zone to the underlying water table (i.e., the 'travel time') is predicted to exceed 1,000 years for all COPCs.

Given that groundwater MCLs will not be exceeded for all COPC except for TPH-d, and then only after the very long model-predicted travel times presented (i.e., > 1,000 years), any impact is projected to be inconsequential.

As such, it is reasonable to conclude that any engineered system that will not adversely impact the resource of interest (i.e., groundwater) for so many years should be considered sufficiently designed and protective.

As a reference, the engineered retaining wall details as well as a supplemental *Geotechnical Evaluation* for the Hillcrest Residential Subdivision (MPE, 2022) is included as Appendix H.

3.7 Summary of Soil and Groundwater Testing

Residual contaminants that have been characterized through multiple rounds of soil and groundwater sample collection and testing. These investigations included laboratory analysis of 249 soil samples collected from 145 locations across the Site (all samples results are presented on Tables 1-4 and presented in plan view on Figure 3). Investigation results indicated:

- Grab groundwater samples collected from fourteen (14) locations cored around the site, as well as the on-site domestic water supply well, were not impacted by current/historical land-use activities.
- Long-term land-use impacts have not caused significant negative impacts to Site soils. Summary tables of the multiple environmental investigation results (Tables 2, 3, and 4) show that impacted soils are generally limited to the top one to two feet bgs and *COPCs* are typically localized in isolated areas. Four *COPCs* were identified based on concentration exceedances of conservative, Tier-1 agency-established thresholds that are designed to be protective of human health and the environment (i.e., the RWQCB-ESLs). These four *COPCs* include: Lead (up to 5,400 mg/kg), TPH-diesel (up to 670 mg/kg), TPH-Motor Oil (up to 97,000 mg/kg), and Naphthalene (up to 1.5 mg/kg). However as noted above, the preponderance of elevated detections are largely limited to shallow depths (<2 feet).
- Soil vapor is not considered a transport pathway of concern since test results showed only trace to non-detectable concentrations of volatile contaminant compounds were detected in soils (no volatile compounds have been identified as *COPCs.*
- A statistical evaluation of the collected lab data calculated *Background Threshold Values* for Arsenic, Cr(IV), and Nickel are 13.97, 5.2 mg/kg, and 168.1 mg/kg, respectively. The analysis

concluded that based on the population of soil sample concentrations, Site-related releases of three naturally occurring metals (Arsenic, Cr(IV), and Nickel) have not occurred at the Site.

- The statistical evaluation of potential migration of the site *COPCs* vertically towards the water table has shown it will only occur at extremely slow rates meaning the *COPCs* will not impact groundwater in any reasonable timeframe. Therefore, a remedial alternative that includes of on-site burial with an engineered cap/cover system (with a 15-foot separation to groundwater) is a reasonable and viable option.

A detailed description of all sampling mobilizations and State-certified laboratory testing results is provided in Appendix B.

4.0 NATURE AND EXTENT OF CONTAMINATION

As noted, Table 1 presents the chronological list of samples obtained at the Site (original consultant ID), the quadrant where the sample is located, and the updated, quadrant-based sampling ID (updated sample ID). Figure 3 presents sample location by quadrants (A through E on the north-south axis, and #1 through 7 on the east-west axis). State-certified laboratory results of soil sample locations that are in exceedance of screening thresholds (i.e., *ESLs/Background Threshold Values)* are presented on Figures 4a and 4b and the results have been tabulated onto summary Tables 2 through 4.

The laboratory results confirm that four contaminants [Lead, Extractable-range TPH (as diesel and motor oil), and Naphthalene] are present in the top two feet of surface soils at concentrations exceeding Tier 1, risk-based, soil screening thresholds. Exceedances are also present at localized deeper locations associated with historic automotive salvaging land-use.

4.1 Overview of Chemicals of Concern

<u>Elevated Shallow Soil Detections of Lead, TPH-diesel, TPH-motor oil, and Naphthalene</u> (Tables 2, 3, and 4 and Figures 4a and 4b): Laboratory results document there are localized on-site areas that contain *COPCs* at concentrations exceeding risk-based screening threshold concentrations for residential land use (i.e., the established RWQCB-ESL/*Background Threshold Value* threshold limits for unrestricted land use). Locations where threshold exceedances occur generally are limited to the upper two feet of soil and are highlighted on the summary tables (Tables 2 and 3 for metals, and Table 4 for remaining volatile and semi-volatile testing results) and the following figures:

- Figure 3 shows the location of all soil samples collected;
- Figure 4a highlights those locations having detected exceedances in the *upper two feet of soil*;
    - <u>Note</u>: many of these locations have co-located *COPCs* that will all be eliminated with the planned removal and disposal of the upper two feet of soil.

- Figure 4b highlights those locations having detected exceedances at *depths equal to or deeper than two feet below ground surface* (bgs). Note: limited over-excavation is planned for these locations and confirmatory base/sidewall samples will be collected to confirm no exceedances are present following soil removal.
- Figure 4c is an extension of Figure 4b but also includes additional locations where there was a shallow *ESL*/*Background Threshold Value* exceedance without a deeper confirmation sample. As with those sample locations presented in Figure 4b, deeper confirmatory soil samples will be collected to confirm no exceedances are present following soil removal.

The summary table below presents the concentration ranges for these *COPCs,* the location containing the highest concentration, and the Site-specific cleanup standards based on either: a) agency-established Tier 1 thresholds [i.e., quantitative, worst-case, risk-based guidance based on multiple pathways that include potential threats to groundwater (leaching), human health (ingestion, inhalation, dermal), and ecological (surface soils, surface waters)]; or the site-specific, *Background Threshold Value* (BTV) for naturally occurring metals.

Chemicals of Potential Concern (COPC)
Concentration Ranges & Screening Thresholds
Soil concentration units in milligrams per kilogram (mg/kg)

Chemical Of Potential Concern	**Minimum Concentration** (mg/kg)	**Maximum Concentration** (mg/kg)	**Depth (& Location) of the Highest Concentration**	**Screening Threshold** (residential land use)
Arsenic	0.60	14	Debris *("T-18")*	13.97 mg/kg (basis: BTV)
Hexavalent Chromium [Cr(IV)]	0.61	4.9	3-ft *("T-13")*	5.2 mg/kg (basis: BTV)
Lead	1	5,400**	0.5-ft *("B-68")*	80 mg/kg (basis: RWQCB-ESL)
Nickel	0.76	150	0.5-ft *("B-11")*	168.1 mg/kg (basis: BTV)
TPH- Diesel	1.1	670	0.5-ft *("B-11")*	230 mg/kg (basis: RWQCB-ESL)
TPH- Motor Oil	ND	97,000	8-ft *("T-16")*	5,100 mg/kg (basis: RWQCB-ESL)
Naphthalene	ND	1.5	1.5-ft *("B-3")*	0.033 mg/kg (basis: RWQCB-ESL)

RWQCB-ESL = *Environmental Screening Level* (see Table 2 for additional details).

BTV = *Background Threshold Value* (see Section 3.5, above for discussion of background analysis).

** = Note: This result was a 3-point composite sample. The three individual samples were then analyzed separately, and the Lead concentrations dropped to a range of 100-480 mg/kg.

Anomalous Detections: There were two (2) exceedances of *cobalt* that were detected at concentrations slightly above its screening threshold of 23 mg/kg [i.e., 28 mg/kg at T-18@surface ("debris"); and 26 mg/kg at B-24@2-ft]. Note: both were co-located other contaminant impacts and are considered anomalous based on the numerous additional test results that were below agency thresholds (see Table 2). Confirmation samples will be obtained at these apparently anomalous detection locations.

5.0 REMEDIAL ACTION OBJECTIVE

The *Remedial Action Objective* (RAO) for this Site has been designed to abate potential health risks resulting from the identified *COPCs* to be protective of the current and reasonably anticipated future uses of the Site. Risk-based and background-based remedial criteria have been evaluated to establish specific concentration goals that are protective of human health and the environment (i.e., established screening level and anthropogenic concentrations that can safely be left in place). Risk-based cleanup will be based on the proposed residential land-use of the Site, specifically, the Hillcrest Development which will contain a 144 residential units and associated road-ways, sidewalks, and utility services. A discussion of human health risks, regulatory requirements, and the remedial action objective developed for the Site is presented below.

5.1 Remedial Action Objective

The *Remedial Action Objective (RAO*) for this redevelopment project is to reduce, minimize, or eliminate potential exposure of future residents (receptors) including future Site workers to *COPCs* detected at the Site that may pose an unacceptable human health risk [defined as less than one-in-one million *Incremental Lifetime Cancer Risk* (ILCR)], or excess of *Background Threshold Value* (BTV) concentrations.

5.2 Applicable or Relevant and Appropriate Requirements

The remedial action objective must be consistent with *Applicable or Relevant and Appropriate Requirements (ARARs),* based on federal guidelines derived from the National Oil and Hazardous Substances Pollution Contingency Plan (NCP, 40 CFR Section 300.5). Applicable requirements are remedial standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal or state law that specifically address a hazardous substance, pollutant, remedial action, location, or other circumstance at a Site.

Generally speaking, ARARs are remedial standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under Federal or State law that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a Site, address problems or situations sufficiently similar to those encountered at the Site, that their use is well-suited to the particular Site. ARARs may be categorized as chemical-specific, location-specific or activity-specific.

- Chemical-specific ARARs are health- or risk-based standards that define the allowable limits of specific chemical compounds found in or discharged to the environment.
- Location-specific ARARs apply to natural site features (e.g., wetlands, flood plains, endangered species) and manmade features (e.g., landfills, city zoning, places for historical or archaeological significance
- Activity-specific ARARs are technology-based or activity-based limitations that set performance and design restrictions.

Federal and State non-promulgated standards, policies, or guidance documents, and legal requirements, are not ARARs. However, according to NCP guidance, these criteria should also be considered when evaluating and selecting remedial actions necessary to protect human health and the environment and are commonly referred to as "To Be Considered" or TBCs. All necessary permits and approvals identified in this *Renewed RAP* will be obtained prior to any removal activities. Specifically, Hillcrest Subdivision Development or its contractor will obtain a grading permit from the City of Watsonville prior to the commencement of grading and removal activities under this *Renewed RAP*. The grading permit will require compliance with an approved grading plan and standard permit conditions, including:

- Construction Noise – Compliance with City Code construction noise requirements and construction activity scheduling limitations.
- Air Quality – Implementation Air Quality Management District best management practices to address fugitive dust emissions, localized dust impacts, and construction noise and nuisance impacts.
- Hydrology and Water Quality – Compliance with City of Watsonville Standard Conditions of Approval and the General National Pollutant Discharge Elimination System (NPDES) Storm Water Permit for Construction Activities, including preparation of a Storm Water Pollution Prevention Plan and Erosion Control Plan.

Upon approval from SC-HSA, and issuance of a grading permit, excavation activities will be performed by a California licensed contractor with a hazardous substance removal certification. A California-licensed geologist or civil engineer from Weber Hayes and Associates will be available for all environmental monitoring including for continuous fugitive dust monitoring, confirmation sampling, and project documentation. In the event that a previously unidentified environmental concern is discovered at any time during the planned remedial action or subsequent Site redevelopment, the owner will notify SC-HSA, and take necessary response actions as required by SC-HSA.

5.3 Site-Specific Remedial Criteria

Risk-based, *"Site-Specific Remedial Criteria"* is a phrase used to describe the rationale behind the selection of Site cleanup goals. As described in Section 2.4 (*Environmental Screening Levels*), established, risk-based screening limits are used for this project, such as the State *Environmental Screening Limits* (*RWQCB-ESL*s, RWQCB-SFB, 2019) and the *DTSC-modified Screening Levels (DTSC-modified SLs,* DTSC 2020), and the Federal counterpart, the EPA's *Regional Screening Limits* (RSLs; USEPA, 2021). These screening levels are developed by integrating standard toxicological parameters such as: a) target risk levels, b) assumptions concerning exposure, c) exposure estimation, and d) compound-specific toxicity values to obtain a chemical concentration that can be present in soil without creating an excessive likelihood of adverse health effects assuming exposure to affected soils.

As described in Section 3.5 (*Statistical Evaluation of Naturally-Occurring Metals*), we have calculated the *Background Threshold Values* for Arsenic, Cr(IV), and Nickel, and selected risk-based thresholds for all other contaminants of potential concern we have selected the *Environmental Screening Level* (*RWQCB-ESL*) as the basis for establishing defensible, risk-based cleanup goals for the identified *COPCs* at the Site.

Site Numerical Remedial Criteria (cleanup goals) for Soil

Based on *Environmental Screening Levels* &
Background Threshold Concentrations for Arsenic, Hexavalent Chromium, and Nickel

Chemical	Remedial Criteria for Site Soils (mg/kg)
Arsenic	13.97 mg/kg Basis: BTV
Cr(IV)	5.2 mg/kg Basis: BTV
Total Lead	80 mg/kg Basis: RWQCB-ESL (health-risk)
Nickel	168.1 mg/kg Basis: BTV
TPH-diesel	230 mg/kg Basis: RWQCB-ESL (health risk)
TPH-motor oil	5,100 mg/kg Basis: RWQCB-ESL (leaching)]
Naphthalene	0.033 mg/kg Basis: RWQCB-ESL (leaching)]

RWQCB-ESL = *Environmental Screening Level* (see Table 2 for additional details).

BTV = *Background Threshold Value (see* Section 3.6, below for discussion of background UCL-95% analysis).

5.4 Additional Statistical Evaluation of *COPC* Risk

As shown above, the four (4) *COPCs* include Total Lead, TPH-diesel, TPH-motor oil, and Naphthalene. The residential and construction worker ESLs for lead (80 and 160 mg/kg, respectively) are associated with blood lead levels calculated using a blood Lead model (LeadSpread Model) developed by the CalEPA/OEHHA/DTSC, rather than the standard USEPA algorithms. As such, the risk values associated with Lead are neither calculated nor combined with that for the other *COPCs* but rather a direct comparison to the ESLs is conducted (i.e., comparison of detected concentrations to the residential (80 mg/kg) and construction worker (160 mg/kg) ESLs for Lead].

5.4.1 COPC Cumulative Non-Cancer and Cancer Risks

For the three remaining *COPCs*, TH&C computed the cumulative noncancer (Hazard Index, HI) and cancer risks (Incremental Lifetime Cancer Risk, ILCR) for both the residential receptor and the construction worker receptor based on direct soil exposure (i.e., via incidental ingestion, dermal contact, and particulate inhalation). Copies of the sample-specific risk tables are included as a reference in Appendix C, which include:

- <u>Residential Receptor</u>:
    - Cumulative noncancer (Table 1a);
    - Cumulative cancer (Table 1b) risks; and
    - Total Lead Concentration Comparison (Table 3a).

  Summary Table 1a shows there are six instances in which the HI value exceeds 1.0. As shown in Table 1b, the maximum ILCR value (5 x 10-7) is less than the de minimis level of 1 x 10-6.

- <u>Construction Worker Receptor</u>: Cumulative noncancer (Table 2a) and cancer (Table 2b) risks;
    - Cumulative noncancer (Table 2a);
    - Cumulative cancer (Table 2b) risks; and
    - Total Lead Concentration Comparison (Table 3c).

  Summary Table 2a shows there is a single instance where the HI value exceeds 1.0 (T-16(t)). The HQ values at this location is driven by TPH-motor oil and the risk-driving exposure pathways are soil ingestion and dermal contact. As such, precautionary measures associated with these pathways near this location may be warranted. As shown in Table 2b, the maximum ILCR value (4 x 10-9) is less than the de minimis level of 1 x 10-6. An ILCR value less than the de minimis level is generally considered to be without potential adverse health effects.

The fact that the vast majority of the TPH/naphthalene and lead-impacted soil is confined within the upper 2 feet provides the basis for the removal depth of 2 feet. Over-excavation and subsequent confirmation sampling will be conducted at locations where the base sample exceeds the ESL or is not vertically defined (i.e., Figures 4b and 4c)

Note: Cumulative risk and hazard calculations for arsenic, chromium VI, and nickel were not done as a statistical background evaluation indicated they detected concentrations were not indicative of a Site-related release and they can reasonably be eliminated as *COPCs* (details in Section 3.5).

5.4.2 COPC Evaluation of 95% UCL Cumulative Risks

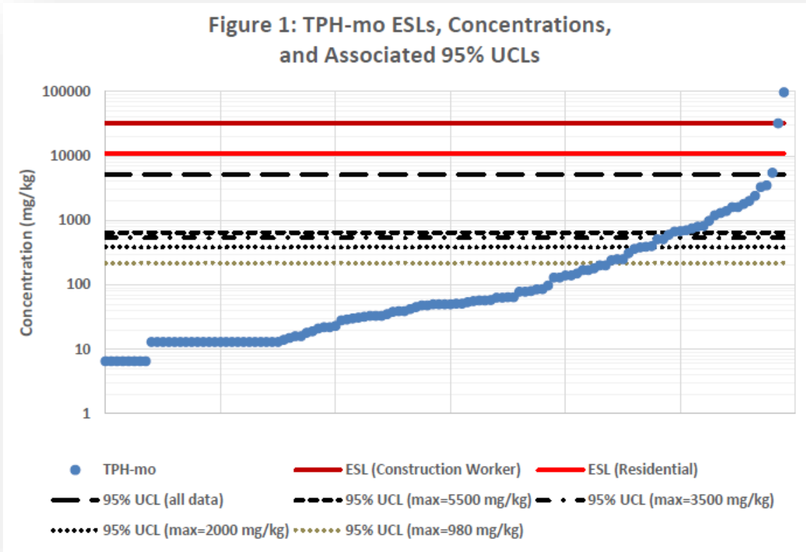
In addition, exposure point concentrations of the *Chemicals of Potential Concern* (other than Lead) were also evaluated for cumulative risks and hazards using calculated 95%UCL[8] concentrations rather than individual sample concentrations (2018, TH&Co, copy included in Appendix C). TH&Co's sample-specific risk tables (copies included in Appendix C) show that TPH-Diesel, TPH-Motor Oil, and lead exceed risk benchmark levels for some samples. The 95% UCLs for these three *COPCs* were calculated using the USEPA ProUCL model (rounded to the nearest mg/kg) are:

Chemical	**95% UCLs** (mg/kg)	**Residential Land Use Human Health Risk-Based Benchmark Levels**	
TPH-Diesel:	98 mg/kg;	230 mg/kg	Basis: RWQCB-ESL (health risk)
TPH-Motor Oil:	5,143 mg/kg;	11,000 mg/kg	Basis: RWQCB-ESL (leaching)]
Total Lead	220 mg/kg.	80 mg/kg	Basis: RWQCB-ESL (health-risk)

The table shows that Lead is the only *COPC* with a 95% UCL that exceeds its risk benchmark. Use of a 95% UCL would eliminate risk concerns associated with TPH-Diesel and TPH-Motor Oil.

In addition, sample locations were there were elevated concentrations of COCPs (i.e., hot spots) were further evaluated by TH&Co. Specifically, charts were generated for TPH-Motor Oil and Total Lead that quantitatively and visually show the decreasing 95% UCL concentrations associated with sequential hot spot removals (i.e., soil removal of the highest contaminant concentration first and then the next highest concentration, etc.). Clips of these charts showing incremental hot spot removals and the resulting 95% UCL are shown below for both TPH-Motor Oil and Lead (see Appendix C for the originals)

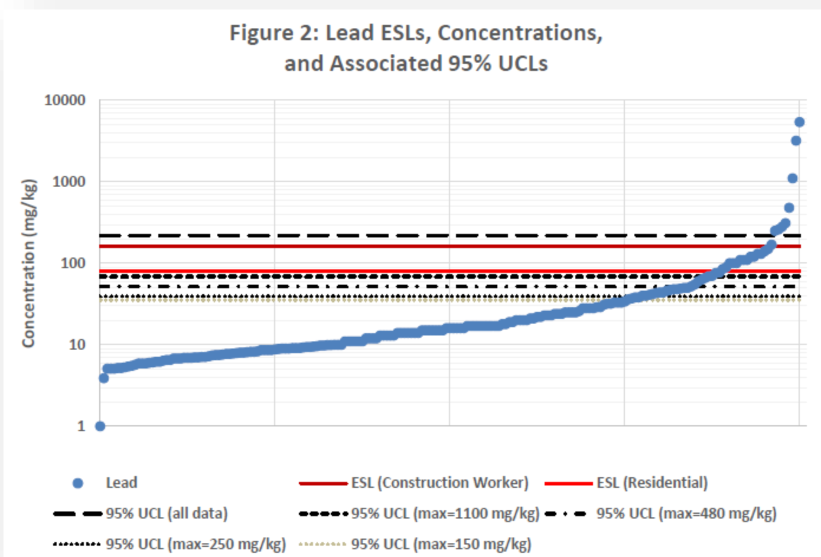
[8]: Upper Confidence Limit (UCL): The upper boundary (or limit) of a confidence interval of a parameter of interest such as the population mean



The TPH-motor oil chart (above) shows that for the entire dataset (blue) and the 95% UCL (5,143 mg/kg) does not exceed either risk-based ESL threshold of 11,000 mg/kg.
This chart shows that if the two highest TPH-Motor Oil concentrations are removed (both hot spot concentrations exceed the residential ESL), then:

- The resulting dataset has a maximum concentration of 5,500 mg/kg, and
- The 95% UCL decreases from 5,143 to 648 mg/kg

Additional hot spot removals result in comparatively negligible decreases in the 95% UCL.



The Total Lead chart (above) shows that for the entire dataset (blue) and the 95% UCL (220 mg/kg) does exceed the risk-based ESL threshold for residential land use (80 mg/kg) as well as the construction worker (160 mg/kg). This chart shows that if the two highest Total Lead concentrations are removed (i.e., 5,400 & 3,200 mg/kg) then:

- The resulting dataset has a maximum concentration of 1,100 mg/kg, and
- The 95% UCL decreases from 220 to 69 mg/kg (which is below the risk-based ESL for both residential & construction worker.

Additional hot spot removals result in comparatively negligible decreases in the 95% UCL.

- **Shallow Soil Contamination** (less than 2 feet)**:**
  - Total Lead, TPH-diesel, TPH-motor oil, and Naphthalene: Based on multiple environmental investigations, shallow soil remediation (<2 feet bgs) will be required across the entire Site to achieve unrestricted land use based on the remedial screening criteria (i.e., residential *Environmental Screening Levels* or *Background Threshold Values* -elevated shallow impacts are shown on Figure 4a). The *ESLs* for these four (4) constituents are the proposed clean-up goals for remedial activities.
- **Deeper Soil Contamination:**
  - Total Lead, Naphthalene, and TPH-diesel/Motor Oil: Field investigations indicate that localized, isolated areas of deeper contamination are present around areas of historic high-use operations (see Figure 4b). Any area having a documented exceedance of the established cleanup goals will be over-excavated and confirmation samples obtained in accordance with SC-HSA *Site Mitigation Program Standards* (SC-HSA, 2010), to confirm residual soils have achieved the established cleanup goals (i.e., residential *Environmental Screening Levels*).

The goal of proposed remedial actions will reduce/eliminate potential for increased health risks posed by the *COPCs* detected in Site soils to future users of the Site that may be exposed to the Site soils. This *Renewed RAP* focuses remedy selection on the planned use of a Site (i.e., long term, residential housing, native soil areas, roadways, pedestrian pathways, and associated residential housing appurtenances). Cost-effective remedial action options can best be combined with Site redevelopment, which is planned to include extensive grading to lower the upper elevations at the Site (design plans show there will be a significant surplus of soils that need to be exported from the Site). Current plans are to complete any remedial action plan earthworks as part of the larger phase of Site redevelopment, which will include mass grading of the existing knoll to create buildable terraces.

Based on the relatively random, shallow contaminant exceedances detected across the Site that are associated with Site-wide historical land use as an automotive wrecking/storage yard, remedial efforts will include shallow soil remediation across the entire Site to conservatively address any missed shallow soil impacts (i.e., address the upper 2 feet of soils across the Site, some additional, deeper excavation, and soil removal from a limited number of isolated "hot spot" areas having documented deeper contamination (Figure 4b). Statistical evaluation described above (i.e., UCL-95%, and cumulative risk analysis) clearly show that removal of the upper two-feet of soil and isolated hot-spots will eliminate both site-wide risk, and potential isolated risk.

A remedial effort designed to reduce elevated concentrations of *COPCs* present in shallow soils and at isolated locations having deeper contamination ("hot spots") is protective of human health and safety. As per standard remedial action plan evaluation protocols, the following section describes a number of potential remedial technologies and screens them based on effectiveness, implementability, and cost to satisfy the RAO.

6.0 FEASIBILITY ANALYSIS

6.1 Remedial Action Alternatives

Given Site-wide shallow soil contamination of relatively immobile *COPC*, localized deeper zones containing elevated *COPCs,* and no impacts to groundwater that are present at the Site, the following three (3) remedial action alternatives were identified as reasonable per Site-specific conditions and include:

1. Alternative 1: No Action (baseline conditions with institutional control)
2. Alternative 2: Site-wide Shallow Soil Excavation (2-feet), Targeted Deeper Excavation and Off-Site Disposal*.*
3. Alternative 3 (Burial Envelope with Soil Cap and Off-haul): Off-haul and landfill disposal of approximately 17,200-yd^3 of shallow contaminated soils, the on-site consolidation/burial of approximately 18,000-yd^3 of shallow contaminated soils (non-hazardous) beneath an isolated, capped roadway/parking area in the northeastern corner of the development

6.1.1 Alternative 1 - No Further Action

The No Action alternative was evaluated (as required under the NCP) to provide a baseline to which the relative benefits of the other alternatives could be compared. This alternative would not require implementing any measures at the Site, and no costs would be incurred. This action would include institutional controls (deed restriction), no treatment of soil, no sampling, and no monitoring. However, this alternative does not involve any mitigation of the hazard.

The *Land Use Covenant* (LUC) would run-with-the-land and would be required to document existing conditions and future soil management obligations. The LUC would be an agreement between SC-HSA and the property owner and recorded with the Santa Cruz County Recorder's Office to ensure that local agencies, the public, prospective purchasers and tenants are aware of residual, left in place soil contamination at the Site. The LUC is considered an institutional control that is used as a means to limit particular redevelopment activities without preapproval by SC-HSA. Restrictions could include limiting land use to commercial-only redevelopment (i.e., no hospitals, day cares, schools, or single-family residential). The LUC would require adhering to a Site-specific *Soil Management Plan* that places notification and monitoring restrictions on earthworks activities involving excavation/trenching (i.e., for utilities, foundations, grading, and subgrade construction such as an underground parking garage). *Soil Management Plans* typically require notification and approval by SC-HSA prior to earthworks in areas having residual *COPC* impacts and could involve annual submittals (inspection forms) confirming no disturbance has occurred over the reporting year.

6.1.2 Alternative 2 - Site-wide Shallow Soil (2-feet) Excavation & Targeted Deeper Excavation and Disposal

Overview: This alternative involves the excavation of soil from across the entire Site to eliminate all potential locations having shallow *COPC*-impacts in soils (see Figure 4a-4b for documented, COPC-impact locations). Excavation would be conducted over an approximately 11.3-acre Site to a depth of 2 feet below ground surface. As discussed in Section 5.0 (*Remedial action Objective*), the depth of 2 feet is based on the results of soil sampling that has been performed during multiple Site investigations and the relatively random, shallow contaminant exceedances detected across the Site that are associated with Site-wide historical land use as an automotive wrecking/storage yard. The primary goal of excavation and removal is to remove soils having *COPCs* concentrations that exceed the cleanup goals presented in Section 5.3 (*Site-Specific Remedial Criteria*).

It should be noted that current remedial efforts along the existing slough (i.e., perimeter path) will be restricted until CDFW permits are acquired for that area (targeted for Spring-Summer 2022). A *Perimeter Path Remedial Action Plan* will be completed that will provide safe recreational conditions for this public accessway.

Excavation & Soil Removal (see *Site Environmental Grading Plan,* Figure 5 for details). This alternative combines two phases of work:

- *Phase I(a) Soil Removal:* A total of 1,500-yd^3 of the 35,200-yd^3 of soil targeted for remediation (i.e., upper two feet of soil from across the site) has been characterized as hazardous and will be excavated and transported to Kettleman Class I Landfill in Kettleman City. These limited areas are in the southwest corner of the site and shown on the *Site Environmental Grading Plan,* Figure 5).
- *Phase I(b) Soil Removal:* All remaining soils to be remediated are characterized as non-hazardous, with relatively low-concentration contaminants. Initial work will involve grubbing, scraping of the initial 6-inches of soil, and removal of any buried debris that is uncovered during the initial grading of soils across the Site. This phase of soil removal is estimated to generate approximately 8,240-yd^3 (~11,500 tons; based on 1 yd^3 = 1.4 tons) of soil. These soils have been profiled for acceptance at a local, non-hazardous Class III landfill (John Smith Landfill, and/or Waste Management's Kirby Canyon Landfill). The handling of soils is described in the *Soil Management Plan* (Appendix D). Soils will be stockpiled or hot loaded directly onto trucks for transport to the accepting landfill.

  The goal behind this initial round of surface soil removal (upper 6-inches) is to remove the worst-case impacts for landfill acceptance and provide a more transparent, unobstructed view of the underlying soils (and debris). Any accessible debris would be unearthed and separately stockpiled and any areas where chemical staining or odors would be mapped and targeted for further assessment.

- *Phase I(c) Additional Soil Removal*: This is a follow-up excavation second step to Phase I(B) and would involve grading off and additional 18-inches of soil from across the entire Site and stockpiling it in pre-planned locations (see *Site Environmental Grading Plan,* Figure 5). This phase of soil removal is estimated to generate approximately 25,460-yd^3 (~35,600 tons) of soil which has been pre-profiled for landfill acceptance. Soil would be either hot loaded directly onto trucks (or stockpiled in accordance with *Soil Management Protocols,* Appendix D) and all trucking would be manifested for project documentation.

  In addition, deeper excavations would be completed if any visibly-impacted areas were discovered (i.e., any soils with chemical staining/odors) as well as at a limited number of locations where previous testing showed deeper contamination (Figure 4c). Specifically, deeper excavations will dig until no visible signs of contamination are present, or one foot below the sample depth of detected *COPC* in exceedance of regulatory screening levels.

<u>Confirmation Sampling</u>: Confirmation samples will be collected from the base of the deeper excavations and side-walls in accordance with SC-HSA *Site Mitigation Program Standards* (SC-HSA, 2010). In addition, at the completion of grading in each of the ten (10) Site subareas, confirmation base samples will be collected to confirm that removal goals have been achieved (see *Stockpile Plan & Confirmation Testing Grid,* Figure 7).

- *Specifically*, two (2), 4-point composite samples per subarea will be tested for the full range of *COPCs* previously detected in that subarea.
- The two (2), 4-point composite samples (8 samples per subarea) will be collected equidistantly throughout the subarea. The State-certified testing laboratory will complete the compositing at their facility. If the composite sample *COPC* concentration exceeds ¼ the value of applicable screening threshold (i.e., ESL or BTV), then each of the four discreet samples comprising that composite sample be independently analyzed. Additional soil removal will be completed until screening thresholds are achieved.

<u>Earthworks, Stockpiling and Landfill Disposal</u>: Soil removal would be accomplished using conventional grading equipment. Standard dust suppression methods, stockpiling, and storm water best management practices would be incorporated into the soil removal activities, as required by the grading permit. A stand-alone, environmental *Site Safety & Dust Monitoring Plan* is included as Appendix D along with soil management protocols, which addresses contaminant earthworks and sampling activities conducted within impacted areas and monitoring protections for construction workers & off-site receptors. Site safety includes continuously recorded dust monitoring in the work area and along the property line for monitoring particulate and respirable dust and calculated particulates concentrations for Chemicals of

Potential Concern. This plan would complement the earthworks contractor's standard of care safety plan for normal heavy equipment earthworks. It is anticipated that initial Phase I(a & b) earthworks implementation would take three weeks to complete and the Phase I(c) earthworks another 4 weeks to complete.

- Weber, Hayes and Associate staff would coordinate soil handling with the selected haz-certified contractor (grading, excavation, loading and stockpiling). For any soils stockpiling, the materials will be stockpiled in pre-planned locations (see *Site Environmental Grading Plan,* Figure 5) and handled in accordance with standard of care soil protocols as described int the *Soil Management Plan* (Appendix D). The certified hazardous waste materials operator would manage the means and methods of the earthworks activities for the loading and transport of Site soils.

This remediation alternative would remove soil contaminants to below clean-up goals that are protective of human and environmental health. Confirmation sampling would document a baseline of clean soils, so clean surplus soils could be used for: (1) terrace regrading operations on-site, (2) clean alternative daily cover material for a landfill, and/or reuse at an off-site location (i.e., landfill/private property).

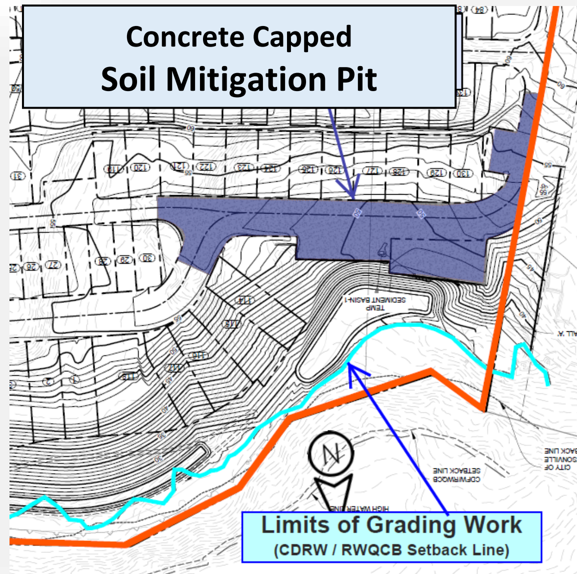
We would employ this representative, confirmation sampling strategy to characterize deeper Site soils (i.e., below the maximum depths of well characterized shallow soil impacts) for reuse as "clean" material to be used for the proposed soil cap. Results of a "clean" soil baseline will be communicated SC-HSA staff for obtaining surplus soil reuse approval.

6.1.3 Alternative 3 - Burial Envelope with Soil Cap and Off-Haul

This remedial option includes off-haul of approximately half of the impacted soils and consolidating and emplacing a volume of non-hazardous, contaminated soil within an engineered cap area located beneath a street and parking area in the northwest corner of the development. Specifically, this alternative includes:

1. The off-haul and landfill disposal of approximately 17,200-yd^3 of shallow contaminated soils. The excavation and off-haul operations would follow protocols described in *Alternative 2* (above, see *Section 6.1.3*).

2. In accordance with State Department of Toxic Substances' Control remediation guidance, consolidation and on-site burial of approximately 18,000-yd^3 of shallow contaminated soils (non-hazardous) beneath an isolated, capped roadway/parking area in the northeastern corner of the development (see blue-shaded, capped area, right), and emplacement of a clean, impervious cap (i.e., final cap surface is to be reinforced concrete) above the AOC-buried soils. And,
3. Implementation of a *Land Use Covenant* that includes requirements for standard of care monitoring and a *Post-Construction Site Management Plan* detailing agency notification and soil handling obligations for future cap or utility repairs.



See Figures 5 and 6 for Additional Details

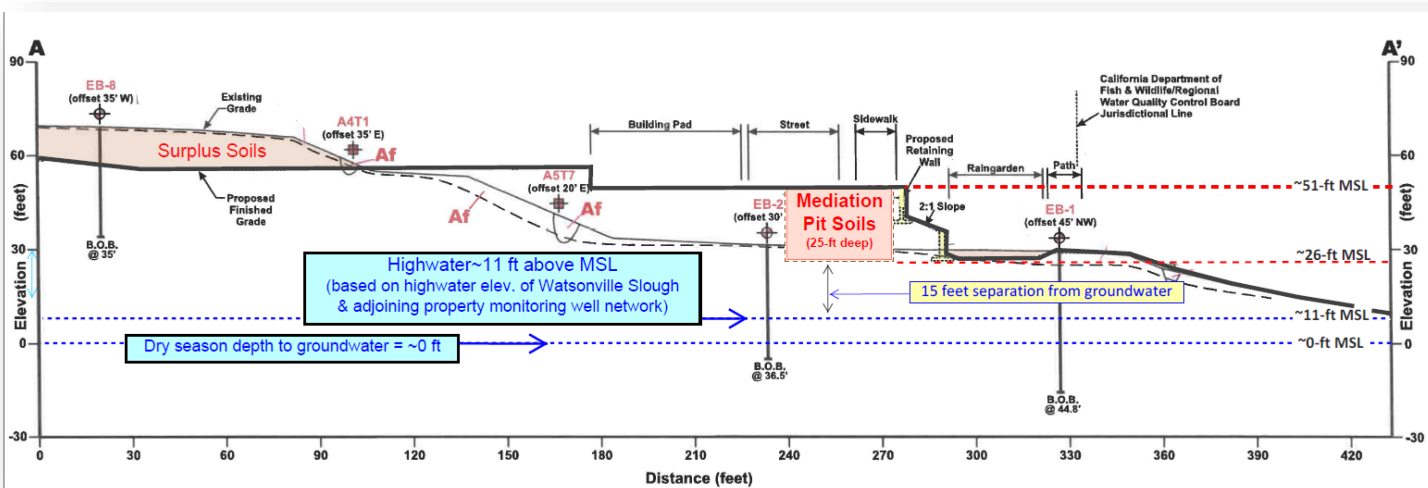
The proposed AOC approach of consolidation and capping is an accepted methodology for the remediation of these relatively low-concentration contaminants, as per guidelines established by California Department of Toxic Substances (DTSC, 2008). The proposed consolidation and isolation (capping) of existing urban-impacted (non-hazardous) soils will completely eliminate potential exposure to future onsite receptors or the environment in order to safely facilitate the planned transition to residential land use.

In addition, transport modeling confirms that the engineered consolidation and capping of residual contaminant concentrations is protective of biotic and water resources (i.e., no significant impact). As described in Section 3.6 (Transport Modeling), an experienced groundwater risk modeling consultant evaluated the potential for vertical contaminant transport to demonstrate long-term protection of shallow groundwater underlying the Site with respect to the capped mediation pit of buried, impacted soils. The modeling evaluated the potential for contaminant vertical migration, predications of travel time, and the potential for future concentrations of solute COPCs to affect groundwater beneath the subject property (TH&Co, 2021). The model used conservative assumptions to evaluate for worst case scenarios (i.e., assumes that the final cap surface of reinforced concrete would impede only 50% of the Watsonville area precipitation which reasonably would also account for potential leakage from utilities). DTSC AOC guidelines do not preclude the installation of utility infrastructure beneath or within the capped footprint of residual, low-concentration contaminants. Additional protections can be put in place (i.e., impervious separation sheeting) but are not required. Protocols established in the

*Construction Soil Management Plan, (*Appendix D) or the *Land Use Covenant* (i.e., the *Post-Construction Environmental Site Management Plan*) will be protective of residents and construction workers.

The model calculations verified that the potential migration of COPCs through the soil column would be extremely slow. Specially, the report concluded that the burial of the site's non-hazardous, contaminated soils beneath an engineered cap/cover (i.e., the final cap surface is to be "reinforced concrete") does not have the potential to impact groundwater in over 1,000 years, and any impact is projected to be inconsequential. As such, it is reasonable to conclude that any engineered system that will not adversely impact the resource of interest (i.e., groundwater) for so many years should be considered sufficiently designed and protective. The complete transport modeling report is included as Appendix C.

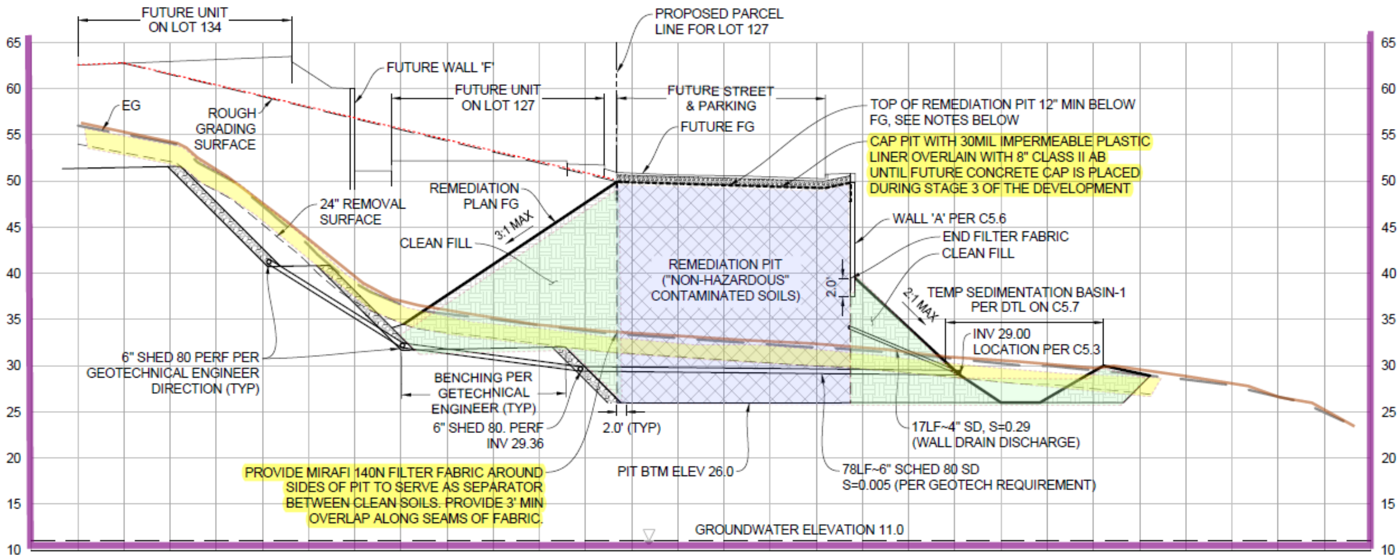
- Remediation Pit Installation Details: Appendix A includes detailed earthworks plans provided by the project's Civil Engineer (Ramsey, 2022), including details regarding the soil management (see detailed *Notes* and *Soil Mitigation and Rough Grading Sequence*, presented on the *Environmental Grading Plan,* Sheet C5.2, and the *Remediation Pit Grading Plan*, Sheet C5.1). Grading, including excavation, fill activities and retaining wall installation are to adhere to the recommendations and requirements set forth by the project's Geotechnical Engineer (MPE, 2021, and MPE, 2022) is included as Appendix H to provide supporting documentation of this



Conceptual View of Surplus Soils, Topographic Depression in NW Corner, and Mediation Pit

engineered approach.

A separation geofabric or geogrid will be installed as a reference marker for future activities that will be used to differentiate soils within the remediation pit from non-impacted clean fill/native soils. There will be a minimum of 3 feet of overlap along seams of the separation fabric/grid.



The separation of capped, mitigation pit soils to groundwater is designed to be a minimum of 15-feet. Only soils designated as non-hazardous, will be placed within the confines of a surveyed, designated footprint, starting at an elevation of 26-ft above Mean Sea Level (26-FT MSL). This elevation is 15-ft above the groundwater high water mark of 11-ft MSL.

The soils burial chamber will be located within a topographic, natural depression in the that will be raised in compacted lifts. Note that the non-hazardous soil burial chamber is only a portion the buildup of this topographic depression (see *Remediation Pit Grading Plan,* Figure 6). The project development plan calls for a buildup of approximately 25-ft$_{avg}$ of compacted soils across this topographic depression to be emplaced in compacted lifts and held in place with engineered retaining walls (see graphic clip above that presents existing and development surfaces, including the remediation pit). Appendix H includes details regarding the engineered design specifications including compaction and construction requirements for the retaining wall that contains the remediation pit (i.e., 12-inch lifts compacted at 90% relative compaction).

- <u>Onsite Monitoring and Confirmation Sampling</u>: Experienced, and registered environmental geologists and engineers from Weber, Hayes and Associates will manage all environmental aspects of this project including agency coordination, environmental site safety (including tail gate safety meetings to address contaminant construction worker & off-site receptor protection for earthworks and sampling activities conducted within impacted areas).

  Site safety would include continuously recorded dust monitoring in the work area and along the property line for particulate and respirable dust and associated *Chemicals of Potential Concern*. This environmental *Site Safety & Dust Monitoring Plan* (Appendix D) would complement the earthworks contractor's standard of care safety plan for normal heavy equipment earthworks. Confirmation base and sidewall testing would be the basis for determining the limits of any targeted excavations or newly discovered areas having evidence of contamination (i.e., chemical odors/soil staining).

Sampling results, soil stockpile management, landfill acceptance profiling disposal documentation would be regularly relayed to the SC-HSA throughout the project. Experienced staff would coordinate all environmental monitoring, oversight, and sampling with licensed earthworks contractors who would be tasked with cost-effectively implementing this limited remedial excavation work. Earthworks would be conducted using standard earthworks equipment that include graders, excavators and loaders and standard-of-care earthworks practices will be in place for construction site safety and for controlling the generation of dust contact (i.e., wetting soils, monitoring wind speed, particulate dust monitoring, etc.).

- Land Use Covenant*:* Because some residual contaminants would remain at concentrations exceeding cleanup goals (albeit under conditions that are completely protective of human health and safety), a *Land Use Covenant* (deed restriction) that runs-with-the-land would be required to document existing conditions and future soil management obligations. A *Land Use Covenant* condition for this remedial alternative would include a requirement that the planned impervious cap cover be checked on a prescribed schedule and maintained as necessary to provide the protective cover that serves to eliminate potential exposure to any underlying impacted soil. In addition, any utility repair work would be required to follow standard-of-care, notification and soil handling protocols that will be established in a *Post-Construction*, *Site Management Plan* (to be included as a recorded exhibit of the *Land Use Covenant).*

6.2 Remedial Action Alternatives Evaluation

Alternative 2 (*Burial Envelope with Soil Cap*) has been selected as the most reasonable and appropriate remedial option because:

- is protective of human health;
- is effective over both the short and the long term;
- is cost effective because it incorporates remedial action with redevelopment grading;
- is implementable; and
- is the most cost effective based on redevelopment plans.

Alternative 1 (*No Further Action*) is not implementable as it would be unacceptable to the overseeing health agency (SC-HSA), and it would prevent redevelopment. The costs for transport, landfill disposal, and imported replacement fill for implementing Alternative #2 (*Site-wide Shallow Soil (2-feet) Excavation and Targeted Deeper Excavation and Disposal*) are over double the costs of the recommended "*Burial Envelope with Soil Cap*" alternative (Alternative 3).

7.0 REMEDIAL DESIGN

This section describes the tasks that would be conducted to complete the selected remedial action alternative (i.e., Alternative 3, *Burial Envelope* with *Soil Cap*). The proposed consolidation, on-site burial and capping of the non-hazardous concentrations of metal impacted soils will be completed in general accordance with guidelines provided in DTSC's *Proven Technologies and Remedies Guidance – Remediation of Metals in Soil* using the Area of Contamination approach (AOC)[9]. The goal of the proposed capping remedy will be to provide an easy to maintain, health and environmentally protective long-term solution for the Site by completely removing the well-defined Site COCs that exceed residential screening thresholds from direct contact with future on-site receptors (ESLs/DTSC-SLs).

This capping remedy will require an environmental deed restriction and the preparation of a Post-Construction Environmental Site Management Plan that will provide clear direction for managing impacted soil beneath the cap during the construction phase of Site development, and for any future subsurface utility work that penetrates or alters the cap. Note: DTSC AOC guidelines do not preclude the installation of utility infrastructure beneath or within the capped footprint of the residual, low-concentration contaminants. Additional protections can be put in place (i.e., impervious separation sheeting) but is not required. Protocols established in the *Construction Soil Management Plan, (*Appendix D) or the *Land Use Covenant* (i.e., the *Post-Construction Environmental Site Management Plan*) will be protective of residents and construction workers. Following the emplacement of the soil cap, completion of the proposed development and recording of the environmental deed restriction, we will request that the County of Santa Cruz Environmental Health Services Agency issue a *No Further Action* letter for the completed remediation. The capping remedy includes the following elements:

1. A study of buried contaminant mobility / leaching with respect to shallow groundwater protection beneath the Site (copy included in Appendix C).
2. Remedial excavation and consolidation of the well-defined soil impacts.
3. Preparation of the impacted soils burial envelope, impacted soil burial and cap emplacement, and construction of site improvements (design specification included in Appendix H and placement location details included in Appendix A and as Figure 6).
4. Environmental land use covenant/deed restriction and environmental site management plan to ensure long-term protection of the cap. A *Model Land Use Covenant* template (deed restriction) and *Financial Assurance* details are included in Appendix G to document the framework that will

[9] The Area of Contamination approach "is based on an interpretation of federal guidelines which allow for the movement of hazardous wastes within a contiguous area of generally dispersed contamination without being considered land disposal and without triggering land disposal restrictions". The "placement" of hazardous waste into a land-based unit is not considered land disposal when using the Area of Contamination approach.

be recorded and put in place prior to occupancy. The *Land Use Covenant* will include as an Exhibit, a standard of care, *Post-Construction Environmental Site Management Plan* designed to address the long-term stewardship of the capped remediation pit (i.e., the selected cleanup alternative).

5. All proposed Site remediation and monitoring tasks will be completed and documented under the direct supervision of a California Registered Professional Geologist from Weber Hayes and Associates with expertise in environmental assessment and remediation.

In general, the proposed capping remedy will involve placing a total of approximately 18,000-yd^3 of metal and TPH impacted soils (classified as non-hazardous) in compacted lifts beneath impervious roadway/parking areas in the northeast corner of the property (approximate 17,100-ft^2 area, see *Environmental Grading Plan*, Figure 5). The soils will be encapsulated in a demarcation fabric/geogrid and capped with a minimum 8-inch thick, compacted base rock encapsulated by a minimum of 4-inches of reinforced concrete. Note: As described in the notes of the Civil Engineering Sheet C5.1 *(Remediation Pit Grading Plan),* once the final elevation of the remediation pit is reached (i.e., 12-inches below final pavement/concrete elevation, a temporary impermeable plastic liner (30-mil minimum) will be topped with clean backfill material until final cap is installed.

The base of the impacted soils burial envelope is designed to provide a minimum of 15-feet of separation between the impacted soils and historic high shallow groundwater (reported as 11-ft above MSL). Only soils designated as non-hazardous, will be placed within the confines of the surveyed, designated footprint, starting at an elevation of 26-ft above MSL. This elevation is 15-ft above the groundwater high water mark of 11-ft above MSL.

Site preparation tasks involve scraping and separate stockpile segregation of the upper 24-inches (2-feet) of soil from across the property (separately designated stockpile areas shown on the *Environmental Grading Plan* (Figure 5). Initial surface/shallow soils removal is designed to uncover/ remove accessible, shallow debris accumulated over the years (tires, metal debris), and to more clearly see native soil conditions, especially in areas containing visually-stained soils or debris. A licensed surveyor (Landset Engineers, Inc.) will establish pre-excavation grade and the selected earthworks contractor will use laser/GIS technology to control grading depths.

The work proposed in this *Renewed RAP* will be conducted with standard-of-care construction practices that will be in place for construction site safety and specifically for controlling the generation of dust contact (i.e., wetting soils, monitoring wind speed, continuous particulate dust monitoring, etc.). Weber, Hayes, and Associates staff will manage environmental aspects of this project including agency coordination, environmental site safety (including daily tail gate safety meetings), determining the limits of the target excavations, collection of base and sidewall samples where necessary for confirmation laboratory testing, soil stockpile management, landfill acceptance profiling and disposal documentation, and summary reporting.

Earthworks: All soil removal, stockpiling, and truck loading work will be conducted using heavy equipment (excavators, backhoes) and the transport of impacted soils to the burial envelope and/or to a Class I/III landfill will use tarped end dumps). There will be no trench work/workers for this grading project and no construction worker entry into the shallow excavations is expected. Site access will be controlled to allow only authorized personnel on-site.

Earthworks will be monitored visually using windsocks, flagging and hand-held wind meters to gauge wind speed, and on-going particulate monitoring to measure and control dust on-site. Soils will be wetted as necessary to prevent visible dust drift and earthworks will be halted if wind gusts exceed 15 mph or if continuously-measured particulate dust in the work area or at the perimeter exceeds regulatory levels documented in the *Site Safety & Dust Monitoring Plan* (Appendix D). This stand-alone, environmental *Site Safety Plan* addresses contaminant construction worker & off-site receptor protection for earthworks and sampling activities conducted within impacted areas. Site safety will include continuously recorded dust monitoring in the work area (using applicable dust screening levels that are protective of workers) and along the property line (for applicable dust screening levels that are protective of non-workers) for particulate and respirable dust and associated *Chemicals of Potential Concern*. This plan will complement the earthworks contractor's standard of care safety plan for normal heavy equipment earthworks.

Projected soil removal volumes, earthwork removal and stockpiling strategy, landfill acceptance testing, and confirmation sampling protocols are described in the alternates section of this report. Site soils will be removed using standard earthmoving equipment and elevation control/sample locations will confirmed by using a licensed surveyor (Landset Engineers, Inc.) to establish pre-excavation grade/sample locations and laser/GIS technology to be used by the earthworks contractor to control grading depths. Excavated soil will be segregated and stockpiled on-site for landfill acceptance testing and then loaded on to trucks for hazardous and non-hazardous transport to a local Class I/III landfill (acceptance pending results of stockpile sample testing and landfill acceptance profile approval).

Any stockpiled soils from the target (impacted) locations will be placed on an impermeable surface (i.e., asphalt, plastic sheeting); if excavated material is placed on native soils, at least 2-to-4 inches of underlying soils will be scraped to prevent leaving cross-contaminated soils at the Site. All stockpiles will be tarped with plastic sheeting that is adequately held down to prevent wind disturbance of the cover or infiltration from rains in accordance with the site-specific, *Stormwater Pollution Prevention Plan* (SWPPP) for the site. It is anticipated that the soil removal earthworks will move 35,200 yd^3 of impacted soil for AOC burial/capping (~18,000-yd^3) and for off-site disposal at the Class I/III Landfills (~17,200-yd^3).

Field Oversight and Confirmation Sampling: Environmental oversight will be completed by experienced geologist and engineers from Weber, Hayes and Associates who will manage the environmental aspects of the project, including colleting confirmation samples in the 10 subareas (described in detail in Section 6.1.2 *Remedial Action Alternative #2*) determining the final limits the excavations. Targeted deeper excavation activities will remove soils from areas identified in Figure 4b and 4c, and soil will be removed at least to the defined depth of the sample location [e.g., sample T-11, 6-foot excavation]. Confirmation sampling frequency/location will be collected in accordance with SC-HSA's Site *Mitigation Program Standards* (SC-HSA, 2010). A copy of the required sampling frequency along with sampling protocols is included in Appendix E (*Soil Sampling Field Methodology*). Additional tasks include managing soil stockpiles of excavated materials, disposal profiling, and correspondence and reporting to the SC-HSA. As noted above, a site-specific, *Site Safety & Dust Monitoring Plan* (SSP, Appendix D with the *Soil Management Plan*) addresses soil handling/management of contaminated soils and health and safety dust monitoring for both the on-site worker and non-worker at the property line. The SSP will be discussed and updated during daily tailgate reviews.

Reporting: A comprehensive *Remedial Action Implementation Report* will document completion of all remedial excavation, testing, and disposal work tasks proposed in this *Renewed RAP*. The report will include tabulated results of all excavation confirmation samples, figures of final excavation limits, laboratory testing and landfill disposal documentation, and recommendation for any additional work tasks, if any.

8.0 IMPLEMENTATION SCHEDULE

Initial grading and Site preparation tasks for the Hillcrest Subdivision Development project is planned to begin in the spring of 2022. The earthworks contractor is ready to mobilize upon agency approval of this *Renewed RAP*. Remedial earthworks (digging, stockpiling, loading, & trucking) will be completed on a parallel track with other Site redevelopment and construction tasks. As described above, impacted soils will be profiled for Class III non-hazardous landfill disposal. SC-HSA will be provided with regular updates, both verbal and written, during the course of remedial earthworks. Following milestone soil removal events, we will also provide updated field documentation that will include a description of any new field indications of previously unidentified soil contamination or areas containing buried areas, location figures, and opinions regarding the need for any additional remedial effort.

Implementation tasks and schedule, upon agency approval of this *Renewed RAP*, will be as follows:

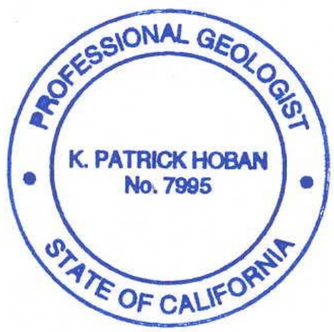
Task 1: Structure Demolition and Vehicle off-haul:	Completed
Task 2: Removal of Any Residual Near-Surface Debris:	Completed
Task 3: Shallow and Deep Soil Remediation:	April 2022
Task 4: Final Documentation and Reporting:	6-8 weeks following Task 3

9.0 LIMITATIONS

All work related to the hazardous materials investigation and remediation at this Site has been completed under the direct supervision of a Professional Geologist or Engineer, registered in California, and experienced in environmental remediation. Please contact us if you have any questions/input regarding this project, at 831.722-3580.

Sincerely,

Weber, Hayes and Associates, Inc.



By: Harrison Hucks
Senior Scientist

And: Patrick Hoban, PG
Principal Geologist

10.0 REFERENCES

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California Department of Toxic Substances Control (DTSC), Human and Ecological Risk Office, Human Health Risk Assessment:

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- (DTSC, 2020), *Human Health Risk Assessment (HHRA), Note Number: 3, DTSC-modified Screening Levels*, June <https://dtsc.ca.gov/wp-content/uploads/sites/31/2019/04/HHRA-Note-3-June-2020-A.pdf>

California Environmental Protection Agency (CalEPA), *Use of California Human Health Screening Levels in Evaluation of Contaminated Properties,* January 2005.

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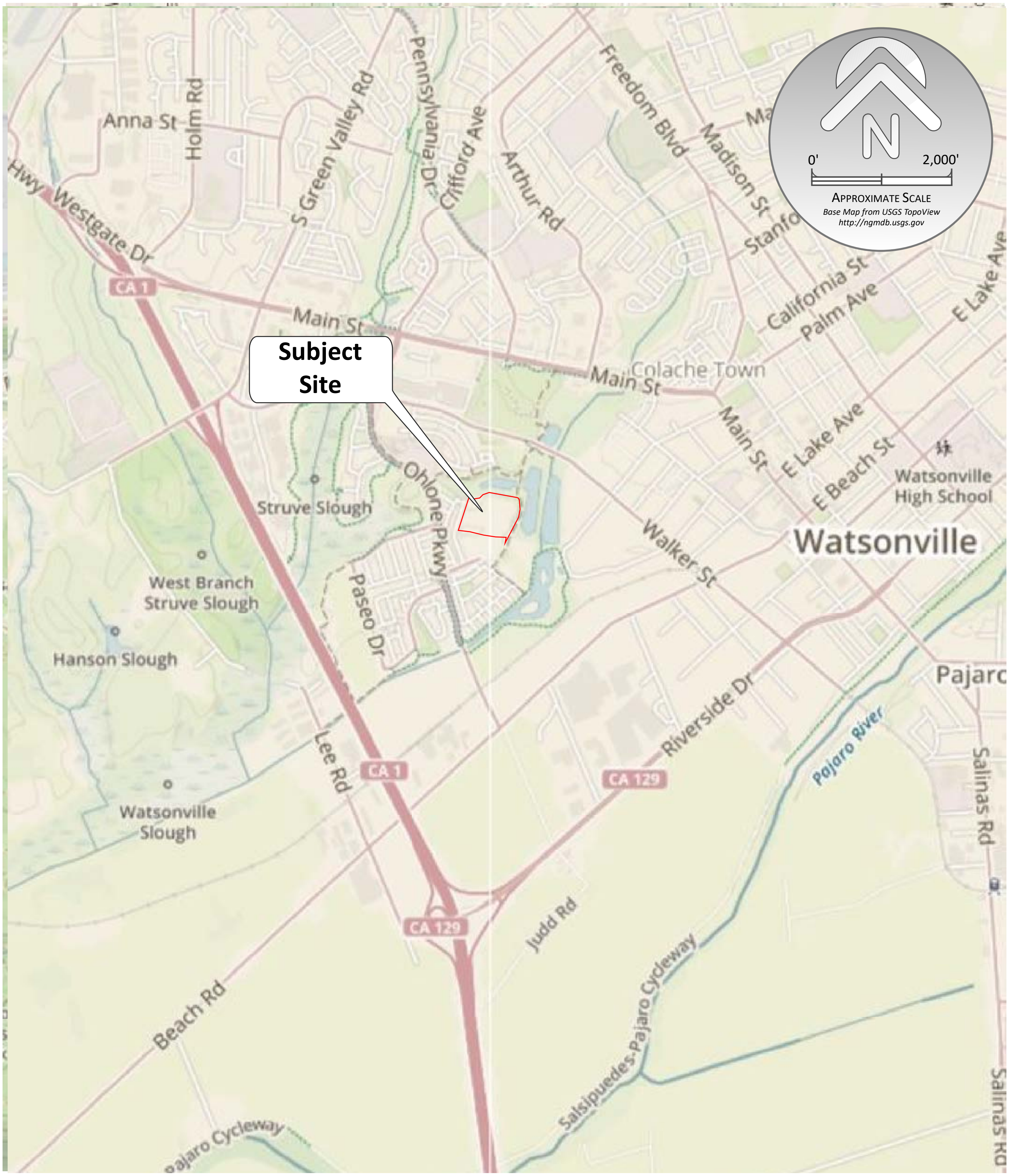
FIGURES



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Location Map

- Renewed Remedial Action Plan (2022)
(Mitigation of Shallow, Impacted Soils)

Site: **Former Clusters Storage Yard**
Address: **511 Ohlone Parkway, Watsonville**

Date: February 2022 Revisions/Notes:

Figure 1
Project 2t159

Figure 2
Project 2t159

Vicinity Map
- Renewed Remedial Action Plan (2022)

Site: **Former Clusters Storage Yard**
Address: **511 Ohlone Parkway, Watsonville**

Date: February 2022

Revisions/Notes:

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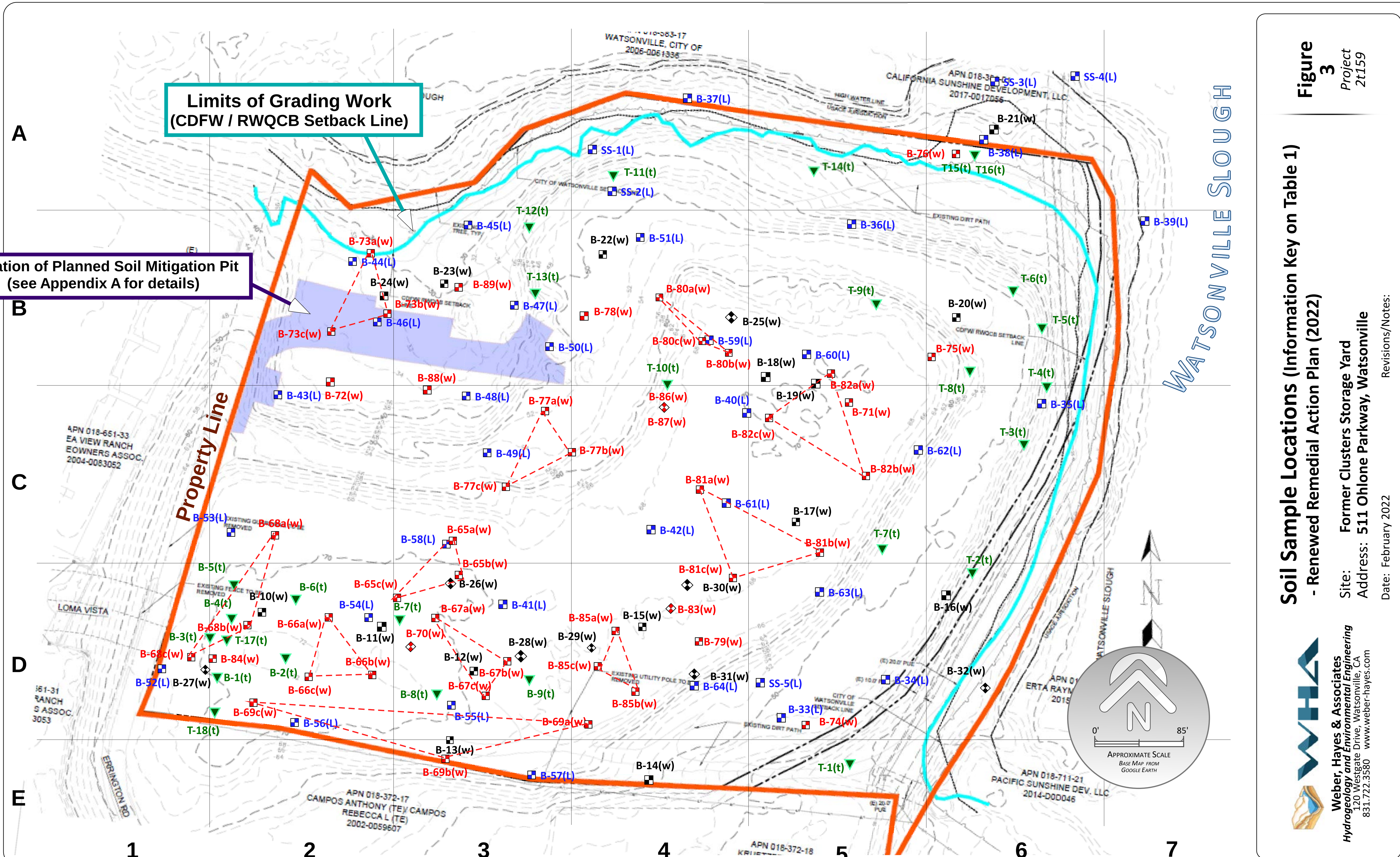

Limits of Grading Work
(CDFW / RWQCB Setback Line)
Location of Planned Soil Mitigation Pit
(see Appendix A for details)
Property Line
WATSONVILLE SLOUGH
A
B
C
D
E
1
2
3
4
5
6
7
Figure 3
Project 2t159
Soil Sample Locations (Information Key on Table 1)
- Renewed Remedial Action Plan (2022)
Site: Former Clusters Storage Yard
Address: 511 Ohlone Parkway, Watsonville
Date: February 2022
Revisions/Notes:
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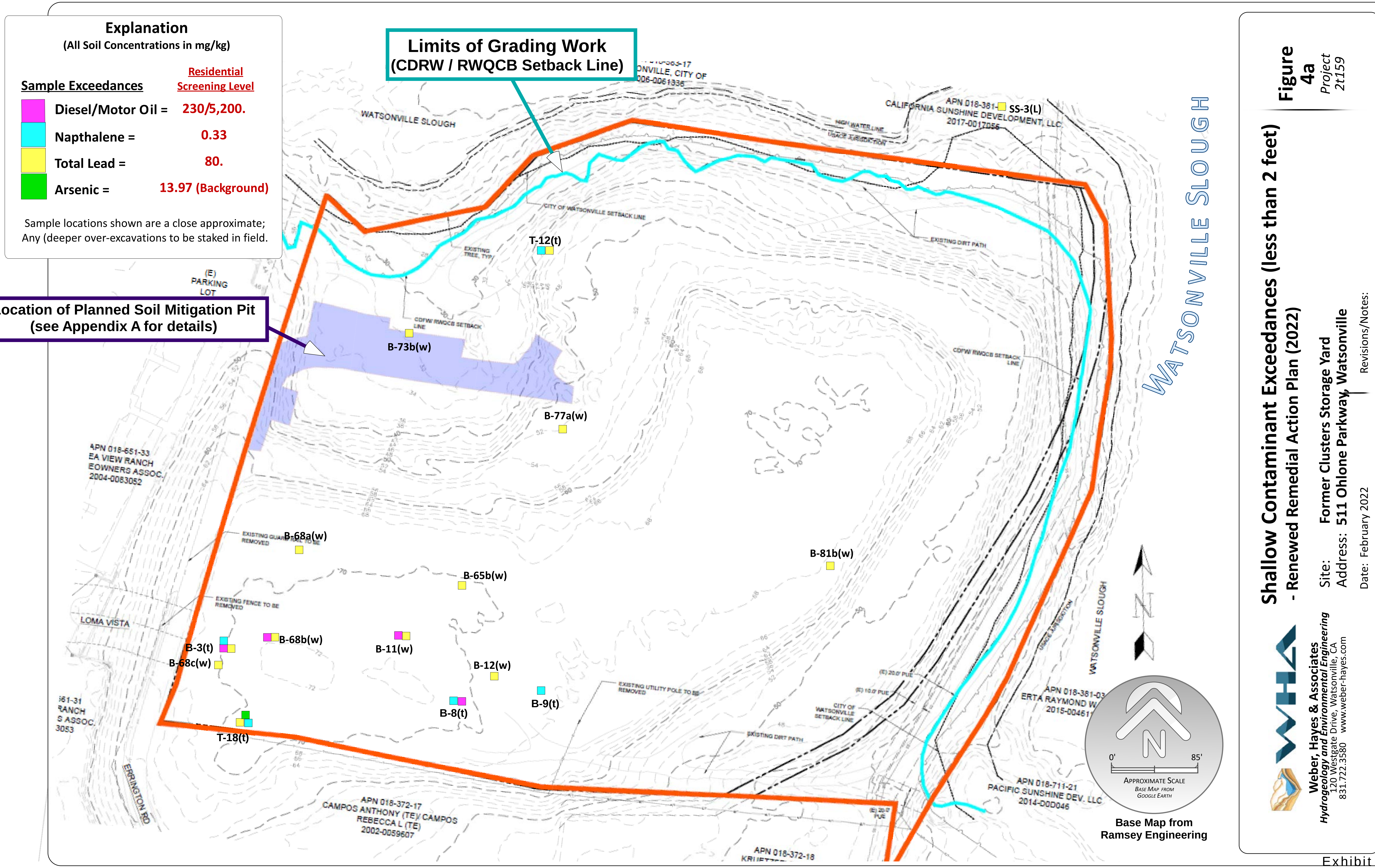
0'
85'
Approximate Scale
Base Map from Google Earth
N



Explanation
(All Soil Concentrations in mg/kg)
Sample Exceedances
Residential Screening Level
Diesel/Motor Oil = 230/5,200.
Napthalene = 0.33
Total Lead = 80.
Arsenic = 13.97 (Background)
Sample locations shown are a close approximate;
Any (deeper over-excavations to be staked in field.
Limits of Grading Work
(CDRW / RWQCB Setback Line)
Location of Planned Soil Mitigation Pit
(see Appendix A for details)
WATSONVILLE SLOUGH
Watsonville Slough
T-12(t)
B-73b(w)
B-77a(w)
B-68a(w)
B-65b(w)
B-81b(w)
B-3(t)
B-68b(w)
B-11(w)
B-68c(w)
B-12(w)
B-9(t)
B-8(t)
T-18(t)
SS-3(L)
(E) PARKING LOT
LOMA VISTA
ERRINGTON RD
CALIFORNIA SUNSHINE DEVELOPMENT, LLC
2017-0017056
APN 018-651-33
APN 018-372-17
CAMPOS ANTHONY (TE) CAMPOS REBECCA L (TE)
2002-0059607
APN 018-711-21
PACIFIC SUNSHINE DEV. LLC
2014-0D0046
APN 018-372-18
0' 85'
Approximate Scale
Base Map from Google Earth
Base Map from Ramsey Engineering
Figure 4a
Project 2t159
Shallow Contaminant Exceedances (less than 2 feet)
- Renewed Remedial Action Plan (2022)
Site: Former Clusters Storage Yard
Address: 511 Ohlone Parkway, Watsonville
Date: February 2022
Revisions/Notes:
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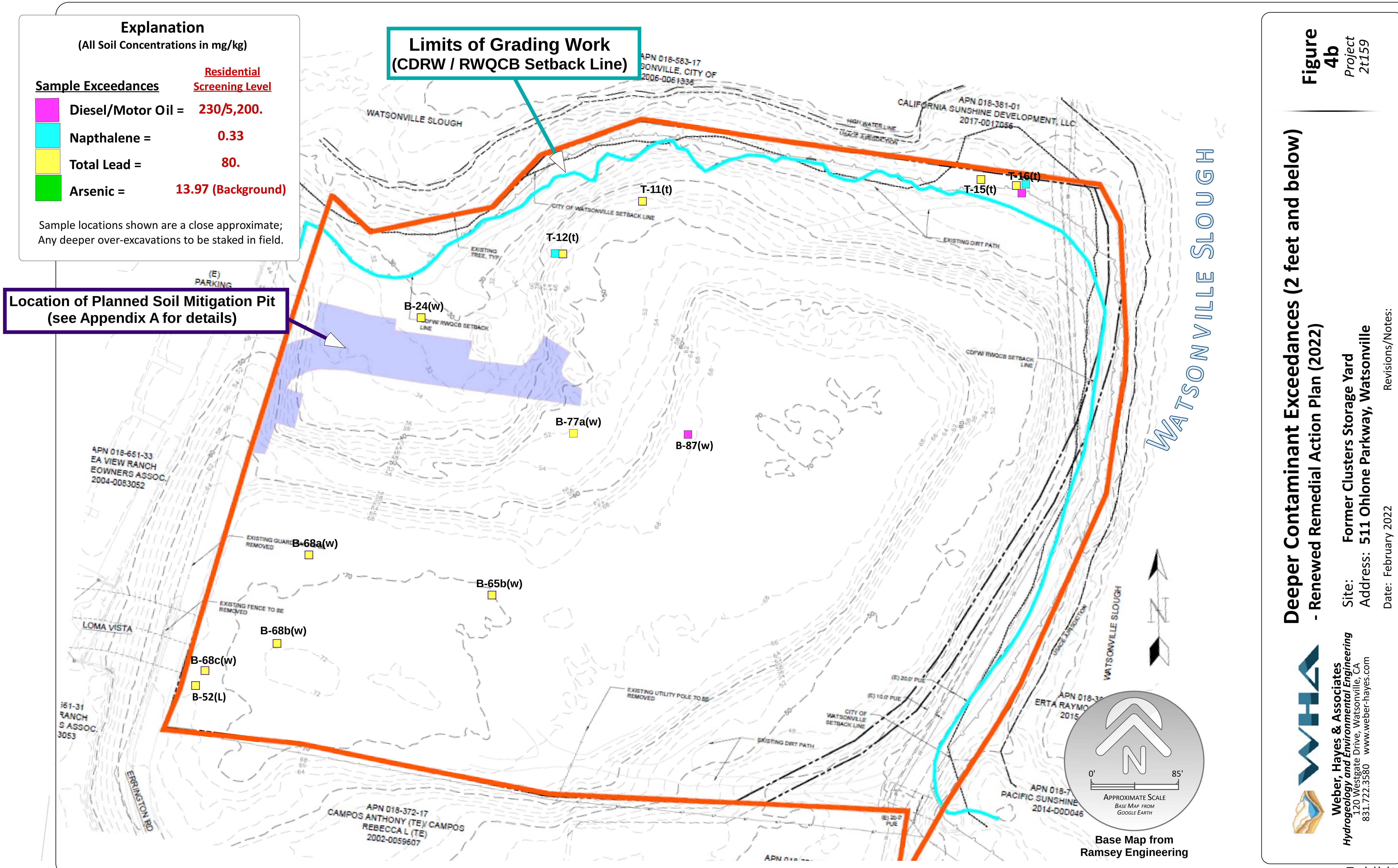

Explanation
(All Soil Concentrations in mg/kg)
Sample Exceedances
Residential Screening Level
Diesel/Motor Oil = 230/5,200.
Napthalene = 0.33
Total Lead = 80.
Arsenic = 13.97 (Background)
Sample locations shown are a close approximate; Any deeper over-excavations to be staked in field.
Limits of Grading Work
(CDRW / RWQCB Setback Line)
Location of Planned Soil Mitigation Pit
(see Appendix A for details)
WATSONVILLE SLOUGH
T-11(t)
T-12(t)
T-15(t)
T-16(t)
B-24(w)
B-77a(w)
B-87(w)
B-68a(w)
B-65b(w)
B-68b(w)
B-68c(w)
B-52(L)
APN 018-381-01
CALIFORNIA SUNSHINE DEVELOPMENT, LLC
2017-0017056
APN 018-372-17
CAMPOS ANTHONY (TE)/ CAMPOS REBECCA L (TE)
2002-0059607
LOMA VISTA
Approximate Scale
0'
85'
Base Map from Google Earth
Base Map from
Ramsey Engineering
Figure
4b
Project
2t159
Deeper Contaminant Exceedances (2 feet and below)
- Renewed Remedial Action Plan (2022)
Site: Former Clusters Storage Yard
Address: 511 Ohlone Parkway, Watsonville
Date: February 2022
Revisions/Notes:
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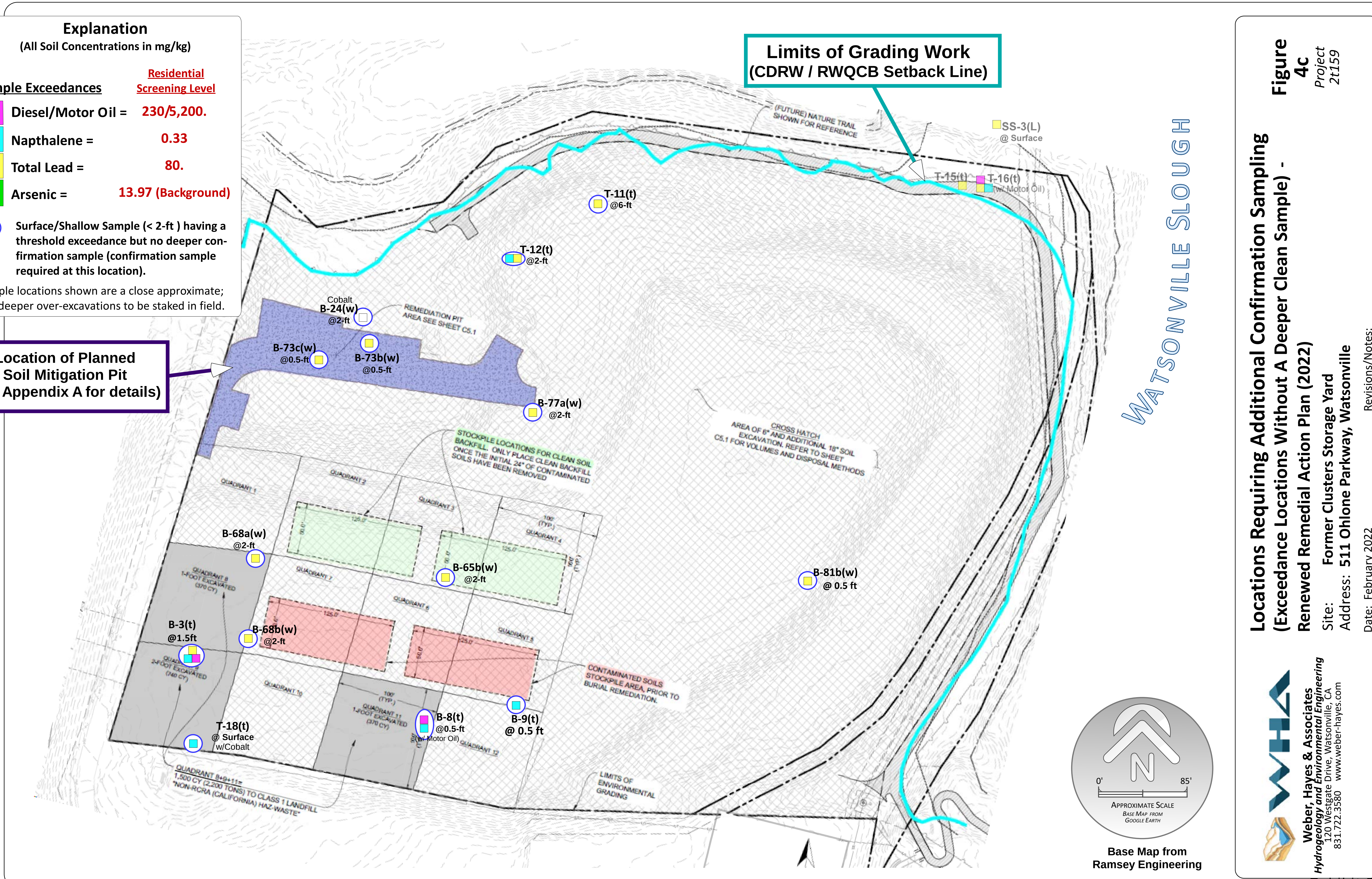

Explanation
(All Soil Concentrations in mg/kg)
Sample Exceedances
Residential Screening Level
Diesel/Motor Oil = 230/5,200.
Napthalene = 0.33
Total Lead = 80.
Arsenic = 13.97 (Background)
Surface/Shallow Sample (< 2-ft) having a threshold exceedance but no deeper confirmation sample (confirmation sample required at this location).
Sample locations shown are a close approximate; Any deeper over-excavations to be staked in field.
Location of Planned Soil Mitigation Pit (see Appendix A for details)
Limits of Grading Work (CDRW / RWQCB Setback Line)
(FUTURE) NATURE TRAIL SHOWN FOR REFERENCE
SS-3(L) @ Surface
T-15(t)
T-16(t) (w/ Motor Oil)
T-11(t) @6-ft
T-12(t) @2-ft
Cobalt B-24(w) @2-ft
REMEDIATION PIT AREA SEE SHEET C5.1
B-73c(w) @0.5-ft
B-73b(w) @0.5-ft
B-77a(w) @2-ft
STOCKPILE LOCATIONS FOR CLEAN SOIL BACKFILL. ONLY PLACE CLEAN BACKFILL ONCE THE INITIAL 24" OF CONTAMINATED SOILS HAVE BEEN REMOVED
CROSS HATCH AREA OF 6" AND ADDITIONAL 18" SOIL EXCAVATION. REFER TO SHEET C5.1 FOR VOLUMES AND DISPOSAL METHODS
WATSONVILLE SLOUGH
B-68a(w) @2-ft
B-65b(w) @2-ft
B-81b(w) @ 0.5 ft
B-3(t) @1.5ft
B-68b(w) @2-ft
CONTAMINATED SOILS STOCKPILE AREA, PRIOR TO BURIAL REMEDIATION.
B-8(t) @0.5-ft (w/ Motor Oil)
B-9(t) @ 0.5 ft
T-18(t) @ Surface w/Cobalt
QUADRANT 8+9+11= 1,500 CY (2,200 TONS) TO CLASS 1 LANDFILL "NON-RCRA (CALIFORNIA) HAZ-WASTE"
LIMITS OF ENVIRONMENTAL GRADING
0' 85'
Approximate Scale
Base Map from Google Earth
Base Map from Ramsey Engineering
Figure 4c
Project 2t159
Locations Requiring Additional Confirmation Sampling
(Exceedance Locations Without A Deeper Clean Sample) -
Renewed Remedial Action Plan (2022)
Site: Former Clusters Storage Yard
Address: 511 Ohlone Parkway, Watsonville
Date: February 2022
Revisions/Notes:
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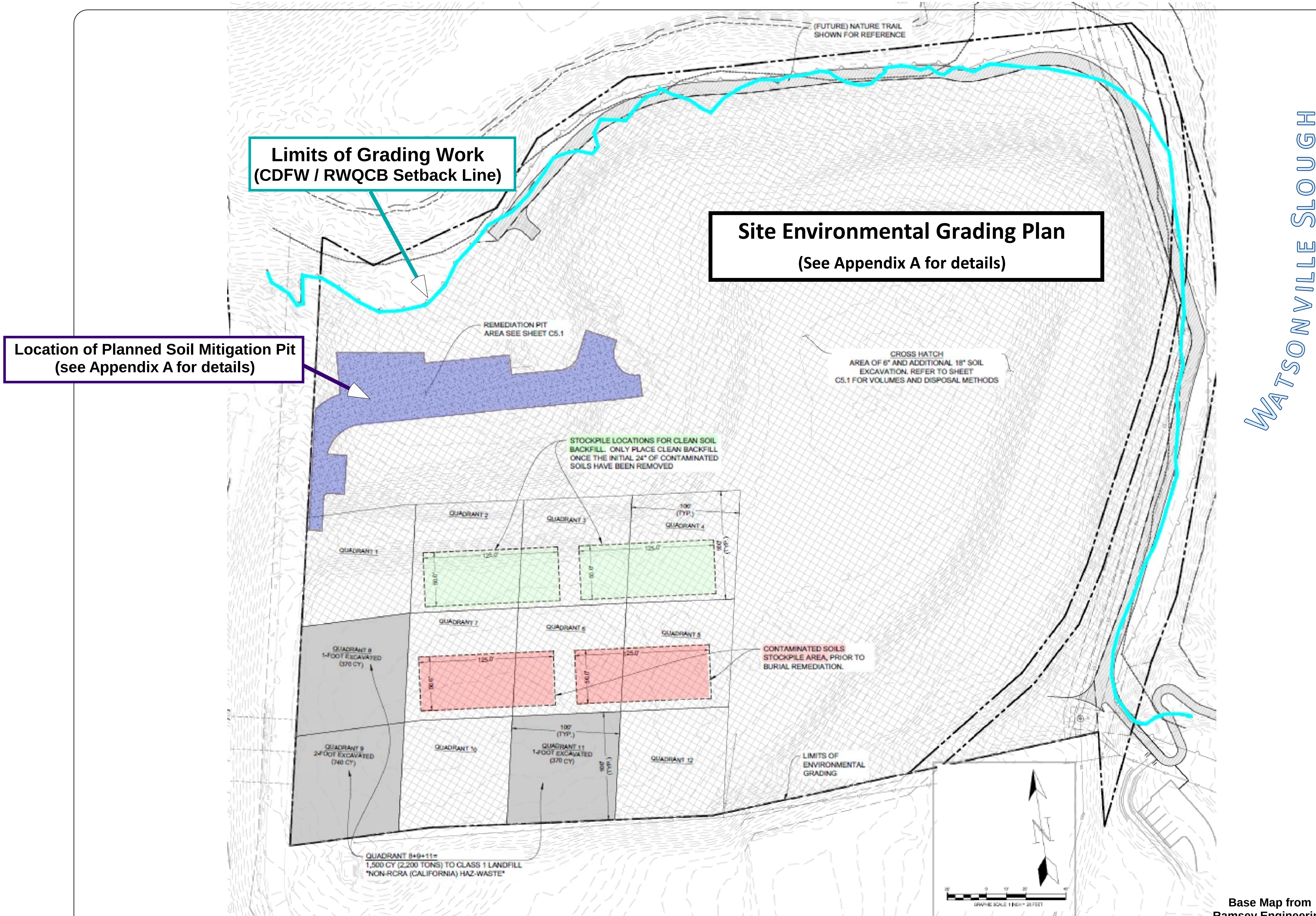

Base Map from Ramsey Engineering

Figure 5

Project 2t159

Site Environmental Grading Plan - Renewed Remedial Action Plan (2022)

Site: Former Clusters Storage Yard

Address: 511 Ohlone Parkway, Watsonville

Date: February 2022

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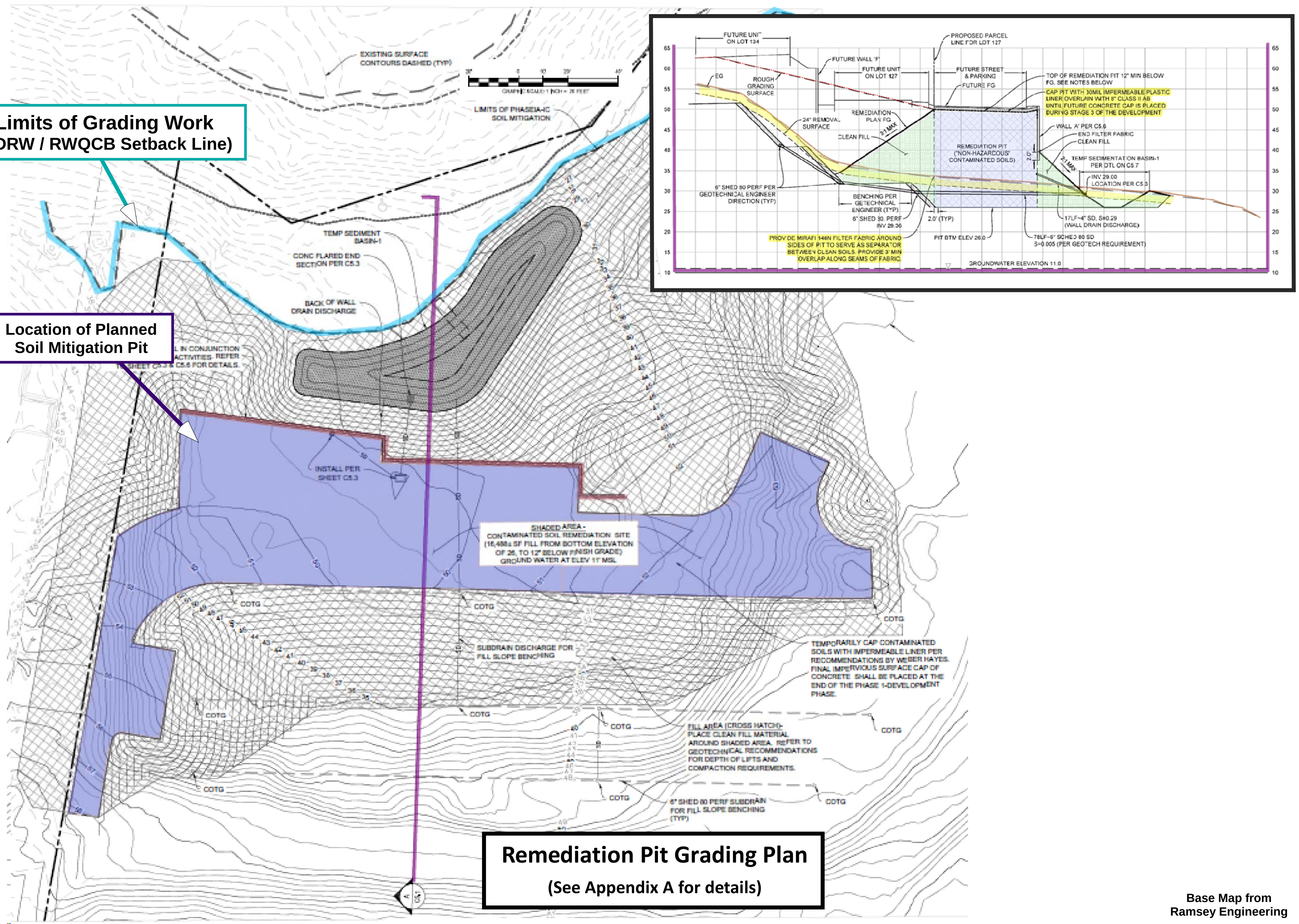

Base Map from
Ramsey Engineering

Figure 6
Project 2t159

Soil Mitigation Pit Plan
- Renewed Remedial Action Plan (2022)

Site: Former Clusters Storage Yard
Address: 511 Ohlone Parkway, Watsonville
Date: February 2022
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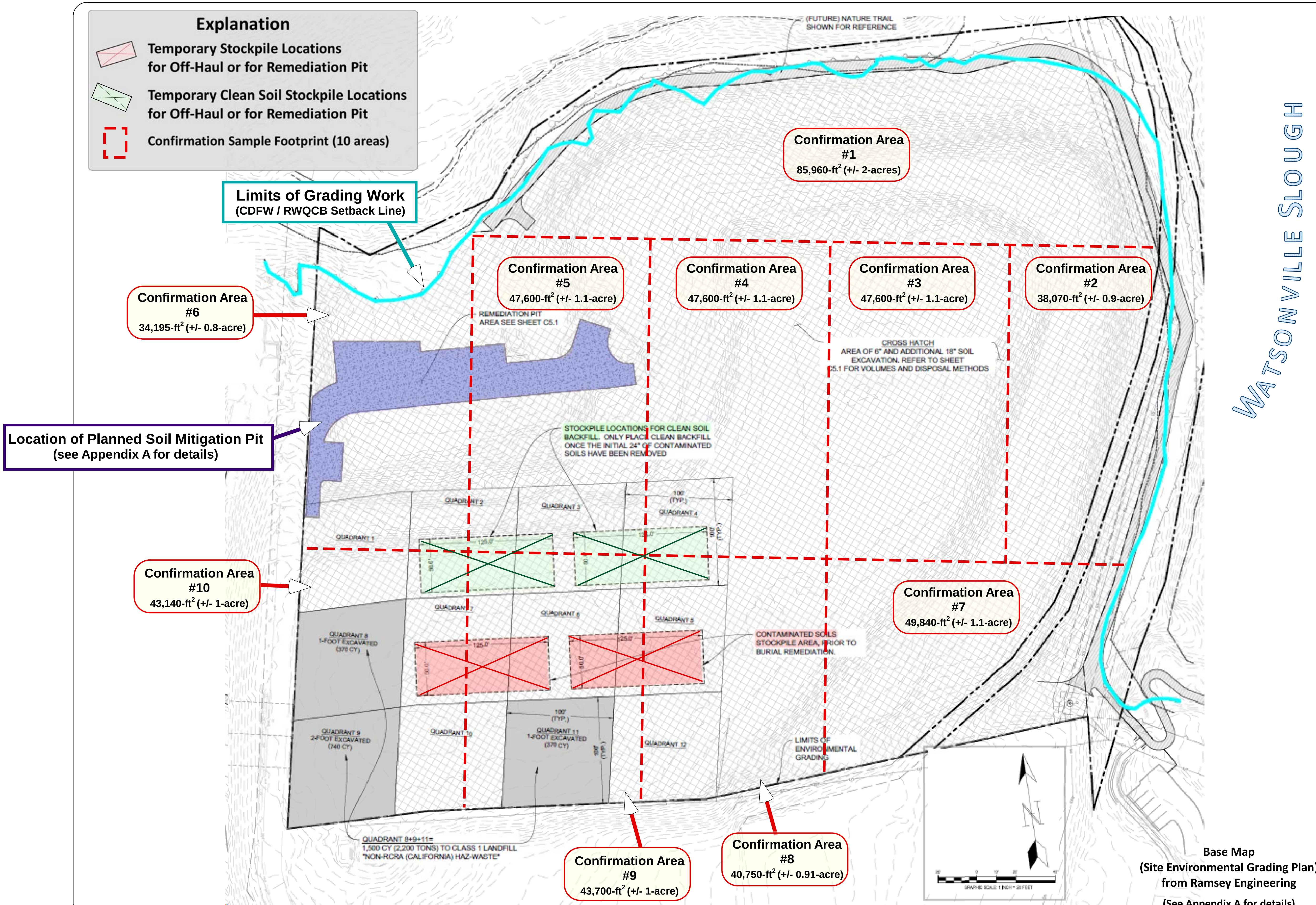

Figure 7

Project 2t159

Stockpile Plan & Confirmation Sampling Quadrants - Renewed Remedial Action Plan (2022)

Site: Former Clusters Storage Yard

Address: 511 Ohlone Parkway, Watsonville

Date: February 2022

Revisions/Notes:

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TABLES

Table 1: MASTER TABLE of ALL PREVIOUSLY COLLECTED SOIL SAMPLES

(All soil sample locations shown on Figure 2)

Former Clusters Junkyard

511 Ohlone Parkway, Watsonville

Soil Sample Information						
Sample Date	***Sampling Method***	***Quadrant Location* (see Figure 2)**	***UPDATED Sample ID***	***ORIGINAL Consultant ID* (from previous reports)**		***Sample Depth* (feet below ground surface)**
October 2016 (sampled by Trinity Source Group "t")	Exploratory Boring	D2	**B-1(t)**	TB -1		0.5
		D2	**B-2(t)**	TB-2		0.5
		D1	**B-3(t)**	TB-3		0.5
						1.5
						2.5
						4
		D 1-2	**B-4(t)**	TB-4		0.5
		C-D 1-2	**B-5(t)**	TB-5		0.5
		D2	**B-6(t)**	TB-6		0.75
		D3	**B-7(t)**	TB-7		0.5
		D3	**B-8(t)**	TB-8		0.5
						1.5
						2.5
						4
		D3	**B-9 (t)**	TB-9		0.5
						1.5
						2.5
						4
	Trench	E5	**T-1(t)**	Area 1	T4	4
		D6	**T-2(t)**		T6	3.5
		C6	**T-3(t)**		T9	2
		B-C6	**T-4(t)**		T10	1
		B6	**T-5(t)**		T11	1.5
		B6	**T-6(t)**		T12	1
		C5	**T-7(t)**	Area 2	T6	1
		B-C6	**T-8(t)**		T12	2
		B5	**T-9(t)**		T15	2
		B-C4	**T-10(t)**	Area 3	T1	3
		A4	**T-11(t)**	Area 5	T1	6
		B3	**T-12(t)**		T3	2
		B3	**T-13(t)**		T5	3
		A5	**T-14(t)**		T10	4
		A6	**T-15(t)**	Area 6	T1	2
		A6	**T-16(t)**		T1*	8
		D2	**T-17(t)**	Area 8	T1	2
		D1-2	**T-18(t)**		Debris	--
June 2016 (Sampled by Weber Hayes and Associates "w")	Exploratory Boring (Hand Auger)	D2	**B-10(w)**	SB-1		0.5
						2
		D2	**B-11(w)**	SB-2		0.5
						2
		D-E3	**B-12(w)**	SB-3		0.5
						2
		D3	**B-13(w)**	SB-4		0.5
						2

Table 1: MASTER TABLE of ALL PREVIOUSLY COLLECTED SOIL SAMPLES

(All soil sample locations shown on Figure 2)

Former Clusters Junkyard

511 Ohlone Parkway, Watsonville

Soil Sample Information					
Sample Date	*Sampling Method*	*Quadrant Location (see Figure 2)*	*UPDATED Sample ID*	*ORIGINAL Consultant ID (from previous reports)*	*Sample Depth (feet below ground surface)*
June 2016 (continued) (Sampled by Weber Hayes and Associates "w")		E4	**B-14(w)**	SB-5	0.5
					2
		D4	**B-15(w)**	SB-6	0.5
					2
		D6	**B-16(w)**	SB-7	0.5
					2
		C5	**B-17(w)**	SB-8	0.5
					2
		B5	**B-18(w)**	SB-9	0.5
					2
		B6	**B-19(w)**	SB-10	0.5
					2
		B6	**B-20(w)**	SB-11	0.5
					2
		A6	**B-21(w)**	SB-12	0.5
					2
		B4	**B-22(w)**	SB-13	0.5
					2
		B3	**B-23(w)**	SB-14	0.5
					2
		B2	**B-24(w)**	SB-15	0.5
					2
		B4	**B-25(w)**	DP-1	2
		D3	**B-26(w)**	DP-2	2
		D1	**B-27(w)**	DP-4	2
		D3	**B-28(w)**	DP-5	2
		D3	**B-29(w)**	DP-6	2
		D4	**B-30(w)**	DP-7	2
		D4	**B-31(w)**	DP-8	2
		D6	**B-32(w)**	DP-9	2
August 2004 (Sampled by Lowney Associates "L")	Exploratory Boring	D5	**B-33(L)**	CL-1	1
					3
		D5	**B-34(L)**	CL-2	2
					3
		C6	**B-35(L)**	CL-3	2
					3
		B5	**B-36(L)**	CL-4	4
		A4	**B-37(L)**	CL-5	1
					3
		A6	**B-38(L)**	CL-6	1
					3
					5
					7
		B7	**B-39(L)**	CL-8	5
		C4	**B-40(L)**	R-1	0.5
					2

Table 1: MASTER TABLE of ALL PREVIOUSLY COLLECTED SOIL SAMPLES

(All soil sample locations shown on Figure 2)

Former Clusters Junkyard

511 Ohlone Parkway, Watsonville

Soil Sample Information					
Sample Date	*Sampling Method*	*Quadrant Location* (see Figure 2)	*UPDATED Sample ID*	*ORIGINAL Consultant ID* (from previous reports)	*Sample Depth* (feet below ground surface)
August 2004 - continued - (Sampled by Lowney Associates "L")	Exploratory Boring	D3	**B-41(L)**	R-2	0.5
					2
					3
		C4	**B-42(L)**	R-3	1
					3
		C2	**B-43(L)**	GZ-1	2
					3
		B2	**B-44(L)**	GZ-2	1
					3
		B3	**B-45(L)**	BC-1	3
					5
					7
		B2	**B-46(L)**	BC-2	3
					5
					7
		B3	**B-47(L)**	BC-3	3
					5
					7
		C3	**B-48(L)**	BC-4	3
					5
					7
		C3	**B-49(L)**	CZ-1	2
					4
		B3	**B-50(L)**	CZ-2	1
					3
					7
					11
		B4	**B-51(L)**	CZ-3	2
		D1	**B-52(L)**	G+G-1	2
					4
					6
		C1	**B-53(L)**	G+G-2	2
					4
					6
		D2	**B-54(L)**	G+G-3	0.5
					2
		D3	**B-55(L)**	G+G-4	0.5
					2
					3
		D2	**B-56(L)**	G+G-5	2
					4
		E3	**B-57(L)**	G+G-6	2
					4
		C3	**B-58(L)**	G+G-7	2
					3.5
		B4	**B-59(L)**	G-1	2
					3
		B5	**B-60(L)**	G-2	2
					3

Table 1: MASTER TABLE of ALL PREVIOUSLY COLLECTED SOIL SAMPLES

(All soil sample locations shown on Figure 2)

Former Clusters Junkyard

511 Ohlone Parkway, Watsonville

Soil Sample Information					
Sample Date	***Sampling Method***	***Quadrant Location*** *(see Figure 2)*	***UPDATED Sample ID***	***ORIGINAL Consultant ID*** **(from previous reports)**	***Sample Depth*** *(feet below ground surface)*
August 2004 - continued - (Sampled by Lowney Associates "L")	Exploratory Boring	C4	**B-61(L)**	G-3	0.5 2 3
		C5	**B-62(L)**	G-4	2 3
		D5	**B-63(L)**	G-5	2 4 6
		D4	**B-64(L)**	G-6	2 4 6
	Surface Sample	A4	**SS-1(L)**	SS-1	--
		A4	**SS-2(L)**	SS-2	--
		A6	**SS-3(L)**	SS-3	--
		A6	**SS-4(L)**	SS-4	--
		D5	**SS-5(L)**	SS-5	--
December 2003 (Sampled by Weber Hayes Associates "w")	Exploratory Boring	D2	**B-65(w)**	G&G (composite 1a,1b,1c)	0.5 2
		C3	**B-65a(w)**	G&G 1a	2
		C-D3	**B-65b(w)**	G&G 1b	2
		D2-3	**B-65c(w)**	G&G 1c	2
		D2	**B-66(w)**	G&G (composite 2a,2b,2c)	0.5 2
		D2	**B-66a(w)**	G&G 2a	2
		D2	**B-66b(w)**	G&G 2b	2 4
		D2	**B-66c(w)**	G&G 2c	2
		D3	**B-67(w)**	G&G (composite 3a,3b,3c)	0.5 2
		D3	**B-67a(w)**	G&G 3a	2
		D3	**B-67b(w)**	G&G 3b	2
		D3	**B-67c(w)**	G&G 3c	2
		D2	**B-68(w)**	G&G (composite 4a,4b,4c)	0.5 2
		C2	**B-68a(w)**	G&G 4a	0.5 2
		D2	**B-68b(w)**	G&G 4b	0.5 2
		D1	**B-68c(w)**	G&G 4c	0.5 2
		D2	**B-69(w)**	G&G (composite 5a,5b,5c)	0.5 2
		D3	**B-69a(w)**	G&G 5a	0.5
		E3	**B-69b(w)**	G&G 5b	0.5
		D2	**B-69c(w)**	G&G 5c	0.5
		D3	**B-70(w)**	G&G (Discrete #1	0.5 2 4

Table 1: MASTER TABLE of ALL PREVIOUSLY COLLECTED SOIL SAMPLES

(All soil sample locations shown on Figure 2)

Former Clusters Junkyard

511 Ohlone Parkway, Watsonville

Soil Sample Information					
Sample Date	***Sampling Method***	***Quadrant Location*** *(see Figure 2)*	***UPDATED Sample ID***	***ORIGINAL Consultant ID*** (from previous reports)	***Sample Depth*** *(feet below ground surface)*
December 2003 - continued - (Sampled by Weber Hayes Associates "w")	Exploratory Boring	C5	**B-71(w)**	EB-1	20 40
		B-C2	**B-72(w)**	Gonzalez (composite 1a, 1b, 1c)	0.5 2
		B2	**B-73(w)**	Gonzalez# (composite 2a, 2b, 2c)	0.5 2
		B2	**B-73a(w)**	Gonzalez 2a	0.5
		B2	**B-73b(w)**	Gonzalez 2b	0.5
		B2	**B-73c(w)**	Gonzalez 2c	0.5
		D5	**B-74(w)**	Clusters (composite 1a,1b,1c)	0.5 2
		B6	**B-75(w)**	Clusters (composite 2a,2b,2c)	0.5 2
		A5	**B-76(w)**	Clusters# (composite 3a,3b,3c)	0.5 2
		C3	**B-77(w)**	Chaz #- 1a,1b,1c	0.5 2
		C3-4	**B-77a(w)**	Chaz 1a	2
		C3	**B-77b(w)**	Chaz 1b	2
		C3	**B-77c(w)**	Chaz 1c	2
		B4	**B-78(w)**	Chaz (composite 2a,2b,2c)	0.5 2
		D4	**B-79(w)**	Gerrys (composite 1a,1b,1c)	0.5 2
		B4	**B-80(w)**	Gerrys (composite 2a,2b,2c)	0.5 2
		B4	**B-80a(w)**	Gerrys 2a	2
		B4	**B-80b(w)**	Gerrys 2b	2 4
		B4	**B-80c(w)**	Gerrys 2c	2
		C4	**B-81(w)**	Gerrys (composite 3a,3b,3c)	0.5 2
		C4	**B-81a(w)**	Gerrys 3a	0.5 2
		C5	**B-81b(w)**	Gerrys 3b	0.5 2
		D4	**B-81c(w)**	Gerrys 3c	0.5 2
		C5	**B-82(w)**	Gerrys (composite 4a,4b,4c)	0.5 2
		C5	**B-82a(w)**	Gerrys 4a	2
		C5	**B-82b(w)**	Gerrys 4b	2
		C5	**B-82c(w)**	Gerrys 4c	2
		D4	**B-83(w)**	Gerrys Discrete	0.5 2 4
		D1	**B-84(w)**	EB-2	20 40

Table 1: MASTER TABLE of ALL PREVIOUSLY COLLECTED SOIL SAMPLES

(All soil sample locations shown on Figure 2)

Former Clusters Junkyard

511 Ohlone Parkway, Watsonville

Soil Sample Information					
Sample Date	***Sampling Method***	***Quadrant Location*** *(see Figure 2)*	***UPDATED Sample ID***	***ORIGINAL Consultant ID*** (from previous reports)	***Sample Depth*** *(feet below ground surface)*
December 2003 - continued - (Sampled by Weber Hayes Associates "w")	Exploratory Boring	D3-4	**B-85(w)**	JV (composite 1a,1b,1c)	0.5
					2
		D4	**B-85a(w)**	JV 1a	0.5
		D4	**B-85b(w)**	JV 1b	0.5
		D4	**B-85c(w)**	JV 1c	0.5
		B-C4	**B-86(w)**	Residence (composite 1a,1b,1c)	0.5
					2
		C4	**B-87(w)**	Residence #1 (discrete)	0.5
					2
					4
		B-C3	**B-88(w)**	Bay City (composite 1a,1b,1c)	0.5
					2
		B3	**B-89(w)**	Bay City (composite 2a,2b,2c)	0.5
					2

Note: Table shows only those collected samples that were analyzed at a State-certified laboratory.

TOTAL SAMPLE LOCATIONS	TOTAL SAMPLES ANALYZED
145	**249**

SB = Soil Boring (shallow, hand augured)
DP = Driven Probe (GeoProbe rig)
T = Trench Sample (grab soil from backhoe trench)

(w) = Weber-Hayes Associates:
(L) = and Lowney Associates: Sample depths by Weber-Hayes and Lowney were measured from the top of the collected soil sample (i.e. a "2-ft" sample means the top of the soil sample was at 2-ft). Therefore a "clean" 2-ft sample would indicate soils are unimpacted below a depth of 2-ft.

(t) = Trinity Source Group: Sample depths by Trinity were measured from the base of the collected soil sample (i.e. a "2-ft" sample means the bottom of the soil sample was at 2-ft). Therefore a "clean" 2-ft sample would indicate soils are unimpacted above a depth of 2-ft.

Table 2

Soil Sample Test Results: CAM 17 METALS Analysis

Former Clusters Junkyard, 511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Info					*CAM 17 Metals Analysis Results (plus Mercury)*																		
Date Sampled	*UPDATED Sample ID*	*ORIGINAL Consultant ID*		*Depth*	LEAD	Cadmium	Chromium	Nickel	Zinc	*Antimony*	Aluminum	Arsenic	Barium	Beryllium	Hexavalent Chromium	Cobalt	Copper	Molybdenum	Selenium	Silver	Thallium	Vanadium	Mercury
					LUFT 5 Metals																		
October 2016 (sampled by Trinity Source Group)	**B-1(t)**	TB -1		0.5	--	--	--	--	--	--	--	--	--	--	1.4	--	--	--	--	--	--	--	--
	B-2(t)	TB-2		0.5	--	--	--	--	--	--	--	--	--	--	1.5	--	--	--	--	--	--	--	--
	B-3(t)	TB-3		0.5	12	0.37	13	15	71	ND	--	1	95	0.12	0.78	6.5	27	1	ND	0.1	0.12	51	0.044
				1.5	**140**	2.4	23	26	410	0.89	--	1.7	140	0.24	1.1	8.7	85	1.2	ND	0.18	ND	53	0.073
				2.5	--	--	--	--	--	--	--	--	--	--	1.6	--	--	--	--	--	--	--	--
				4	--	--	--	--	--	--	--	--	--	--	1.6	--	--	--	--	--	--	--	--
	B-4(t)	TB-4		0.5	--	--	--	--	--	--	--	--	--	--	2	--	--	--	--	--	--	--	--
	B-5(t)	TB-5		0.5	--	--	--	--	--	--	--	--	--	--	2.1	--	--	--	--	--	--	--	--
	B-6(t)	TB-6		0.75	--	--	--	--	--	--	--	--	--	--	1.8	--	--	--	--	--	--	--	--
	B-7(t)	TB-7		0.5	--	--	--	--	--	--	--	--	--	--	1.6	--	--	--	--	--	--	--	--
	B-8(t)	TB-8		0.5	23	0.71	9.9	9.9	75	0.75	--	0.77	54	0.14	1	6.6	54	2.4	ND	ND	ND	51	0.053
				1.5	--	--	--	--	--	--	--	--	--	--	3.3	--	--	--	--	--	--	--	--
				2.5	--	--	--	--	--	--	--	--	--	--	1.9	--	--	--	--	--	--	--	--
				4	--	--	--	--	--	--	--	--	--	--	0.61	--	--	--	--	--	--	--	--
	B-9(t)	TB-9		0.5	40	1.3	29	31	97	0.14	--	2.2	93	0.17	1.1	7.4	82	2.6	ND	0.12	ND	46	0.11
				1.5	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--
				2.5	--	--	--	--	--	--	--	--	--	--	2.7	--	--	--	--	--	--	--	--
				4	--	--	--	--	--	--	--	--	--	--	0.85	--	--	--	--	--	--	--	--
	T-1(t)	Area 1	T4	4	--	--	--	--	--	--	--	5.9^	--	--	2.1	--	--	--	--	--	--	--	--
	T-2(t)		T6	3.5	20^	0.74^	21^	18^	68^	ND	--	4.4^	170^	0.30^	---	5.9^	15^	0.91^	ND	ND	ND	25^	0.39
	T-3(t)		T9	2	29^	1.4^	33^	37^	150^	ND	--	9.2^	110^	0.32^	---	9.6^	69^	1.5^	ND	ND	ND	44^	0.28
	T-4(t)		T10	1	6.8^	0.35^	31^	23^	39^	ND	--	3.3^	120^	0.50^	---	12^	10^	0.48^	ND	ND	ND	43^	0.047
	T-5(t)		T11	1.5	--	--	--	--	--	--	--	5.5^	--	--	1.6	--	--	--	--	--	--	--	--
	T-6(t)		T12	1	76^	0.68^	53^	57^	110^	ND	--	5.6^	170^	0.42^	---	13^	25^	0.60^	ND	ND	ND	49^	0.14
	T-7(t)	Area 2	T6	1	8.6^	0.38^	62^	100^	76^	ND	--	5.8^	210^	0.50^	---	16^	36^	0.27^	ND	ND	ND	42^	0.17
	T-8(t)		T12	2	22^	0.95^	77^	93^	110^	ND	--	5.0^	140^	0.30^	---	13^	31^	0.63^	ND	ND	ND	43^	0.15
	T-9(t)		T15	2	55^	0.53^	47^	52	88^	ND	--	3.5^	83^	0.26^	---	11^	63^	0.72^	ND	ND	ND	52	0.16
	T-10(t)	Area 3	T1	3	--	--	--	--	--	--	--	8.6	--	--	3.5	--	--	--	--	--	--	--	--
	T-11(t)	Area 5	T1	6	**3,200^**	9.3^	100^	140^	1,400^	1.5^	--	11^	2,100^	0.48^	---	16^	86^	5.5^	ND	ND	ND	42^	0.14
	T-12(t)		T3	2	**1,100^**	4.3^	57^	84^	380^	6.1^	--	9.4^	250^	0.45^	---	19^	100^	2.8^	ND	ND	ND	50^	0.18
	T-13(t)		T5	3	--	--	--	--	--	--	--	5.8^	--	--	4.9	--	--	--	--	--	--	--	--
	T-14(t)		T10	4	16^	0.44^	70^	110^	69^	ND	--	7.4^	260^	0.64^	---	18^	35^	0.57^	ND	ND	ND	48^	0.09
	T-15(t)	Area 6	T1	2	**130^**	1.2^	45^	59^	160^	0.62^	--	5.4^	130^	0.42^	2.3	12^	73^	1.5^	ND	ND	ND	49^	0.11
	T-16(t)		T1*	8	**310^**	2.6^	35^	74^	380^	1.6^	--	11^	120^	0.22^	---	8.1^	160^	13^	ND	ND	ND	62^	0.18
	T-17(t)	Area 8	T1	2	50^	3.0^	35^	42^	360^	0.56^	--	4.5^	120^	0.37^	---	9.7^	94^	2.6^	ND	0.77^	ND	59^	0.099
	T-18(t)		Debris	--	**120^**	1.6^	110^	150^	150^	ND	--	**14^**	330^	0.92^	---	**28^**	53^	0.83^	ND	ND	ND	61^	0.17
***RWQCB Environmental Screening Levels* (Residential)**					*80*	*78*	*120,000*	*86* [3,4]	*23,000*	*11*	*NE*	*0.067* [3]	*15,000*	*16*	*0.3* [3]	*23*	*3,100*	*390*	*390*	*390*	*0.78*	*390*	*13*
US EPA RLs / DTSC-Modified SLs [2] (Residential)					**400 / 80**	**71 / 71**	**120, 000 /--**	**-- / --**	**23,000 / --**	**31 / --**	**77,000 / --**	**0.68 / 0.11**	**15,000 / --**	**160 / 16**	**0.3 / --**	**23 / --**	**3,100 / --**	**390 / --**	**390 / --**	**390 / 390**	**0.78 / --**	**390 / 390**	**11 / 1.0**
Site Specific, Background Concentrations (naturally-occurring concentration)								**168.1** [3]				**13.97** [3]			**6.1** [3]								

Table 2
Soil Sample Test Results: CAM 17 METALS Analysis
Former Clusters Junkyard, 511 Ohlone Parkway, Watsonville
All soil results are in milligrams per Kilogram (mg/Kg)

Sample Info				*CAM 17 Metals Analysis Results (plus Mercury)*																		
Date Sampled	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	LEAD (LUFT 5 Metals)	Cadmium (LUFT 5 Metals)	Chromium (LUFT 5 Metals)	Nickel (LUFT 5 Metals)	Zinc (LUFT 5 Metals)	*Antimony*	Aluminum	Arsenic	Barium	Beryllium	Hexavalent Chromium	Cobalt	Copper	Molybdenum	Selenium	Silver	Thallium	Vanadium	Mercury
June 2016 (Sampled by Weber Hayes and Associates)	B-10(w)	SB-1	0.5	63	1.7	24	22	110	ND	15,000	3.3	65	0.12[J]	---	12	140	2.3[J]	ND	0.41[J]	ND	54	0.060[J]
			2	13	0.29[J]	52	98	66	ND	15,000	6.7	170	0.5	---	13	31	ND	ND	0.31[J]	ND	33	0.056[J]
	B-11(w)	SB-2	0.5	**110**	1.8	28	150	5,500	ND	18,000	2.3	78	0.13[J]	---	9.7	690	2.6	ND	0.45[J]	ND	58	0.063[J]
			2	9.9	0.092[J]	62	89	71	ND	17,000	11	120	0.49[J]	---	14	41	ND	ND	0.44[J]	ND	41	0.083[J]
	B-12(w)	SB-3	0.5	**250**	0.8	39	43	82	ND	17,000	4.1	100	0.19[J]	---	11	170	1.0[J]	ND	1	ND	61	0.076[J]
			2	17	0.15[J]	75	83	71	ND	22,000	1	130	0.48[J]	---	11	35	ND	ND	0.21[J]	ND	23	0.21
	B-13(w)	SB-4	0.5	52	0.62	51	67	61	ND	18000^	5.9	180	0.49[J]	---	12	35	ND	6.2	0.24[J]	ND	43	0.044[J]
			2	14	0.13[J]	57	80	59	ND	21000^	6.2	160	0.51	---	15	34	ND	7.7	0.33[J]	ND	43	ND
	B-14(w)	SB-5	0.5	23	0.34[J]	48	54	71	ND	17,000^	5.3	110	0.29[J]	---	8.8	51	1.3[J]	7	1.1	ND	48	0.052[J]
			2	6.9	ND	53	64	30	ND	19,000^	6.1	210	0.47[J]	---	7.5	22	ND	ND	0.23[J]	ND	40	0.047[J]
	B-15(w)	SB-6	0.5	32	0.29[J]	30	33	77	ND	17,000^	3.1	100	0.25[J]	---	9.8	210	0.21[J]	7.1	0.33[J]	ND	47	0.070[J]
			2	7.5	ND	46	55	26	ND	15,000^	5.3	200	0.5	---	11	20	ND	ND	0.18[J]	ND	36	0.045[J]
	B-16(w)	SB-7	0.5	13	0.15[J]	46	43	51	ND	12,000^	4	76	0.20[J]	---	7.5	50	0.34[J]	ND	0.22[J]	0.50[J]	40	0.077[J]
			2	11	0.085[J]	53	69	40	ND	16,000^	6.3	170	0.43[J]	---	9.6	25	ND	ND	0.23[J]	ND	41	0.045[J]
	B-17(w)	SB-8	0.5	17	0.25[J]	16	18	48	ND	15,000^	2.2	72	0.14[J]	---	5.4	39	0.30[J]	ND	0.26[J]	ND	38	0.053[J]
			2	9.5	ND	57	79	58	ND	16,000^	5.8	130	0.46[J]	---	10	33	ND	ND	0.24[J]	ND	33	0.11[J]
	B-18(w)	SB-9	0.5	38	0.78	19	28	58	ND	22,000^	2.8	71	0.19[J]	---	9.4	87	0.36[J]	ND	0.28[J]	ND	58	0.12[J]
			2	8	ND	51	69	35	ND	16,000^	5.4	170	0.52	---	13	25	ND	ND	0.20[J]	ND	34	0.078[J]
	B-19(w)	SB-10	0.5	15	0.16[J]	76	86	98^	ND	19,000^	6.4	180	0.48[J]	---	13	37	0.067[J]	ND	0.21[J]	ND	36	0.15[J]
			2	8.6	ND	71	91	74^	ND	19,000^	8	66	0.47[J]	---	10	35	ND	ND	0.16[J]	ND	42	0.15[J]
	B-20(w)	SB-11	0.5	24	0.78	27	31	130^	ND	25,000^	3.4	78	0.19[J]	---	11	72	0.41[J]	ND	0.27[J]	ND	66	0.059[J]
			2	12	0.16[J]	68	93	73^	ND	19,000^	8.4	190	0.49[J]	---	14	34	0.088[J]	ND	0.17[J]	ND	51	0.23
	B-21(w)	SB-12	0.5	25	0.22[J]	50	53	88^	ND	17,000^	4.8	85	0.23[J]	---	11	59	0.18[J]	ND	0.29[J]	0.68[J]	58	0.12[J]
			2	15	0.11[J]	54	63	60^	ND	15,000^	4.7	89	0.26[J]	---	10	59	1.7[J]	ND	0.30[J]	ND	48	0.089[J]
	B-22(w)	SB-13	0.5	17	0.087[J]	61	88	64^	ND	18,000^	7.2	180	0.48[J]	---	14	32	0.14[J]	ND	0.20[J]	ND	47	0.079[J]
			2	8.3	0.34[J]	81	95	70^	ND	21,000^	7.8	180	0.5	---	14	35	ND	ND	0.26[J]	ND	46	0.16
	B-23(w)	SB-14	0.5	12	0.077[J]	20	13	63^	ND	14,000^	6.7	120	0.26[J]	---	6.7	12	1.0[J]	ND	0.11[J]	1.3[J]	45	0.044[J]
			2	13	ND	55	67	43^	ND	16,000^	6.3	130	0.48[J]	---	11	23	ND	ND	0.13[J]	ND	37	0.069[J]
	B-24(w)	SB-15	0.5	8.1	0.64	ND	0.76	100^	ND	17,000^	0.60[J]	3.7	0.052	---	6.2	18	0.48[J]	ND	ND	ND	20	0.15[J]
			2	9.6	ND	51	64	49^	ND	15,000^	6.2	100	0.42[J]	---	**26**	21	ND	2.4	0.27[J]	ND	34	0.044[J]
	B-25(w)	DP-1	2	9.1	0.35[J]	61	77	40	ND	--	7.2	260	0.55	---	17	26	ND	ND	0.25[J]	ND	48	ND
	B-26(w)	DP-2	2	9.4	0.083[J]	65	92	49	ND	--	6.6	190	0.61	---	13	31	ND	ND	0.21[J]	ND	46	ND
	B-27(w)	DP-4	2	9	0.056[J]	59	86	48	ND	--	6.4	220	0.50	---	13	29	ND	ND	0.24[J]	ND	41	ND
	B-28(w)	DP-5	2	5.9	ND	51	70	47	ND	--	4.1	11	0.35[J]	---	11	26	ND	ND	ND	ND	29	0.066[J]
	B-29(w)	DP-6	2	7.5	ND	57	87	40	ND	--	5.6	210	0.52	---	15	25	ND	ND	0.18[J]	ND	37	0.063[J]
	B-30(w)	DP-7	2	8.8	0.067[J]	58	82	37	ND	--	6.1	210	0.58	---	16	26	ND	ND	0.15[J]	ND	44	ND
	B-31(w)	DP-8	2	23	0.24[J]	70	100	72	ND	--	11	160	0.48[J]	---	16	40	0.14[J]	ND	0.31[J]	ND	42	0.078[J]
	B-32(w)	DP-9	2	14	0.090[J]	60	83	52	ND	--	5.6	160	0.44[J]	---	12	31	0.55[J]	ND	0.21[J]	ND	41	0.059[J]
RWQCB Environmental Screening Levels **(Residential)**				*80*	*78*	*120,000*	*86* [3,4]	*23,000*	*11*	*NE*	*0.067* [3]	*15,000*	*16*	*0.3* [3]	*23*	*3,100*	*390*	*390*	*390*	*0.78*	*390*	*13*
US EPA RLs / DTSC-Modified SLs [2] (Residential)				**400 / 80**	**71 / 71**	**120, 000 /--**	**-- / --**	**23,000 / --**	**31 / --**	**77,000 / --**	**0.68 / 0.11**	**15,000 / --**	**160 / 16**	**0.3 / --**	**23 / --**	**3,100 / --**	**390 / --**	**390 / --**	**390 / 390**	**0.78 / --**	**390 / 390**	**11 / 1.0**
Site Specific, Background Concentrations (naturally-occurring concentration)							**168.1** [3]				**13.97** [3]			**6.1** [3]								

Table 2

Soil Sample Test Results: CAM 17 METALS Analysis

Former Clusters Junkyard, 511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Info				*CAM 17 Metals Analysis Results (plus Mercury)*																		
Date Sampled	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	LEAD	Cadmium	Chromium	Nickel	Zinc	*Antimony*	Aluminum	Arsenic	Barium	Beryllium	Hexavalent Chromium	Cobalt	Copper	Molybdenum	Selenium	Silver	Thallium	Vanadium	Mercury
				LUFT 5 Metals																		
August 2004 (Sampled by Lowney Associates)	**B-33(L)**	CL-1	1	9.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			3	6.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-34(L)	CL-2	2	9.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			3	7.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-35(L)	CL-3	2	5.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			3	5.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-36(L)	CL-4	4	7.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-37(L)	CL-5	1	9.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			3	7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-38(L)	CL-6	1	8.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			3	7.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			5	12	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			7	14	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-39(L)	CL-8	5	15	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-40(L)	R-1	0.5	8.6	---	---	---	---	**Confirmation Lead Testing Investigation** (no other individual metals analyzxed during this mobilization)						---	---	---	---	---	---	---	---
			2	7.8	---	---	---	---							---	---	---	---	---	---	---	---
	B-41(L)	R-2	0.5	6.9	---	---	---	---							---	---	---	---	---	---	---	---
			2	5.5	---	---	---	---							---	---	---	---	---	---	---	---
			3	5.2	---	---	---	---							---	---	---	---	---	---	---	---
	B-42(L)	R-3	1	5.4	---	---	---	---							---	---	---	---	---	---	---	---
			3	5.9	---	---	---	---							---	---	---	---	---	---	---	---
	B-43(L)	GZ-1	2	9.4	---	---	---	---							---	---	---	---	---	---	---	---
			3	5.1	---	---	---	---							---	---	---	---	---	---	---	---
	B-44(L)	GZ-2	1	44	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			3	9.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-45(L)	BC-1	3	13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			5	9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			7	33	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-46(L)	BC-2	3	21	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			5	25	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			7	8.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-47(L)	BC-3	3	11	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			5	9.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			7	17	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-48(L)	BC-4	3	17	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			5	6.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			7	7.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-49(L)	CZ-1	2	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			4	10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-50(L)	CZ-2	1	6.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			3	6.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			7	7.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			11	7.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-51(L)	CZ-3	2	8.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
RWQCB Environmental Screening Levels (Residential)				*80*	*78*	*120,000*	*86* (3,4)	*23,000*	*11*	*NE*	*0.067* (3)	*15,000*	*16*	*0.3* (3)	*23*	*3,100*	*390*	*390*	*390*	*0.78*	*390*	*13*
US EPA RLs / DTSC-Modified SLs (2) (Residential)				400 / 80	71 / 71	120, 000 /--	-- / --	23,000 / --	31 / --	77,000 / --	0.68 / 0.11	15,000 / --	160 / 16	0.3 / --	23 / --	3,100 / --	390 / --	390 / --	390 / 390	0.78 / --	390 / 390	11 / 1.0
Site Specific, Background Concentrations (naturally-occurring concentration)							**168.1** (3)				**13.97** (3)			**6.1** (3)								

Table 2
Soil Sample Test Results: CAM 17 METALS Analysis
Former Clusters Junkyard, 511 Ohlone Parkway, Watsonville
All soil results are in milligrams per Kilogram (mg/Kg)

Sample Info				*CAM 17 Metals Analysis Results (plus Mercury)*																		
Date Sampled	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	LEAD (LUFT 5 Metals)	Cadmium (LUFT 5 Metals)	Chromium (LUFT 5 Metals)	Nickel (LUFT 5 Metals)	Zinc (LUFT 5 Metals)	*Antimony*	Aluminum	Arsenic	Barium	Beryllium	Hexavalent Chromium	Cobalt	Copper	Molybdenum	Selenium	Silver	Thallium	Vanadium	Mercury
August 2004 - continued - (Sampled by Lowney Associates)	B-52(L)	G+G-1	2	8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			4	10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			6	**77**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-53(L)	G+G-2	2	6.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			4	6.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			6	3.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-54(L)	G+G-3	0.5	7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	6.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-55(L)	G+G-4	0.5	24	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			3	9.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-56(L)	G+G-5	2	5.1	---	---	---	---						---	---	---	---	---	---	---	---	---
			4	5.1	---	---	---	---						---	---	---	---	---	---	---	---	---
	B-57(L)	G+G-6	2	7.2	---	---	---	---						---	---	---	---	---	---	---	---	---
			4	5.3	---	---	---	---						---	---	---	---	---	---	---	---	---
	B-58(L)	G+G-7	2	8.2	---	---	---	---	**Confirmation Lead Testing Investigation** (no other individual metals analyzxed during this mobilization)					---	---	---	---	---	---	---	---	---
			3.5	11	---	---	---	---						---	---	---	---	---	---	---	---	---
	B-59(L)	G-1	2	42	---	---	---	---						---	---	---	---	---	---	---	---	---
			3	5.2	---	---	---	---						---	---	---	---	---	---	---	---	---
	B-60(L)	G-2	2	14	---	---	---	---						---	---	---	---	---	---	---	---	---
			3	14	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-61(L)	G-3	0.5	11	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	11	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			3	13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-62(L)	G-4	2	9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			3	7.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-63(L)	G-5	2	16	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			4	15	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			6	6.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-64(L)	G-6	2	6.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			4	24	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			6	10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	SS-1(L)	SS-1	--	14	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	SS-2(L)	SS-2	--	28	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	SS-3(L)	SS-3	--	**110**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	SS-4(L)	SS-4	--	15	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	SS-5(L)	SS-5	--	11	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
RWQCB Environmental Screening Levels (Residential)				*80*	*78*	*120,000*	*86* (3,4)	*23,000*	*11*	*NE*	*0.067* (3)	*15,000*	*16*	*0.3* (3)	*23*	*3,100*	*390*	*390*	*390*	*0.78*	*390*	*13*
US EPA RLs / DTSC-Modified SLs (2) (Residential)				400 / 80	71 / 71	120, 000 /--	-- / --	23,000 / --	31 / --	77,000 / --	0.68 / 0.11	15,000 / --	160 / 16	0.3 / --	23 / --	3,100 / --	390 / --	390 / --	390 / 390	0.78 / --	390 / 390	11 / 1.0
Site Specific, Background Concentrations (naturally-occurring concentration)							168.1 (3)				13.97 (3)			6.1 (3)								

Table 2
Soil Sample Test Results: CAM 17 METALS Analysis
Former Clusters Junkyard, 511 Ohlone Parkway, Watsonville
All soil results are in milligrams per Kilogram (mg/Kg)

Sample Info				*CAM 17 Metals Analysis Results (plus Mercury)*																		
Date Sampled	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	LEAD	Cadmium	Chromium	Nickel	Zinc	*Antimony*	Aluminum	Arsenic	Barium	Beryllium	Hexavalent Chromium	Cobalt	Copper	Molybdenum	Selenium	Silver	Thallium	Vanadium	Mercury
				LUFT 5 Metals																		
December 2003 (Sampled by Weber Hayes and Associates)	B-65(w)	G&G# - 1a,1b,1c	0.5	49	ND	65	93	99	---	---	---	---	---	---	---	---	---	---	---	---	---	0.076
			2	70	ND	83	130	110	---	---	---	---	---	---	---	---	---	---	---	---	---	--
	B-65a(w)	G&G 1a	2	25	--	64	--	--	---	---	---	---	---	---	---	---	---	---	---	---	---	--
	B-65b(w)	G&G 1b	2	**89**	--	85	--	--	---	---	---	---	---	---	---	---	---	---	---	---	---	--
	B-65c(w)	G&G 1c	2	50	--	72	--	--	---	---	---	---	---	---	---	---	---	---	---	---	---	--
	B-66(w)	G&G# - 2a,2b,2c	0.5	40	ND	50	70	93	---	---	---	---	---	---	---	---	---	---	---	---	---	ND
			2	43	ND	48	75	65	---	---	---	---	---	---	---	---	---	---	---	---	---	--
	B-67(w)	G&G# - 3a,3b,3c	0.5	28	ND	60	82	94	---	---	---	---	---	---	---	---	---	---	---	---	---	0.065
			2	20	ND	71	100	79	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-67a(w)	G&G 3a	2	---	---	74	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-67b(w)	G&G 3b	2	---	---	53	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-67c(w)	G&G 3c	2	---	---	75	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-68(w)	G&G# - 4a,4b,4c	0.5	**5,400**	ND	19	28	370	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	66	ND	54	77	280	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-68a(w)	G&G 4a	0.5	**100**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	**260**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-68b(w)	G&G 4b	0.5	**170**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	**150**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-68c(w)	G&G 4c	0.5	**480**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	25	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-69(w)	G&G# - 5a,5b,5c	0.5	32	ND	50	67	75	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	17	ND	53	85	47	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-69a(w)	G&G 5a	0.5	37	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-69b(w)	G&G 5b	0.5	33	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-69c(w)	G&G 5c	0.5	69	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-72(w)	Gonzalez# - 1a, 1b, 1c	0.5	17	ND	43	67	45	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	14	ND	55	74	45	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-73(w)	Gonzalez# - 2a, 2b, 2c	0.5	**100**	ND	58	92	110	---	---	---	---	---	---	---	---	---	---	---	---	---	0.083
			2	16	ND	61	88	50	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-73a(w)	Gonzalez 2a	0.5	33	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-73b(w)	Gonzalez 2b	0.5	**120**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-73c(w)	Gonzalez 2c	0.5	**85**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-74(w)	Clusters# - 1a,1b,1c	0.5	16	ND	63	100	54	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	20	ND	59	79	64	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-75(w)	Clusters# - 2a,2b,2c	0.5	16	ND	61	120	58	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	17	ND	61	110	64	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-76(w)	Clusters# - 3a,3b,3c	0.5	41	ND	50	72	62	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	31	ND	46	71	61	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-77(w)	Chaz #- 1a,1b,1c	0.5	34	ND	44	55	69	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	**100**	1.2	53	77	160	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-77a(w)	Chaz 1a	2	**280**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-77b(w)	Chaz 1b	2	36	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-77c(w)	Chaz 1c	2	19	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
RWQCB Environmental Screening Levels **(Residential)**				*80*	*78*	*120,000*	*86* [3,4]	*23,000*	*11*	*NE*	*0.067* [3]	*15,000*	*16*	*0.3* [3]	*23*	*3,100*	*390*	*390*	*390*	*0.78*	*390*	*13*
US EPA RLs / DTSC-Modified SLs [2] (Residential)				400 / 80	71 / 71	120, 000 /--	-- / --	23,000 / --	31 / --	77,000 / --	0.68 / 0.11	15,000 / --	160 / 16	0.3 / --	23 / --	3,100 / --	390 / --	390 / --	390 / 390	0.78 / --	390 / 390	11 / 1.0
Site Specific, Background Concentrations (naturally-occurring concentration)							168.1 [3]				13.97 [3]			6.1 [3]								

Exhibit B

Table 2
Soil Sample Test Results: CAM 17 METALS Analysis
Former Clusters Junkyard, 511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Info				*CAM 17 Metals Analysis Results (plus Mercury)*																		
Date Sampled	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	LEAD (LUFT 5 Metals)	Cadmium (LUFT 5 Metals)	Chromium (LUFT 5 Metals)	Nickel (LUFT 5 Metals)	Zinc (LUFT 5 Metals)	*Antimony*	Aluminum	Arsenic	Barium	Beryllium	Hexavalent Chromium	Cobalt	Copper	Molybdenum	Selenium	Silver	Thallium	Vanadium	Mercury
December 2003 - continued - (Sampled by Weber Hayes and Associates)	B-78(w)	Chaz # - 2a,2b,2c	0.5	26	ND	54	84	71	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	38	ND	57	83	69	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-79(w)	Gerrys #- 1a,1b,1c	0.5	29	ND	43	66	81	---	---	---	---	---	---	---	---	---	---	---	---	---	0.068
			2	28	ND	46	74	53	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-80(w)	Gerrys #- 2a,2b,2c	0.5	17	ND	51	100	61	---	---	---	---	---	---	---	---	---	---	---	---	---	0.087
			2	21	ND	56	83	67	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-81(w)	Gerrys # - 3a,3b,3c	0.5	**130**	ND	43	75	130	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	19	ND	71	110	67	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-81a(w)	Gerrys 3a	0.5	46	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	---	---	79	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-81b(w)	Gerrys 3b	0.5	**110**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	---	---	72	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-81c(w)	Gerrys 3c	0.5	15	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	---	---	71	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-82(w)	Gerrys # - 4a,4b,4c	0.5	47	ND	50	87	86	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	20	ND	**78**	120	78	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-82a(w)	Gerrys 4a	2	---	---	97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-82b(w)	Gerrys 4b	2	---	---	77	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-82c(w)	Gerrys 4c	2	---	---	77	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-85(w)	JV # - 1a,1b,1c	0.5	**60**	ND	49	91	320	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	22	ND	49	77	58	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-85a(w)	JV 1a	0.5	48	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-85b(w)	JV 1b	0.5	16	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-85c(w)	JV 1c	0.5	17	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-86(w)	Residence #- 1a,1b,1c	0.5	15	ND	45	68	42	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	18	ND	53	78	51	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-88(w)	Bay City # - 1a,1b,1c	0.5	28	ND	53	63	110	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	18	ND	56	65	50	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	B-89(w)	Bay City # - 2a,2b,2c	0.5	44	ND	46	56	120	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2	48	ND	50	98	120	---	---	---	---	---	---	---	---	---	---	---	---	---	---
***RWQCB Environmental Screening Levels** (Residential)*				*80*	*78*	*120,000*	*86* (3,4)	*23,000*	*11*	*NE*	*0.067* (3)	*15,000*	*16*	*0.3* (3)	*23*	*3,100*	*390*	*390*	*390*	*0.78*	*390*	*13*
US EPA RLs / DTSC-Modified SLs (2) (Residential)				400 / 80	71 / 71	120, 000 /--	-- / --	23,000 / --	31 / --	77,000 / --	0.68 / 0.11	15,000 / --	160 / 16	0.3 / --	23 / --	3,100 / --	390 / --	390 / --	390 / 390	0.78 / --	390 / 390	11 / 1.0
Site Specific, Background Concentrations (naturally-occurring concentration)							168.1 (3)				13.97 (3)			6.1 (3)								

Table 2

Soil Sample Test Results: CAM 17 METALS Analysis

Former Clusters Junkyard, 511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Info				*CAM 17 Metals Analysis Results (plus Mercury)*																			
Date Sampled	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	LEAD	Cadmium	Chromium	Nickel	Zinc	*Antimony*	Aluminum	Arsenic	Barium	Beryllium	Hexavalent Chromium	Cobalt	Copper	Molybdenum	Selenium	Silver	Thallium	Vanadium	Mercury
				LUFT 5 Metals																		

Notes

1 = Environmental Screening Levels (ESLs): From the Regional Water Quality Control Board (San Francisco Bay Region) guideline document: *Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater* (Final version, 2019). The ESLs are agency-stablished threshold concentrations intended to provide quantitative risk-based guidance on whether further assessment or remediation of contamination is warranted based on risk pathways (protection of human heath, groundwater and/or ecological.

2= CA DTSC Modified Soil Screening Levels (DTSC-SLs): These are human health, risk-based values established by the California Department of Toxic Substances Control (DTSC), Office of Human and Ecological Risk (HERO), Human Health Risk Assessment (HHRA) Note Number 3, Table 1 , June 2020. <https://dtsc.ca.gov/wp-content/uploads/sites/31/2019/04/HHRA-Note-3-June-2020-A.pdf >. Note that for those chemicals not posted on the Note 3 website, DTSC-HERO endorses the soil thresholds established on the USEPAs ***Regional Screening Levels*** (USEPA-RSLs) website: (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables, updated November 2020). Both thresholds are listed for transparancy, but generally speaking, California uses a more conservative toxicity evaluation for a select number of urban chemicals. This assessment uses the lowest (most conservative theshold as a cleanup goal).

3 = Arsenic, Hexavalent Chromium, and Nickel concentrations were statistically evaluated to determine the site specific, naturally occuring (background) concentrations. See Appendix C for details of this evaluation.

4 = The Nickel ESL threshold shown is based on worker health and safety risk parameters -- the risk theshold for residential land use is 840 mg/kg, and the site-specific, naturally occuring (background) concentration is 168 mg/kg. See Appendix C for details of the background analysis for Nickel.

BOLD = YELLOW box highlight indicates detected metal concentration exceeds the most conservative threshold concentration for Residential land use (i.e., lowest ESL, RSL, or California-modified theshold). The only exceptions are for site-specific (background) concentrations calculated for Arsenic, Hex-Chromium, and Nickel.

BOLD = GREEN box highlight Indicates the deepest soil sample contains an exceedence (note: a confirmation sample will be .required at this location)

BOLD = BLUE box highlight indicates a hazardous waste threhold exceedance was detected at this sample location (i.e. greater than the Total (TTLC) or Soluble (TCLP,STLC) threshold concentration (details provided in table below):

			LEAD			Chromium		
UPDATED Sample ID	***ORIGINAL Consultant ID***	Date sampled	TTLC (mg/kg)	STLC (mg/L)	TCLP (mg/L)	TTLC (mg/kg)	STLC (mg/L)	TCLP (mg/L)
T-6(t)	Area 1-T12	10/13/16	67	3.4	--	--	--	--
T-7(t)	Area 2-T6	10/12/16	--	--	--	54	0.047	--
T-8(t)	Area 2-T12	10/12/16	--	--	--	70	0.13	--
T-9(t)	Area 2-T15	10/12/16	52	2.2	--	--	--	--
T-11(t)	Area 5-T1	10/13/16	2,700	--	2.4	89	0.22	--
T-12(t)	Area 5-T3	10/13/16	780	8.2	0.096	--	--	--
T-14(t)	Area 5-T10	10/13/16	--	--	--	58	0.14	--
T-15(t)	Area 6-T1	10/13/16	110	16	0.037	--	--	--
T-16(t)	Area 6-T1*	10/13/16	280	11	0.52	--	--	--
T-17(t)	Area 8-T1	10/11/16	--	--	--	79	0.3	--
T-18(t)	Area 8-Debris**	10/11/16	110	5.5	0.2	--	--	--
B-3(t)	TB-3	10/13/16	140	31	0.71	--	--	--
Federal/State Haz-Waste Threshold Limit (Title 22) =			**1,000**	**5**	**5**	**1,000**	**5**	**5**

ND = Analyte not detected above the laboratory Method Detection Limit (MDL).

\- = Sample was not analyzed for this constituent

J = Laboratory reports that the detection value is between MDL and PQL, and should be considered to be an estimate.

^ = Detection and Quantitation Limits were raised due to sample dilution

* = Screening Limit for Chromium III is used, as there is no established screening limit for Total Chromium. Chromium IV screening level is 0.3 mg/kg.

(w) = Weber-Hayes Associates: Sample depths by Weber-Hayes and Lowney were measured from the top of the collected soil sample (i.e. a "2-ft" sample means the top of

(L) = Lowney Associates: the soil sample was at 2-ft). Therefore a "clean" 2-ft sample would indicate soils are unimpacted below a depth of 2-ft.

(t) = Trinity Source Group: Sample depths by Trinity were measured from the base of the collected soil sample (i.e. a "2-ft" sample means the bottom of the soil sample was at 2-ft). Therefore a "clean" 2-ft sample would indicate soils are unimpacted above a depth of 2-ft.

Table 3

Total Lead Results (soil sampling analysis)

Former Clusters Junkyard

511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Info					Lab Results
Date Sampled	*UPDATED Sample ID*	*ORIGINAL Consultant ID*		*Depth*	Total Lead
October 2016 (Sampled by Trinity Source Group)	B-3(t)	TB-3		0.5	12
				1.5	140
				2.5	--
				4	--
	B-4(t)	TB-4		0.5	--
	B-5(t)	TB-5		0.5	--
	B-6(t)	TB-6		0.75	--
	B-7(t)	TB-7		0.5	--
	B-8(t)	TB-8		0.5	23
				1.5	--
				2.5	--
				4	--
	B-9(t)	TB-9		0.5	40
				1.5	--
				2.5	--
				4	--
	T-1(t)	Area 1	T4	4	--
	T-2(t)		T6	3.5	20^
	T-3(t)		T9	2	29^
	T-4(t)		T10	1	6.8^
	T-5(t)		T11	1.5	--
	T-6(t)		T12	1	76^
	T-7(t)	Area 2	T6	1	8.6^
	T-8(t)		T12	2	22^
	T-9(t)		T15	2	55^
	T-10(t)	Area 3	T1	3	--
	T-11(t)	Area 5	T1	6	3,200^
	T-12(t)		T3	2	1,100^
	T-13(t)		T5	3	--
	T-14(t)		T10	4	16^
	T-15(t)	Area 6	T1	2	130^
	T-16(t)		T1*	8	310^
	T-17(t)	Area 8	T1	2	50
	T-18(t)		Debris	--	120
June 2016 (Sampled by Weber Hayes Associates)	B-10(w)	SB-1		0.5	63
				2	13
	B-11(w)	SB-2		0.5	110
				2	9.9
	B-12(w)	SB-3		0.5	250
				2	17
	B-13(w)	SB-4		0.5	52
				2	14
	B-14(w)	SB-5		0.5	23
				2	6.9
Environmental Screening Levels (1) (Residential)					80
US EPA RLs / DTSC-Modified SLs (2) (Residential)					80

Sample Info				Lab Results
Date Sampled	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	Total Lead
June 2016 (Sampled by Weber Hayes Associates)	B-15(w)	SB-6	0.5	32
			2	7.5
	B-16(w)	SB-7	0.5	13
			2	11
	B-17(w)	SB-8	0.5	17
			2	9.5
	B-18(w)	SB-9	0.5	38
			2	8
	B-19(w)	SB-10	0.5	15
			2	8.6
	B-20(w)	SB-11	0.5	24
			2	12
	B-21(w)	SB-12	0.5	25
			2	15
	B-22(w)	SB-13	0.5	17
			2	8.3
	B-23(w)	SB-14	0.5	12
			2	13
	B-24(w)	SB-15	0.5	8.1
			2	9.6
	B-25(w)	DP-1	2	9.1
	B-26(w)	DP-2	2	9.4
	B-27(w)	DP-4	2	9
	B-28(w)	DP-5	2	5.9
	B-29(w)	DP-6	2	7.5
	B-30(w)	DP-7	2	8.8
	B-31(w)	DP-8	2	23
	B-32(w)	DP-9	2	14
August 2004 (Sampled by Lowney Associates)	B-33(L)	CL-1	1	9.9
			3	6.2
	B-34(L)	CL-2	2	9.8
			3	7.7
	B-35(L)	CL-3	2	5.7
			3	5.9
	B-36(L)	CL-4	4	7.1
	B-37(L)	CL-5	1	9.1
			3	7
	B-38(L)	CL-6	1	8.6
			3	7.1
			5	12
			7	14
	B-39(L)	CL-8	5	15
	B-40(L)	R-1	0.5	8.6
			2	7.8
Environmental Screening Levels (1) (Residential)				80
US EPA RLs / DTSC-Modified SLs (2) (Residential)				80

Table 3

Total Lead Results (soil sampling analysis)

Former Clusters Junkyard

511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Info				Lab Results
Date Sampled	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	Total Lead
August 2004 (Sampled by Lowney Associates)	**B-41(L)**	R-2	0.5	6.9
			2	5.5
			3	5.2
	B-42(L)	R-3	1	5.4
			3	5.9
	B-43(L)	GZ-1	2	9.4
			3	5.1
	B-44(L)	GZ-2	1	44
			3	9.8
	B-45(L)	BC-1	3	13
			5	9
			7	33
	B-46(L)	BC-2	3	21
			5	25
			7	8.9
	B-47(L)	BC-3	3	11
			5	9.3
			7	17
	B-48(L)	BC-4	3	17
			5	6.5
			7	7.6
	B-49(L)	CZ-1	2	1
			4	10
	B-50(L)	CZ-2	1	6.9
			3	6.8
			7	7.7
			11	7.9
	B-51(L)	CZ-3	2	8.2
	B-52(L)	G+G-1	2	8
			4	10
			6	77
	B-53(L)	G+G-2	2	6.8
			4	6.5
			6	3.9
	B-54(L)	G+G-3	0.5	7
			2	6.4
	B-55(L)	G+G-4	0.5	24
			2	6
			3	9.1
	B-56(L)	G+G-5	2	5.1
			4	5.1
	B-57(L)	G+G-6	2	7.2
			4	5.3
Environmental Screening Levels (1) (Residential)				**80**
US EPA RLs / DTSC-Modified SLs (2) (Residential)				**80**

Sample Info				Lab Results
Date Sampled	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	Total Lead
August 2004 (Sampled by Lowney Associates)	**B-58(L)**	G+G-7	2	8.2
			3.5	11
	B-59(L)	G-1	2	42
			3	5.2
	B-60(L)	G-2	2	14
			3	14
	B-61(L)	G-3	0.5	11
			2	11
			3	13
	B-62(L)	G-4	2	9
			3	7.4
	B-63(L)	G-5	2	16
			4	15
			6	6.2
	B-64(L)	G-6	2	6.1
			4	24
			6	10
	SS-1(L)	SS-1	--	14
	SS-2(L)	SS-2	--	28
	SS-3(L)	SS-3	--	110
	SS-4(L)	SS-4	--	15
	SS-5(L)	SS-5	--	11
December 2003 (Sampled by Weber Hayes Associates)	**B-65(w)**	G&G (#1a,1b,1c)	--	49
			2	**70**
	B-65a(w)	G&G 1a	2	25
	B-65b(w)	G&G 1b	2	89
	B-65c(w)	G&G 1c	2	50
	B-66(w)	G&G (# 2a,2b,2c)	0.5	40
			2	43
	B-67(w)	G&G (#3a,3b,3c)	0.5	28
			2	20
	B-67a(w)	G&G 3a	2	---
	B-67b(w)	G&G 3b	2	---
	B-67c(w)	G&G 3c	2	---
	B-68(w)	G&G (#4a,4b,4c)	0.5	**5400**
			2	**66**
	B-68a(w)	G&G 4a	0.5	100
			2	**260**
	B-68b(w)	G&G 4b	0.5	170
			2	**150**
	B-68c(w)	G&G 4c	0.5	**480**
			2	25
Environmental Screening Levels (1) (Residential)				**80**
US EPA RLs / DTSC-Modified SLs (2) (Residential)				**80**

Table 3

Total Lead Results (soil sampling analysis)

Former Clusters Junkyard

511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Info				Lab Results
Date Sampled	***UPDATED Sample ID***	***ORIGINAL Consultant ID***	***Depth***	**Total Lead**
December 2003 (Sampled by Weber Hayes Associates)	**B-69(w)**	G&G (5a,5b,5c)	0.5	32
			2	17
	B-69a(w)	G&G 5a	0.5	37
	B-69b(w)	G&G 5b	0.5	33
	B-69c(w)	G&G 5c	0.5	69
	B-72(w)	Gonzalez (#1a, 1b, 1c)	0.5	17
			2	14
	B-73(w)	Gonzalez (# 2a,2b,2c)	0.5	**100**
			2	16
	B-73a(w)	Gonzalez 2a	0.5	33
	B-73b(w)	Gonzalez 2b	0.5	120
	B-73c(w)	Gonzalez 2c	0.5	85
	B-74(w)	Clusters (#1a, 1b, 1c)	0.5	16
			2	20
	B-75(w)	Clusters (# 2a,2b,2c)	0.5	16
			2	17
	B-76(w)	Clusters# - 3a,3b,3c	0.5	41
			2	31
	B-77(w)	Chaz (#1a, 1b, 1c)	0.5	34
			2	**100**
	B-77a(w)	Chaz 1a	2	**280**
	B-77b(w)	Chaz 1b	2	36
	B-77c(w)	Chaz 1c	2	19
	B-78(w)	Chaz (# 2a,2b,2c)	0.5	26
			2	38
	B-79(w)	Gerrys (#1a, 1b, 1c)	0.5	29
			2	28
	B-80(w)	Gerrys (# 2a,2b,2c)	0.5	17
			2	21
	B-81(w)	Gerrys # - 3a,3b,3c	0.5	**130**
			2	19
	B-81a(w)	Gerrys 3a	0.5	46
			2	---
	B-81b(w)	Gerrys 3b	0.5	110
			2	---
	B-81c(w)	Gerrys 3c	0.5	15
			2	---
	B-82(w)	Gerrys (#4a,4b,4c)	0.5	47
			2	20
	B-82a(w)	Gerrys 4a	2	---
	B-82b(w)	Gerrys 4b	2	---
	B-82c(w)	Gerrys 4c	2	---
	B-85(w)	JV (#1a, 1b, 1c)	0.5	60
			2	22
	B-85a(w)	JV 1a	0.5	48
	B-85b(w)	JV 1b	0.5	16
	B-85c(w)	JV 1c	0.5	17
	B-86(w)	Residence (#1a, 1b, 1c)	0.5	15
			2	18
	B-88(w)	Bay City (#1a, 1b, 1c)	0.5	28
			2	18
	B-89(w)	Bay City (# 2a,2b,2c)	0.5	44
			2	48
Environmental Screening Levels (1) **(Residential)**				**80**
US EPA RLs / DTSC-Modified SLs (2) **(Residential)**				**80**

Sample Info				Lab Results
Date Sampled	***UPDATED Sample ID***	***ORIGINAL Consultant ID***	***Depth***	**Total Lead**

Notes

1 = **Environmental Screening Levels (ESLs):** From the Regional Water Quality Control Board (San Francisco Bay Region) guideline document: *Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater* (Final version, 2019). The ESLs are agency-stablished threshold concentrations intended to provide quantitative risk-based guidance on whether further assessment or remediation of contamination is warranted based on risk pathways (protection of human heath, groundwater and/or ecological

2= **CA DTSC Modified Soil Screening Levels** (DTSC-SLs): These are human health, risk-based values established by the California Department of Toxic Substances Control (DTSC), Office of Human and Ecological Risk (HERO), Human Health Risk Assessment (HHRA) Note Number 3, Table 1 , June 2020. <https://dtsc.ca.gov/wp-content/uploads/sites/31/2019/04/HHRA-Note-3-June-2020-A.pdf >. Note that for those chemicals not posted on the Note 3 website, DTSC-HERO endorses the soil thresholds established on the USEPAs *Regional Screening Levels* (USEPA-RSLs) website: https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables, updated November 2020). Both thresholds are listed for transparency, but generally speaking, California uses a more conservative toxicity evaluation for a select number of urban chemicals. This assessment uses the lowest (most conservative threshold as a cleanup goal).

- = Sample was not analyzed for this constituent

^ = Detection and Quantitation Limits are raised due to sample dilution

BOLD = YELLOW box highlight indicates the analytical result exceeds the Risk-based screening threshold (for residential land use).

BOLD = GREEN Box highlight Indicates deepest sample has exceedance (Confirmation sample required at this location)

(w) = Weber-Hayes and Associates: and

(L) = Lowney Associates: Sample depths by Weber-Hayes and Lowney were measured from the top of the collected soil sample (i.e. a "2-ft" sample means the top of the soil sample was at 2-ft). Therefore a "clean" 2-ft sample would indicate soils are unimpacted below a depth of 2-ft.

(t) = Trinity Source Group: Sample depths by Trinity were measured from the base of the collected soil sample (i.e. a "2-ft" sample means the bottom of the soil sample was at 2-ft). Therefore a "clean" 2-ft sample would indicate soils are unimpacted above a depth of 2-ft.

Table 4

Additional Soil Sample Test Results: Volatile Organic Compounds & Fuel Fingerprint

511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Information					*Laboratory Analytical Results*						*Comments (& Co-Located Exceedences)*
					Fuel Fingerprint by EPA Method 6010B			*Volatile Organic Compounds (VOCs)* by EPA Method 8260B		*Semivolatile Organic Compounds (SVOCs)* by EPA 8270	
Sample Date	*UPDATED Sample ID*	*ORIGINAL Consultant ID*		*Depth*	*TPH as DIESEL*	*TPH as MOTOR OIL*	*TPH as Gasoline*	*Naphthalene*	*All other VOCs*		
October 2016 (sampled by Trinity Source Group)	**B-3(t)**	TB-3		0.5	< 30	3,500	< 120	< 0.0050 (ND) (0.31 by 8270C)	--	**Napthalene = 0.31** **Indeno (1,2,3-c,d) pyrene = 0.21** All Others = Trace Detections (3)	
				1.5	< 12	1,800	**220**	**0.036** (1.5 by 8270c)	--	**Napthalene = 1.5** All Others = Trace Detections (3)	Co-located Lead Exceedance
	B-8(t)	TB-8		0.5	< 120	**32,000**	< 500	0.013 (0.22 by 8270c)	--	**Napthalene = 0.22** All Others = Trace Detections (3)	
	B-9(t)	TB-9		0.5	--	--	--	--	--	**Napthalene = 0.067** **Benzo(a)pyrene = 0.12** Benzo(a)anthracene = 0.39 All Others = Trace Detections (3)	
	T-2(t)	Area 1	T6	3.5	< 1.2	85^	--	< 0.0050 (ND)	Freon 11 =.0019	Trace Detections (3)	
	T-3(t)		T9	2	94	240^	--	< 0.0050 (ND)	ND	Trace Detections (3)	
	T-4(t)		T10	1	< 1.2	32	--	< 0.0050 (ND)	ND	Trace Detections (3)	
	T-6(t)		T12	1	< 1.2	250^	--	< 0.0050 (ND)	ND	Trace Detections (3)	
	T-7(t)	Area 2	T6	1	< 1.2	< 6.5	--	< 0.0050 (ND)	ND	Trace Detections (3)	
	T-8(t)		T12	2	< 2.4	400	--	< 0.0050 (ND)	ND	Trace Detections (3)	
	T-9(t)		T15	2	< 2.4	510	--	< 0.0050 (ND)	ND	Trace Detections (3)	
	T-11(t)	Area 5	T1	6	< 6	680	--	< 0.0050 (ND)	ND	Trace Detections (3)	
	T-12(t)		T3	2	< 2.4	800	--	< 0.0050 (ND)	ND	**Napthalene = 0.043** All Others = Trace Detections (3)	Co-located Lead Exceedance
	T-14(t)		T10	4	< 1.2	18^	--	< 0.0050 (ND)	ND	Trace Detections (3)	
	T-15(t)	Area 6	T1	2	< 24	2,000	--	< 0.0050 (ND)	ND	Trace Detections (3)	
	T-16(t)		T1*	8	< 950	**97,000**	--	< 0.0050 (ND)	ND	**Napthalene = 0.28** All Others = Trace Detections (3)	Co-located Lead Exceedance
	T-17(t)	Area 8	T1	2	< 2.3	51^	--	< 0.0050 (ND)	ND	Trace Detections (3)	
	T-18(t)		Debris	--	< 24	1,600	--	< 0.0050 (ND)	ND	**Napthalene = 0.067** All Others = Trace Detections (3)	Co-located Lead & Arsenic Exceedance
Environmental Screening Levels (1) Residential					**260** *(NC Hazard)*	**5100** *(Gross Contamination)*	**100** *(odor)*	**0.042 (leaching)** **3.8 (human health)**	**Freon 11** = Not Established	**Napthalene =** **0.042 (leaching) & 3.8 (human health)** **Benzo(a)pyrene = 0.016** **Benzo(a)anthracene = 1.6**	
US EPA RLs / DTSC-Modified SLs					**Not Established**			**2 / 2**	**Freon 11** = **23,000** / **1,200**	**Napthalene = 2 / 2** **Benzo(a)pyrene = 0.11 / Not established** **Benzo(a)anthracene = 1.1 / Not established**	

Table 4

Additional Soil Sample Test Results: Volatile Organic Compounds & Fuel Fingerprint

511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Information				*Laboratory Analytical Results*						*Comments (& Co-Located Exceedences)*
				Fuel Fingerprint by EPA Method 6010B			*Volatile Organic Compounds (VOCs)* by EPA Method 8260B		*Semivolatile Organic Compounds (SVOCs)* by EPA 8270	
Sample Date	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	TPH as *DIESEL*	TPH as *MOTOR OIL*	TPH as *Gasoline*	*Naphthalene*	*All other VOCs*		
June 2016 (Sampled by Weber Hayes and Associates)	**B-10(w)**	SB-1	0.5	180*[J]	2,400	--	--	--	--	
			2	< 1.2	22	--	--	--	--	
	B-11(w)	SB-2	0.5	**670***	**5,500**	--	--	--	--	Co-located Lead Exceedance
			2	4.8*[J]	39	--	< 0.0050	ND	--	
	B-12(w)	SB-3	0.5	8.3*[J]	80	--	--	--	--	
			2	< 1.2	29	--	--	--	--	
	B-13(w)	SB-4	0.5	3.5*[J]	45	--	--	--	--	
			2	6.2*[J]	38	--	--	--	--	
	B-14(w)	SB-5	0.5	60*^	820^	--	--	--	--	
			2	8.9*[J]	63	--	--	--	--	
	B-15(w)	SB-6	0.5	15*	170	--	--	--	--	
			2	< 1.2	< 6.5	--	--	--	--	
	B-16(w)	SB-7	0.5	6.5*[J]	63	--	--	--	--	
			2	< 1.2	< 6.5	--	--	--	--	
	B-17(w)	SB-8	0.5	53*^	750^	--	--	--	--	
			2	4.9*[J]	51	--	--	--	--	
	B-18(w)	SB-9	0.5	110*[J]	1,300	--	--	--	--	
			2	10*	98	--	--	--	--	
	B-19(w)	SB-10	0.5	7.1*[J]	48	--	--	--	--	
			2	< 1.2	< 6.5	--	--	--	--	
	B-20(w)	SB-11	0.5	12*	150	--	--	--	--	
			2	< 1.2	21	--	--	--	--	
	B-21(w)	SB-12	0.5	33^[J]	380^	--	--	--	--	
			2	18*	78	--	--	--	--	
	B-22(w)	SB-13	0.5	7.1*[J]	64	--	--	--	--	
			2	< 1.2	19*[J]	--	--	--	--	
	B-23(w)	SB-14	0.5	150*[J]	1,600	--	--	--	--	
			2	< 1.2	< 6.5	--	--	--	--	
Environmental Screening Levels [(1)] Residential				**260** (NC Hazard)	**5100** (Gross	**100** (odor)	**0.042 (leaching)** **3.8 (human health)**			
US EPA RLs / DTSC-Modified SLs				**Not Established**			**2 / 2**			

Table 4

Additional Soil Sample Test Results: Volatile Organic Compounds & Fuel Fingerprint

511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Information				*Laboratory Analytical Results*						*Comments (& Co-Located Exceedences)*
				Fuel Fingerprint by EPA Method 6010B			*Volatile Organic Compounds (VOCs)* by EPA Method 8260B		*Semivolatile Organic Compounds (SVOCs)* by EPA 8270	
Sample Date	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	*TPH as DIESEL*	*TPH as MOTOR OIL*	*TPH as Gasoline*	*Naphthalene*	*All other VOCs*		
June 20	**B-24(w)**	SB-15	0.5	10*	140	--	--	--	--	
			2	< 1.2	28	--	--	--	--	
	B-25(w)	DP-1	2	< 1.2	< 6.5	--	--	--	--	
	B-26(w)	DP-2	2	< 1.2	< 6.5	--	--	--	--	
	B-27(w)	DP-4	2	5.2^[J]	14^[J]	--	0.023	sec-Butylbenzene = 0.0017[J] n-Propylbenzene = 0.0038[J] 1,2,4-Trimethylbenzene = 0.025 1,3,5-Trimethylbenzene = 0.065	--	
			4	--	--	--	< 0.0050	sec-Butylbenzene = 0.0017[J] n-Propylbenzene = 0.0038[J] 1,2,4-Trimethylbenzene = 0.025 1,3,5-Trimethylbenzene = 0.065	--	
	B-28(w)	DP-5	2	< 1.2	< 6.5	--	--	--	--	
	B-29(w)	DP-6	2	5.6^[J]	23^	--	< 0.0050	ND	--	
	B-30(w)	DP-7	2	7.3^[J]	42^	--	--	--	--	
	B-31(w)	DP-8	2	5.8^[J]	33^	--	--	--	--	
	B-32(w)	DP-9	2	43^	180^	--	--	--	--	
August 2004 (Sampled by Lowney Associates)	**B-52(L)**	G + G -1	2	< 1	< 50	--	--	--	--	
			4	< 1	< 50	--	--	--	--	
			6	160	1,200	--	--	--	--	
	B-55(L)	G + G -4	2	1.7	< 50	--	--	--	--	
			3	< 1	< 50	--	--	--	--	
December 2003 (Sampled by Weber Hayes and Associates)	**B-65(w)**	G&G# - 1a,1b,1c	0.5	68*	310	< 2.5	--	ND	--	
			2	< 1	< 13	< 2.5	--	ND	--	
	B-66(w)	G&G (2a,2b,2c)	0.5	25*	170	< 2.5	--	ND	--	
			2	110*	360	< 2.5	--	ND	--	
	B-66a(w)	G&G 2a	2	19*	78	---	--	---	--	
	B-66b(w)	G&G 2b	2	11*	33	---	--	---	--	
			4	3.6*	< 13	---	--	---	--	
	B-66c(w)	G&G 2c	2	21*	86	---	--	---	--	
Environmental Screening Levels [(1)] Residential				**260** (NC Hazard)	**5100** (Gross Contamination)	**100** (odor)	**0.042 (leaching)** **3.8 (human health)**	**sec-Butylbenzene = NE** **n-Propylbenzene = NE** **1,2,4-Trimethylbenzene = NE** **1,3,5-Trimethylbenzene = NE**	**Varies**	
US EPA RLs / DTSC-Modified SLs				**Not Established**			**2 / 2**	**sec-Butylbenzene = 7,800 / NE** **n-Propylbenzene = 58/NE** **1,2,4-Trimethylbenzene = 58 /NE** **1,3,5-Trimethylbenzene = 780 /210**	**Varies**	

Table 4

Additional Soil Sample Test Results: Volatile Organic Compounds & Fuel Fingerprint

511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Information				*Laboratory Analytical Results*						*Comments (& Co-Located Exceedences)*
				Fuel Fingerprint by EPA Method 6010B			*Volatile Organic Compounds (VOCs)* by EPA Method 8260B		*Semivolatile Organic Compounds (SVOCs)* by EPA 8270	
Sample Date	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	*TPH as DIESEL*	*TPH as MOTOR OIL*	*TPH as Gasoline*	*Naphthalene*	*All other VOCs*		
December 2003 (Sampled by Weber Hayes and Associates)	**B-67(w)**	G&G (#3a,3b,3c)	0.5	60*	700	< 2.5	--	ND	--	
			2	< 1	< 13	< 2.5	--	ND	--	
	B-68(w)	G&G (#4a,4b,4c)	0.5	**620***	3,300	8.6*	--	**Toluene= 0.085 Ethylbenzene= 0.12 Xylene= 0.82**	--	Co-located with Lead Exceedance
			2	< 1	< 13	< 2.5	--	ND	--	
	B-69(w)	G&G (#5a,5b,5c)	0.5	< 1	< 13	---	--	---	--	
			2	< 1	< 13	---	--	---	--	
	B-70(w)	G&G (Discrete #1)	0.5	110*	510	< 2.5	--	ND	--	
			2	130*	980	< 2.5	--	ND	--	
			4	1.5*	< 13	---	--	---	--	
	B-71(w)	EB-1	20	< 1	< 13	---	--	---	--	
			40	1.1	< 13	---	--	---	--	
	B-72(w)	Gonzalez (# 1a, 1b, 1c)	0.5	6.1*	30	---	--	---	--	
			2	1.6*	< 13	---	--	---	--	
	B-73(w)	Gonzalez (#2a, 2b, 2c)	0.5	8.8*	58	< 2.5	--	ND	--	
			2	1.6*	< 13	< 2.5	--	ND	--	
	B-74(w)	Clusters (#1a,1b,1c)	0.5	< 1	< 13	---	--	---	--	
			2	6.4*	31	---	--	---	--	
	B-75(w)	Clusters (# 2a,2b,2c)	0.5	3.2*	16	---	--	---	--	
			2	< 1	< 13	---	--	---	--	
	B-76(w)	Clusters (#3a,3b,3c)	0.5	5.6*	57	---	--	---	--	
			2	4.0*	39	---	--	---	--	
	B-77(w)	Chaz (#1a,1b,1c)		31*	250	---	--	---	--	
			2	4.5*	35	---	--	---	--	
	B-78(w)	Chaz (#2a,2b,2c)	0.5	15*	130	---	--	---	--	
			2	5.3*	48	---	--	---	--	
Environmental Screening Levels [(1)] Residential				**260** *(NC Hazard)*	**5100** *(Gross Contamination)*	**100** *(odor)*	**0.042 (leaching) 3.8 (human health)**	**Toluene= 2.9 (leaching)/970 (human health) Ethylbenzene= 1.4 (leaching)/5.1 (human health) Xylene=.= 2.3 (leaching)/5.6 (human health)**	**Varies**	
US EPA RLs / DTSC-Modified SLs				**Not Established**			**2 /2**	**Toluene = 4,900 / 1,100 n-Ethylbenzene = 5.8/not established Xylenes = 580 /not established**	**Varies**	

Table 4

Additional Soil Sample Test Results: Volatile Organic Compounds & Fuel Fingerprint

511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Information				*Laboratory Analytical Results*						*Comments (& Co-Located Exceedences)*
				Fuel Fingerprint by EPA Method 6010B			*Volatile Organic Compounds (VOCs)* by EPA Method 8260B		*Semivolatile Organic Compounds (SVOCs)* by EPA 8270	
Sample Date	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	*TPH as DIESEL*	*TPH as MOTOR OIL*	*TPH as Gasoline*	*Naphthalene*	*All other VOCs*		
December 2003 (Sampled by Weber Hayes and Associates)	**B-79(w)**	Gerrys (1a,1b,1c)	0.5	45*	200	< 2.5	--	ND	--	
			2	12*	57	< 2.5	--	ND	--	
	B-80(w)	Gerrys (#2a,2b,2c)	0.5	< 1	< 13	< 2.5	--	ND	--	
			2	62*	200	< 2.5	--	ND	--	
	B-80a(w)	Gerrys 2a	2	< 1	< 13	---	--	---	--	
	B-80b(w)	Gerrys 2b	2	190*	600	---	--	---	--	
			4	2.0*	< 13	---	--	---	--	
	B-80c(w)	Gerrys 2c	2	3.2*	16	---	--	---	--	
	B-81(w)	Gerrys (#3a,3b,3c)	0.5	170*	670	---	--	---	--	
			2	< 1	< 13	---	--	---	--	
	B-82(w)	Gerrys (#4a,4b,4c)	0.5	33*	130	---	--	---	--	
			2	< 1	< 13	---	--	---	--	
	B-83(w)	Gerrys (Discrete)	0.5	1.7*	< 13	< 2.5	--	ND	--	
			2	110	390	8.9	--	**Toluene= 0.51 Ethylbenzene= 0.19 Xylene= 0.99**	--	
			4	4.5*	< 13	---	--	---	--	
	B-85(w)	JV (1a,1b,1c)	0.5	8.6*	< 13	---	--	---	--	
			2	2.1*	< 13	---	--	---	--	
	B-86(w)	Residence (1a,1b,1c)	0.5	12*	56	---	--	---	--	
			2	34*	140	---	--	---	--	
	B-87(w)	Residence (#1, discrete)	0.5	14*	22*	< 2.5	--	ND	--	
			2	**500***	1,400*	< 2.5	--	ND	--	
			4	1.5*[6]	< 13	---	--	---	--	
	B-88(w)	Bay City (#1a,1b,1c)	0.5	6.3*	33	---	--	---	--	
			2	1.5*	15	---	--	---	--	
	B-89(w)	Bay City (2a,2b,2c)	0.5	8.9*	54	---	--	---	--	
			2	9.4*	64	---	--	---	--	
RWQCB Environmental Screening Levels [(1)] **(Residential Land Use)**				**260** *(NC Hazard)*	**5100** *(Gross Contamination)*	**100** *(odor)*	**0.042 (leaching) 3.8 (human health)**	**Toluene= 3.2 (leaching)/1,100 (human health) Ethylbenzene= 0.43 (leaching)/5.9 (human health) Xylene=.= 2.1 (leaching)/580 (human health)**	**Varies**	
US EPA RLs / DTSC-Modified SLs [(2)] **(Residential Land Use)**				**Not Established**			**2 /2**	**Toluene = 4,900 / 1,100 Ethylbenzene = 5.8/not established Xylenes = 580 /not established**	**Varies**	

Table 4

Additional Soil Sample Test Results: Volatile Organic Compounds & Fuel Fingerprint

511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Information				*Laboratory Analytical Results*						*Comments (& Co-Located Exceedences)*
				Fuel Fingerprint by EPA Method 6010B			*Volatile Organic Compounds (VOCs)* by EPA Method 8260B		*Semivolatile Organic Compounds (SVOCs)* by EPA 8270	
Sample Date	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	TPH as *DIESEL*	TPH as *MOTOR OIL*	TPH as *Gasoline*	*Naphthalene*	*All other VOCs*		

Notes

1 = **Environmental Screening Levels (ESLs): F**rom the Regional Water Quality Control Board (San Francisco Bay Region) guideline document: *Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater* (Final version, 2019). The ESLs are agency-stablished threshold concentrations intended to provide quantitative risk-based guidance on whether further assessment or remediation of contamination is warranted based on risk pathways (protection of human heath, groundwater and/or ecological.

2 = **CA DTSC Modified Soil Screening Levels (DTSC-SLs):** These are human health, risk-based values established by the California Department of Toxic Substances Control (DTSC), Office of Human and Ecological Risk (HERO), Human Health Risk Assessment (HHRA) Note Number 3, Table 1 , June 2020. <https://dtsc.ca.gov/wp-content/uploads/sites/31/2019/04/HHRA-Note-3-June-2020-A.pdf>. Note that for those chemicals not posted on the Note 3 website, DTSC-HERO endorses the soil thesholds established on the USEPAs *Regional Screening Levels* (USEPA-RSLs) website: (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables, updated November 2020). Both thresholds are listed for transparancy, but generally speaking, California uses a more conservative toxicity evaluation for a select number of urban chemicals. This assessment uses the lowest (most conservative theshold as a cleanup goal).

3 = Trace concentrations of semi-volatile compounds detected, but all well below agency threshold. See Appendix A for sampling results. Semi-Volatile compounds detected(at treace levels) included : (Anthracene, Benzo(a)anthracene, Benzo(b)flouranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Benzo(g,h,l,)perylene, Chrysene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, Pyrene)

**= Note individual metals having DTSC-modified SL are identified by ** (All others are based on USEPA RSL's)

ND = Analyte not detected above the laboratory Method Detection Limit (MDL).

Freon 11 = Trichlorofluoromethane

-- = Sample was not analyzed for this constituent

B = The same analyte is found in the associated blank.

J = Laboratory reports that the detection value is between MDL and PQL, and should be considered an

^ = Detection and Quantitation Limits are raised due to sample dilution

* = Chromatograph is not typical of Diesel/Motor Oil

BOLD = Analytical result above Residential ESL.

BOLD = Indicates deepest sample has exceedence (Confirmation sample required at this location)

(w) = Weber-Hayes Associates: . Sample depths by Weber-Hayes and Lowney were measured from the top of the collected soil sample (i.e. a "2-ft" sample means the top of the soil sample was at 2-ft). Therefore
(L) = and Lowney Associates: . a "clean" 2-ft sample would indicate soils are unimpacted below a depth of 2-ft.

(t) = Trinity Source Group: Sample depths by Trinity were measured from the base of the collected soil sample (i.e. a "2-ft" sample means the bottom of the soil sample was at 2-ft). Therefore a "clean" 2-ft sample would indicate soils are unimpacted above a depth of 2-ft.

APPENDIX A

Design Plans for the Hillcrest Subdivision Development (Ramsey Engineering)

- **Existing Conditions & Jurisdictional Boundary Limits (to be professional survey-staked)**
- **Development & Environmental Rough Grading Plans**
- **Remediation Pit Grading Plan & Retaining Wall Plan**
- **Erosion Control Details**
- **Preliminary Site Redevelopment Layout**
- **Project Description (from updated EIR)**

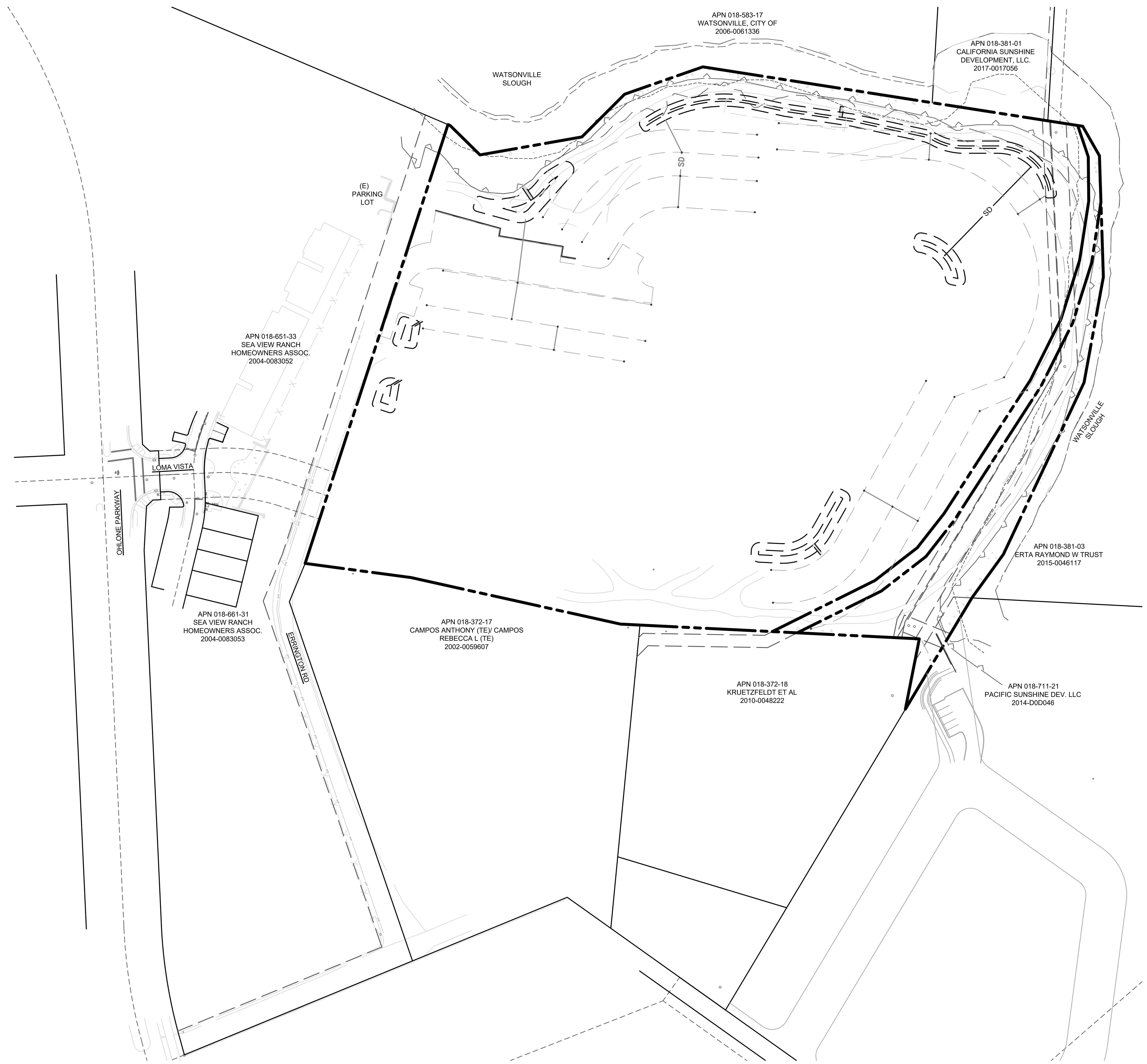
REMEDIATION & ROUGH GRADING PLAN

FOR THE

SUBDIVISION MAP & IMPROVEMENT PLANS

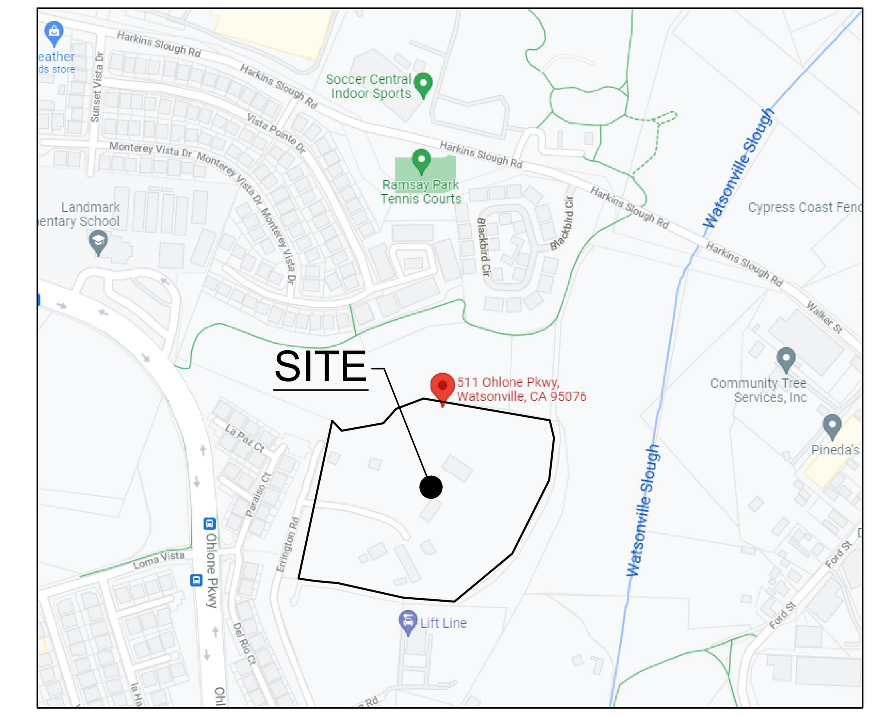
HILLCREST SUBDIVISION

511 OHLONE PARKWAY
WATSONVILLE, CALIFORNIA 95076



ABBREVIATIONS

AP	ANGLE POINT
APN	ASSESSORS PARCEL NUMBER
BRW	BOTTOM OF RETAINING WALL
BS	BOTTOM OF STAIRS
BSW	BACK OF SIDEWALK
BW	BOTTOM OF WALL
B/W	BACK OF SIDEWALK
CB	CATCH BASIN
CBC	CALIFORNIA BUILDING CODE
CDFW	CALIFORNIA DEPARTMENT OF FISH & WILDLIFE
CO	CLEANOUT
CONC	CONCRETE
COTG	CLEANOUT TO GRADE
DIP	DUCTILE IRON PIPE
DS	DOWN SPOUT
DTL	DETAIL
DWG	DRAWING
DWY	DRIVEWAY
EG	EXISTING GROUND
EP	EDGE OF PAVEMENT
EV	ELECTRIC VEHICLE
EVAE	EMERGENCY VEHICLE ACCESS EASEMENT
(E)	EXISTING
EX.	EXISTING
FC	FACE OF CURB
FG	FINISH GRADE
FF	FINISH FLOOR
FL	FLOWLINE
FNC	FENCE
FT	FOOT/FEET
GB	GRADE BREAK
GFL	GUTTER FLOW LINE
HDPE	HIGH-DENSITY POLYETHYLENE
HP	HIGH POINT
INV	INVERT
LF	LINEAR FOOT
LOG	LIMIT OF GRADING
LP	LOW POINT
MIN	MINIMUM
MH	MANHOLE
N	NORTH
NE	NORTHEAST
NTS	NOT TO SCALE
NW	NORTHWEST
OC	ON CENTER
OCEW	ON CENTER, EACH WAY
OH	OVERHEAD
PAE	PUBLIC ACCESS EASEMENT
PCC	PORTLAND CEMENT CONCRETE
PP	POWER POLE
PL	PROPERTY LINE
POC	POINT OF CONNECTION
PUE	PUBLIC UTILITY EASEMENT
PV	PAVEMENT
PVC	POLYVINYL CHLORIDE PIPE
R	RADIUS
RC	RELATIVE COMPACTION
RG	ROUGH GRADE
RWQCB	REGIONAL WATER QUALITY CONTROL BOARD
S	SOUTH, SLOPE
SD	STORM DRAIN
SCDI	STORM DRAIN CURB INLET
SDE	STORM DRAIN EASEMENT
SE	SOUTHEAST
SFR	SINGLE FAMILY RESIDENCE
SHT	SHEET
SS	SANITARY SEWER
SSCO	SANITARY SEWER CLEAN OUT
STD	STANDARD
STME	SIDEWALK AND TRAIL MAINTENANCE EASEMENT
TC	TOP OF CURB
TFC	TOP OF FLUSH CURB
TRW	TOP OF RETAINING WALL
TS	TOP OF STAIRS
TW	TOP OF WALL
USA	UNDERGROUND SERVICE ALERT
USACE	US ARMY CORPS OF ENGINEERS
W	WEST, WATER



MAP DATA © GOOGLE

VICINITY MAP

N.T.S.

REMEDIATION & ROUGH GRADING INDEX OF SHEETS

SHEET NO.	DESCRIPTION
C1.0	COVER SHEET
C1.1-C1.3	CONDITIONS OF APPROVAL
C2.0	EXISTING CONDITIONS
C3.0	*NOT USED*
C4.0	*NOT USED*
C5.0	FULL SITE ROUGH GRADING & DRAINAGE PLAN
C5.1	REMEDIATION PIT GRADING PLAN
C5.2	SITE ENVIRONMENTAL GRADING PLAN
C5.3	ROUGH GRADING - WALL 'A'
C5.4	ROUGH GRADING EROSION CONTROL PLAN
C5.5	EROSION CONTROL NOTES AND DETAILS
C5.6	WALL A (PIT WALL) PROFILE AND DETAILS
C5.7	SECTION B & TEMPORARY BASIN DETAIL
C5.8	ESTIMATED SLOPE ANALYSIS
C5.9	ESTIMATED CUT / FILL ANALYSIS PLAN
C5.10	CUT & FILL SECTIONS
C5.11	*NOT USED*

NOTE:
CONTRACTOR/DEVELOPER SHALL REFER TO THE PROJECT DEVELOPMENT AGREEMENT PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR/DEVELOPER SHALL REVIEW THE MITIGATION MONITORING & REPORTING PLAN (MMRP) WITHIN THE DEVELOPMENT AGREEMENT PRIOR TO COMMENCEMENT OF WORK. THE MMRP HAS SPECIFIC DIRECTION AND REQUIREMENTS FOR EACH PHASE OF THE PROJECT, AND SHALL BE ADHERED TO DURING THE DEVELOPMENT PROCESS.

80' 0 40' 80' 160'
GRAPHIC SCALE: 1 INCH = 80 FEET

811
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DAVID RAMSEY
NO. C73735
CIVIL
STATE OF CALIFORNIA

DAVID RAMSEY DATE
RCE# 73735

APN# 018-372-14

PLAN TYPE
RESIDENTIAL SUBDIVISION

COVER SHEET

HILLCREST SUBDIVISION

511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

NUMBER	BY	DESCRIPTION	DATE
C	GS/DMR	RESPONSE 3 - PLAN CHECK COMMENTS 03/11/2022	03/18/2022
B	GS/DMR	RESPONSE 2 - PLAN CHECK COMMENTS 10/08/2021	01/20/2022
A	GS/DMR	RESPONSE 1 - PLAN CHECK COMMENTS 09/21/2021	09/29/2021

REVISION BLOCK

DRAWN BY:	GS
DESIGNED BY:	DMR
DATE:	08/12/2021
SCALE:	AS NOTED
PROJECT NO:	20-021

SHEET:
C1.0

Exhibit B

CITY OF WATSONVILLE EXHIBIT "B" CITY COUNCIL

APPLICATION NO: P155
APNS: 018-372-14 & 018-381-01
APPLICANT: CALIFORNIA SUNSHINE DEVELOPMENT LLC
HEARING DATE: JULY 6, 2021

TENTATIVE MAP CONDITIONS OF APPROVAL

THESE CONDITIONS OF APPROVAL APPLY TO TENTATIVE MAP FOR THE PROPOSED SUNSHINE VISTA PHASED DEVELOPMENT PROJECT, A SUBDIVISION OF A 13± ACRE SITE INTO 144 RESIDENTIAL LOTS AND SIX COMMON AREA PARCELS, LOCATED AT 511 OHLONE PARKWAY. FOR THE PURPOSE OF THESE CONDITIONS, THE TERM "APPLICANT" SHALL ALSO MEAN THE DEVELOPER, SUBDIVIDER, OWNER OR ANY SUCCESSOR(S) IN INTEREST TO THE TERMS OF THIS APPROVAL.

STANDARD CONDITIONS:

1. **CONDITIONAL APPROVAL TIMEFRAME.** THE TENTATIVE MAP IS CONDITIONALLY APPROVED FOR **24 MONTHS**, IN ACCORDANCE WITH SECTION 13-4.10(A) OF THE WATSONVILLE MUNICIPAL CODE (WMC) AND SECTION 66452.6 OF THE STATE SUBDIVISION MAP ACT. THE MAP SHALL BE NULL AND VOID IF NOT RECORDED WITHIN 24 MONTHS FROM THE EFFECTIVE DATE OF THE APPROVAL THEREOF. TIME EXTENSIONS MAY BE GRANTED PROVIDED THE APPLICANT REQUESTS SAME AT LEAST THIRTY DAYS IN ADVANCE OF THE EXPIRATION OF THE APPROVAL BY THE CITY COUNCIL. THIS APPROVAL APPLIES TO PLANS TITLED "TENTATIVE MAP, SUNSHINE VISTA," AND RECEIVED BY THE COMMUNITY DEVELOPMENT DEPARTMENT ON JUNE 8, 2021(CDD-P)

2. **FINAL MAP.** THE FINAL MAP SHALL BE IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED TENTATIVE MAP UNLESS MODIFIED BY SUBSEQUENT CONDITIONS OF APPROVAL. AFTER APPROVAL IS GRANTED, MODIFICATIONS TO THE TENTATIVE MAP OR TO CONDITIONS IMPOSED MAY BE CONSIDERED IN ACCORDANCE WITH TITLE 13 (SUBDIVISION ORDINANCE) OF THE WATSONVILLE MUNICIPAL CODE. (CDD-E, PW)

3. **FINDINGS.** APPROVAL IS SUBJECT TO THE FINDINGS AND SUPPORTIVE EVIDENCE IN ACCORDANCE WITH WMC SECTION 13-04.09(D) OF THE SUBDIVISION ORDINANCE WITH SAID FINDINGS SET FORTH IN EXHIBIT "A" AND MADE A PART OF THIS TENTATIVE MAP. (CDD-E)

4. **SUBSTANTIAL CONFORMANCE.** THE PROJECT SHALL BE IN COMPLIANCE WITH ALL STANDARDS AND/OR CONDITIONS OF ALL LOCAL, STATE, AND FEDERAL CODES AND ORDINANCES, APPROPRIATE DEVELOPMENT STANDARDS, AND CURRENT CITY POLICIES AS MODIFIED BY THE SPECIAL USE PERMIT WITH DESIGN REVIEW. ANY SUBSTANTIAL DEVIATION WILL BE GROUNDS FOR REVIEW BY THE CITY AND MAY POSSIBLY RESULT IN REVOCATION OF THE TENTATIVE MAP APPROVAL. (CDD-P, -E, -B)

5. **INDEMNITY AGREEMENT.** THE APPLICANT SHALL AGREE IN WRITING TO INDEMNIFY AND DEFEND THE CITY IN CASE OF LEGAL CHALLENGE ARISING OUT OF THE CITY APPROVING THE PROJECT. SAID AGREEMENT SHALL BE SUBJECT TO APPROVAL OF THE CITY ATTORNEY. (CAT)
6. **ON/OFF SITE PERMIT.** SEPARATE ON/OFF SITE PERMITS ARE REQUIRED FOR WORK IN THE PUBLIC RIGHT-OF-WAY. (CDD-P)

POTENTIAL DEVELOPMENT AGREEMENT AND APPLICABLE STATUTORY EXTENSIONS:

7. **DEVELOPMENT AGREEMENT.** THE APPLICANT MAY REQUEST TO ENTER INTO A DEVELOPMENT AGREEMENT WITH THE CITY IN FORM ACCEPTABLE TO THE CITY COMMUNITY DEVELOPMENT DIRECTOR AND CITY ATTORNEY AND AS APPROVED BY THE CITY COUNCIL BY ORDINANCE TO PROVIDE, AT A MINIMUM, AMONG OTHER SPECIFICS, THE FOLLOWING DETAILS: [I] AS TO PROJECT PHASING, INCLUDING THE FILING OF UP TO FOUR (4) FINAL MAPS; [II] THE CONSTRUCTION OF PROJECT INFRASTRUCTURE IMPROVEMENTS; [III] PROVISIONS OF AFFORDABLE HOUSING WITHIN THE PHASES OF THE PROJECT; [IV] THE SCHEDULING OF PAYMENT TO THE CITY OF PROJECT FEES OVER THE COURSE OF THE PHASING OF THE PROJECT; [V] THE TIMING OF THE DEVELOPMENT AND VESTING OF DEVELOPMENT RIGHTS; [VI] PARTICULARS AS TO PROJECT REQUIREMENTS, DEDICATIONS, AND EXACTIONS, OFF-SITE IMPROVEMENTS, OPEN SPACE REQUIREMENTS; [VII] PROJECT REVIEW; AND [VIII] SUCH OTHER PARTICULARS AS THE APPLICANT AND THE CITY AGREE UPON AS BEING RELEVANT TO THE CERTAINTY AS TO THE CONTINUITY OF THE PROJECT AND APPLICABLE LAWS AND REQUIREMENTS. (CDD-P, CAT)

8. **STATUTORY EXTENSIONS.** IN ACCORDANCE WITH GOVERNMENT CODE SECTION 66456.1, THE APPLICANT MAY FILE MULTIPLE FINAL MAPS RELATING TO AN APPROVED OR CONDITIONALLY APPROVED TENTATIVE MAP PRIOR TO THE EXPIRATION OF THE TENTATIVE MAP. THE TENTATIVE MAP MAY BE EXTENDED FOR MAPS SUBJECT TO REQUIREMENTS TO CONSTRUCT CERTAIN OFF- SITE IMPROVEMENTS, PURSUANT TO THE DETAILED PROVISIONS OF GOVERNMENT CODE SECTION 66452.6. THE RIGHT OF THE SUBDIVIDER TO FILE MULTIPLE FINAL MAPS SHALL NOT LIMIT THE AUTHORITY OF THE LOCAL AGENCY TO IMPOSE REASONABLE CONDITIONS RELATING TO THE FILING OF MULTIPLE FINAL MAPS. (CDD-P, CAT)

IMPROVEMENT PLANS SHALL BE SUBMITTED BEFORE REVIEWING FINAL MAP AND INCLUDE THE FOLLOWING:

9. **OFF-SITE IMPROVEMENTS: SECONDARY ACCESS AND ROUNDABOUT.** APPLICANT SHALL
   (a) PROVIDE A 12-FOOT WIDE INGRESS-ONLY SECONDARY ACCESS VIA ERRINGTON ROAD WITHIN THE 30-FOOT WIDE RIGHT-OF-WAY ON THE EAST SIDE OF THE 1.7± ACRE PROPERTY OWNED BY THE SEA VIEW RANCH HOMEOWNERS ASSOCIATION (APN 018-661-31) AND (B) INSTALL A ROUNDABOUT AT THE INTERSECTION OF OHLONE PARKWAY AND LOMA VISTA DRIVE. ERRINGTON ROAD SHALL BE IMPROVED TO A 20-YEAR ROAD STANDARD AND THE CC&RS SHALL IDENTIFY THE HOA ESTABLISHED FOR THE PROJECT SITE AS THE RESPONSIBLE PARTY FOR MAINTENANCE OF THE ROADWAY. THE APPLICANT SHALL DESIGN AND CONSTRUCT THE ROUNDABOUT AS PART OF THE THIRD PHASE OF DEVELOPMENT. THE CITY SHALL DETERMINE A COST SHARING ARRANGEMENT WITH THE APPLICANT FOR INSTALLING THE ROUNDABOUT AS PART OF A SEPARATE DEVELOPMENT AGREEMENT (SEE CONDITION OF APPROVAL NO. 6). (CDD-E)

10. **OFF-SITE TREE REPLACEMENT.** APPLICANT SHALL REPLACE EXISTING TREES ON SEA VIEW RANCH SUBDIVISION PROPERTY TO BE REMOVED AS PART OF THE EXTENSION OF LOMA VISTA DRIVE TO THE PROJECT SITE AT A RATIO OF 3:1. AS SHOWN ON THE EXISTING CONDITIONS PLAN (SHEET C2.0), 12 EXISTING TREES WOULD BE REMOVED, CONSISTING OF ONE PLUM, SIX BIRCH AND FIVE REDWOOD TREES (I.E., TREE #98, 100-110). THEREFORE, 36 NEW TREES SHALL BE PLANTED. THE APPLICANT SHALL COORDINATE WITH THE HOA FOR THE LAS CASITAS NEIGHBORHOOD ON THE TYPE, LOCATION AND SIZE OF SAID REPLACEMENT TREES. (CDD-P)
11. **IMPROVEMENT AGREEMENT.** APPLICANT SHALL ENTER INTO AN IMPROVEMENT AGREEMENT WITH THE CITY TO INSTALL PUBLIC AND OFFSITE IMPROVEMENTS, FURNISH SECURITIES, INSURANCES AND PAY THE COST OF ALL ENGINEERING REVIEW AND INSPECTION. SAID AGREEMENT SHALL BE IN A FORM ACCEPTABLE TO THE CITY ATTORNEY. APPLICANT SHALL PROVIDE AN ITEMIZED ESTIMATE OF THE COST OF CONSTRUCTION OF ALL OFFSITE AND PUBLIC IMPROVEMENTS. THE COST ESTIMATE SHALL BE APPROVED BY THE CITY AND USED TO ESTABLISH THE AMOUNT OF THE SECURITIES. (CDD-E, CAT)

12. **IMPROVEMENT STANDARDS.** ALL IMPROVEMENTS IN THE PUBLIC OR PRIVATE RIGHT-OF-WAY SHALL COMPLY WITH THE MOST CURRENT VERSION OF THE CITY OF WATSONVILLE PUBLIC IMPROVEMENT STANDARDS. PLANS AND DESIGN DOCUMENTS SHALL BE SIGNED AND STAMPED BY A CALIFORNIA LICENSED ARCHITECT OR ENGINEER. STANDARDS THAT ARE DIFFERENT THAN THOSE OF THE CITY MUST BE APPROVED BY THE CITY. (CDD-E)

13. **IMPROVEMENT PLANS.** IMPROVEMENT PLANS SHALL SUBSTANTIALLY CONFORM TO THE TENTATIVE MAP. PROVIDE ALL EXISTING AND PROPOSED IMPROVEMENTS AND STRIPING WITHIN THE ROAD RIGHT-OF-WAY. PLANS SHALL BE DESIGNED IN ACCORDANCE WITH THE CITY'S PUBLIC IMPROVEMENT STANDARDS. (CDD-E, -P)

14. **CIVIL PLANS.** IMPROVEMENT PLAN SUBMITTAL SHALL INCLUDE CIVIL PLANS PREPARED BY A CIVIL ENGINEER LICENSED TO PRACTICE IN THE STATE OF CALIFORNIA. CIVIL PLANS SHALL INCLUDE GRADING, DRAINAGE, AND EROSION CONTROL PLANS. (CDD-E, PW)

15. **CC&RS.** THE APPLICANT SHALL PREPARE COVENANTS, CONDITIONS, AND RESTRICTIONS (CC&RS) FOR REVIEW AND APPROVAL BY THE COMMUNITY DEVELOPMENT DEPARTMENT AND CITY ATTORNEY. A DECLARATION OF CC&RS SHALL BE RECORDED ON THE ENTIRE PROPERTY CONCURRENTLY WITH THE FINAL MAP. SAID CC&RS SHALL INCLUDE PROVISION FOR THE ESTABLISHMENT OF A HOMEOWNERS ASSOCIATION (HOA) WITH THE RESPONSIBILITY TO MAINTAIN ITEMS THAT ARE SPECIFIED THEREIN. CC&RS PROVISION SHALL INCLUDE THE FOLLOWING SPECIFIC ELEMENTS:

    a. REQUIRE THE ESTABLISHMENT OF ONE HOA FOR THE ENTIRE DEVELOPMENT AREA;

    b. REQUIRE THE MAINTENANCE AND OPERATIONS BY THE HOA OF THE COMMON OPEN SPACE AREAS (INCLUDING COMMON RECREATIONAL AREAS), PRIVATE ROADS, CURBS, GUTTERS, SIDEWALKS, WALKWAYS, STREET LIGHTING, STREET TREES, ON-STREET GUEST PARKING, ACCESSIBLE PARKING, LANDSCAPING (INCLUDING LANDSCAPING IN THE RIPARIAN/NATURAL OPEN SPACE AREA), TRAILS (INCLUDING THE EXTENSION OF THE PUBLIC ACCESS TRAIL WITHIN THE RIPARIAN SETBACK AREA), UTILITY EASEMENTS, EXTERIOR FENCES, RETAINING WALLS, AND STORM WATER MANAGEMENT AND DETENTION FACILITIES (INCLUDING BIORETENTION "RAINGARDEN" AREAS);

    c. PROVIDE A BUDGET FOR MAINTAINING FACILITIES WITHIN COMMON AREAS;

    d. CREATE OBLIGATIONS AND A METHOD TO AMORTIZE AND PAY FOR (TOGETHER WITH LIEN RIGHTS) THE MAINTENANCE AND REPAIR OF FACILITIES WITHIN COMMON AREAS;

    e. PROHIBIT ADDITIONS TO OR REMODELING OF A STRUCTURE WHICH EXTENDS BEYOND THE ORIGINAL FOOTPRINT;

    f. REQUIRE THAT GARAGE INTERIORS NOT BE CONVERTED TO OR USED FOR ANY PURPOSE WHICH INTERFERES WITH PARKING OF THE NUMBER OF MOTOR VEHICLES FOR WHICH THE GARAGE WAS DESIGNED, AND NO TEMPORARY STORAGE SHALL BE ALLOWED WHICH WOULD INTERFERE WITH THE PARKING OF SAID VEHICLES; AND

    g. REQUIRE THAT THE HOA SHALL NOT DISSOLVE OR RELINQUISH THEIR MAINTENANCE OBLIGATIONS WITHOUT REVIEW BY THE CITY MANAGER AND APPROVAL BY THE CITY COUNCIL AT A PUBLIC HEARING. (CDD-P, -E, CAT)

16. **MAINTENANCE OF DETENTION BASINS, NATURE TRAIL & ADJACENT LANDSCAPING.** PROVIDE DRAFT LANGUAGE FOR INCORPORATION IN THE CC&RS DESCRIBING MAINTENANCE RESPONSIBILITY OF AND SCHEDULE FOR DETENTION BASINS, NATURE TRAIL AND ADJACENT LANDSCAPING FOR REVIEW AND COMMENT BY THE PUBLIC WORKS AND UTILITIES DEPARTMENT. INCLUDE LANGUAGE THAT THE HOA SHALL IMPLEMENT SAID MAINTENANCE IN ACCORDANCE WITH SUNSHINE VISTA NATURE TRAIL VEGETATION, LANDSCAPING AND RAIN GARDEN MAINTENANCE AND OPERATIONS PLAN. PLAN SHALL BE REVIEWED AND APPROVED BY THE PUBLIC WORKS DIRECTOR OR DESIGNEE. (CDD-P, PW)

17. **ADDRESSING POTENTIAL HOMELESS ISSUES.** PROVIDE DRAFT LANGUAGE FOR INCORPORATION IN THE CC&RS FOR HOW THE HOA WILL ADDRESS POTENTIAL HOMELESS ENCAMPMENTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

    a. CALL POLICE WITHIN 24 HOURS OF COMPLAINT OF ILLEGAL CAMPING, FIRES, AND/OR ALCOHOL USE;

    b. CLEANUP OR HIRE CITY TO CLEANUP ENCAMPMENTS OR ENCAMPMENT TRASH IN AND AROUND DETENTION BASINS WITHIN 72 HOURS;

    c. IF CITY CALLED TO PROVIDE SERVICE THERE WILL BE FEE FOR SERVICE TO BE PAID BY THE HOA;

    d. IF ISSUE PERSISTS BEYOND 72 HOURS, CITY MAY MOVE FORWARD WITH CLEANUP AND CHARGE FEE FOR SERVICE TO BE PAID BY THE HOA;

    e. REPORT ALL SUSPICIOUS ACTIVITY WITHIN 24 HOURS; AND

    f. POST SIGNAGE THAT STATES WHAT ENFORCEABLE ACTIONS ARE NOT PERMITTED IN AREA AT TRAIL ENTRANCES AND DETENTION BASINS. USE SAME SIGNAGE INSTALLED BY CITY AT OTHER LOCATIONS WITHIN SLOUGH (SEE ATTACHED EXAMPLE).

18. **CC&RS AND LIABILITY.** THE ISSUANCE OF THIS PERMIT DOES NOT EXEMPT THE OWNER OF THE PROPERTY FOR WHICH THIS PERMIT IS ISSUED FROM LIABILITIES WHICH MAY ARISE OUT OF FAILURE TO COMPLY WITH APPLICABLE CC&RS. PLEASE BE ADVISED THAT THE PROPERTY OWNER PREPARE CC&R'S FOR THE PROJECT AND PRIVATE LEGAL ACTION MAY BE BROUGHT AGAINST THE PROPERTY OWNER FOR FAILURE TO COMPLY WITH ALL APPLICABLE CC&RS AND THAT THE CITY OF WATSONVILLE DOES NOT ENFORCE CC&RS. (CAT)

19. **UNRESTRICTED USE OF COMMON OPEN SPACE.** THE CC&RS SHALL INCLUDE A PROVISION THAT THERE WILL BE NO USE RESTRICTIONS OF COMMON OPEN SPACE AREAS AND/OR FACILITIES
    BY VISITORS, SUCH AS THE CHILDREN'S PLAY STRUCTURE IN OPEN SPACE AREA C. (CDD-P, CAT)

20. **PUBLIC ACCESS & UTILITY EASEMENTS.** RIGHTS-OF-WAY AND PUBLIC UTILITY EASEMENTS SHALL BE OFFERED FOR DEDICATION TO THE CITY BY CERTIFICATE ON THE FINAL MAP. EASEMENTS SHALL BE FOR ACCESS, CONSTRUCTION, MAINTENANCE AND UTILITIES. (CDD-E)

21. **OFF-SITE EASEMENTS.** APPLICANT SHALL SECURE EASEMENTS FOR ALL FACILITIES, WHICH ARE TO BE LOCATED OFF-SITE, ON PRIVATE PROPERTY, INCLUDING BUT NOT LIMITED TO DRAINAGE OUTFALLS, GUEST PARKING STALLS, AND EMERGENCY ACCESS. (CDD-E, -P)

22. **WRITTEN AUTHORIZATION.** NO PERMANENT IMPROVEMENTS MAY BE CONSTRUCTED OVER ANY EXISTING EASEMENTS WITHOUT WRITTEN AUTHORIZATION FROM THE EASEMENT HOLDER. (CDD-E)

23. **NATURE TRAIL DESIGN.** THE APPLICANT SHALL REVISE THE PLAN SET TO PROVIDE A TYPICAL SECTION, PROFILE AND DETAIL OF THE NATURE TRAIL FOR REVIEW AND APPROVAL OF THE PUBLIC WORKS DIRECTOR OR DESIGNEE. THE NATURE TRAIL SHALL BE DESIGNED TO WITHSTAND LOADING OF VEHICLE(S) ACCESSING THE LANDSCAPE AREAS, DETENTION BASINS AND SANITARY SEWER LINE. THE TYPICAL SECTION, PROFILE AND DETAIL SHALL SHOW, AT MINIMUM, THE DEPTH OF PAVEMENT, BASE ROCK AND SCARIFYING OF NATIVE MATERIAL. (CDD-E, PW)

24. **FUTURE PEDESTRIAN BRIDGE CONNECTION.** THE CITY'S *TRAILS AND BICYCLE MASTER PLAN* (2012) SHOWS A FUTURE BRIDGE ACROSS THE WATSONVILLE SLOUGH TO THE EXISTING TRAIL ON THE NORTH SIDE OF THE SLOUGH. THE APPLICANT SHALL THEREFORE EXTEND A "SIDEWALK AND TRAIL MAINTENANCE EASEMENT" FROM THE PROPOSED TRAIL TO THE EXISTING SANITARY SEWER LINE AT THE NORTHEAST CORNER OF THE PROPERTY TO ALLOW CONSTRUCTION OF A FUTURE PEDESTRIAN BRIDGE BY THE CITY ACROSS THE WATSONVILLE SLOUGH ALONG THE SANITARY SEWER LINE. (CDD-E, PW)

25. **MANHOLE AND TRAIL ALIGNMENT.** THE APPLICANT SHALL REVISE THE UTILITY PLAN (SHEET C6.0) TO MOVE THE LOCATION OF THE MANHOLE OR TRAIL ALIGNMENT SUCH THAT SSMH 16 IS LOCATED TO THE SIDE OF THE NATURE TRAIL. (CDD-E, PW)

26. **TRAIL TURNAROUND.** THE PROJECT SHALL INCLUDE A TURNAROUND AT THE NORTHWEST END OF THE TRAIL, SUFFICIENT TO ACCOMMODATE THE TURNAROUND OF A TRAIL MAINTENANCE VEHICLE. (PW)

27. **CONCRETE CAP.** THE APPLICANT SHALL REVISE THE GRADING AND DRAINAGE PLAN (SHEET C5.2) WITH A NOTE STATING THAT ANY CONCRETE CAP AND ACCESS PATH AT THE KNOB AREA SHALL NOT COVER THE EXISTING SANITARY SEWER LINE AND AREA OF FUTURE PEDESTRIAN BRIDGE. (CDD-E, PW)

28. **EROSION CONTROL.** THE APPLICANT SHALL REVISE THE ENVIRONMENTAL GRADING DETAIL (SHEET C5.1) TO SPECIFY THAT ALL EROSION CONTROL MATERIALS, INCLUDING FIBER ROLLS AND EROSION CONTROL BLANKETS, SHALL USE ONLY BIODEGRADABLE MATERIALS AND AVOID ALL PLASTIC NETTING DUE TO POTENTIAL IMPACTS ON WILDLIFE. (CDD-E)

29. **EROSION CONTROL PLANS.** EROSION CONTROL PLANS SHALL PROVIDE BEST MANAGEMENT PRACTICES (BMPS) DURING CONSTRUCTION TO PREVENT SEDIMENT, DEBRIS AND
    CONTAMINANTS FROM DRAINING OFFSITE. BMP'S SHALL COMPLY WITH THE CITY OF WATSONVILLE EROSION CONTROL STANDARDS AND THE EROSION AND SEDIMENT CONTROL FIELD MANUAL BY THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SAN FRANCISCO REGION, LATEST EDITION. ALL EROSION CONTROL SHALL BE INSTALLED PRIOR TO OCTOBER 15 AND BE MAINTAINED IN PLACE UNTIL APRIL 15. THE APPLICANT SHALL ENSURE THAT ALL CONTRACTORS ARE AWARE OF ALL EROSION CONTROL STANDARDS AND BMP'S. (CDD-E)

30. **POST-CONSTRUCTION STORMWATER MANAGEMENT REQUIREMENTS.** THE APPLICANT SHALL COMPLY WITH WMC SECTION 6-3.535 POST-CONSTRUCTION REQUIREMENTS. (CDD- E)

31. **GRADING PLANS.** GRADING PLANS SHALL COMPLY WITH THE CITY GRADING ORDINANCE. (CDD-E)

32. **SOILS REPORT.** PLANS SHALL STRICTLY ADHERE TO THE SOILS REPORT. (CDD-E, -B)

33. **ADA.** DESIGN ALL SITE IMPROVEMENTS ACCORDING TO AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. THE PROJECT SHALL PROVIDE ACCESSIBLE PATHS, CURB RAMPS AND/OR CROSSWALKS, AS NECESSARY, TO INTERCONNECT THE SITE, INCLUDING THE PEDESTRIAN PATHS TO THE ROW-STYLE TOWNHOUSE UNITS. (CDD-B)

34. **SOLID WASTE SERVICE PLAN.** SOLID WASTE GENERATED DURING THE CONSTRUCTION OF THIS PROJECT SHALL BE SERVICED BY THE CITY OF WATSONVILLE SOLID WASTE DIVISION. APPLICANT SHALL SUBMIT A SOLID WASTE SERVICE PLAN PRIOR TO APPROVAL OF THE FINAL MAP AND IMPROVEMENT PLANS SO THAT CITY STAFF MAY DETERMINE WHAT SERVICES WILL BE REQUIRED DURING CONSTRUCTION. (CDD-E, PW)

35. **ENGINEERING TESTING & INSPECTION AGREEMENT.** PRIOR TO PERMIT ISSUANCE, APPLICANT SHALL EXECUTE AN ENGINEERING TESTING AND INSPECTION AGREEMENT AND SUBMIT IT TO THE CITY FOR APPROVAL. APPLICANT SHALL HIRE A TESTING FIRM TO PERFORM ENGINEERING TESTING AND INSPECTION, SUCH AS SOILS AND CONCRETE TESTING AND INSPECTION. THE APPLICANT MAY HIRE ONLY THOSE TESTING FIRMS THAT ARE LISTED ON THE SPECIAL INSPECTION AGENCY RECOGNITION LIST. THE TESTING AND INSPECTION SHALL BE DONE AT THE DIRECTION OF THE CITY INSPECTOR. THE FIRM SHALL REPORT NONCONFORMING ITEMS TO THE CITY INSPECTOR AND FURNISH DAILY, WEEKLY AND FINAL REPORTS AS OUTLINED IN THE AGREEMENT AND DIRECTED BY THE CITY INSPECTOR. (CDD-E, -B)

36. **UNDERGROUND UTILITIES.** INSTALL ALL UTILITY LINES AND FACILITIES FOR POWER AND COMMUNICATIONS UNDERGROUND WITHIN OR ADJACENT TO THE DEVELOPMENT. NO OVERHEAD SERVICES TO THE PROPERTY OR OVERHEAD EXTENSIONS OF MAIN LINES SHALL BE PERMITTED. SERVICE PLANS SHALL BE APPROVED BY THE RESPECTIVE UTILITY COMPANY AND THE CITY PRIOR TO THE RECORDATION OF THE FINAL MAP. (CDD-E, PW)

37. **STORM DRAIN SYSTEMS/HYDRAULICS.** THE PROJECT APPLICANT SHALL HAVE PREPARED CALCULATIONS DEMONSTRATING THE HYDRAULIC ADEQUACY OF NEW STORM DRAINS AND OPEN CHANNELS PROPOSED FOR A DEVELOPMENT. THE HYDRAULIC STUDY FOR STORM DRAIN SYSTEMS SHALL EVALUATE THE HYDRAULIC CAPACITY OF PROPOSED DRAINS AND EXISTING RECEIVING DRAINS TO LIMIT DOWNSTREAM, WHERE APPLICABLE, AS REQUIRED BY THE CITY STAFF. (CDD- PW)
38. **STORMWATER CONTROL PLAN.** THE APPLICANT SHALL SUBMIT A REVISED/UPDATED STORMWATER CONTROL PLAN (SWCP) THAT ADDRESSES THE BELOW COMMENTS AND REFLECTS THE CHANGE IN STORMWATER REQUIREMENTS BASED ON THE CHANGE IN DESIGN CONCEPT. PLEASE EXPLAIN IF ANY OF THE ABOVE COMMENTS NO LONGER APPLY TO THE PROJECT. PLEASE SHOW ALL OF THE DRAINAGE MANAGEMENT AREA (DMA'S), THE DECENTRALIZED APPROACH TO STORMWATER MANAGEMENT AND REVISED CALCULATIONS.

    BELOW IS A SUMMARY OF COMMENTS MADE REGARDING THE STORMWATER COMPLIANCE OF THIS PROJECT BEGINNING IN 2017. PLEASE NOTE THAT SOME OF THESE COMMENTS MAY NO LONGER BE RELEVANT:

    A. SITE IS ADJACENT TO WATSONVILLE SLOUGH AND ALL EROSION AND SEDIMENT CONTROL MEASURE NEED TO BE CAREFULLY FOLLOWED TO ENSURE THAT THE SLOUGH IS NOT IMPACTED DURING GRADING AND CONSTRUCTION.

    B. PRELIMINARY STORMWATER CONTROL PLAN: TO COMPLY WITH THE LOW IMPACT DEVELOPMENT STRATEGIES, IMPROVE STORMWATER QUALITY, AND MIMIC PRE- HYDROLOGIC IMPACT AS REQUIRED BY THE CITY POST-CONSTRUCTION STANDARDS, THE PROJECT SHALL INCORPORATE THE FOLLOWING ITEMS INTO THE DESIGN:

       1. SHOW THE LOCATIONS ON THE PLAN OF THE LOW-LYING VEGETATED AREAS RECEIVING RUNOFF FROM IMPERVIOUS SURFACES AS DESCRIBED ON PAGE 6 OF THE PRELIMINARY STORMWATER CONTROL PLAN.

       2. DESCRIBE HOW THE 4% METHOD MEETS THE TIER 2 TREATMENT REQUIREMENTS IN RETAINING THE 85TH PERCENTILE 24-HR STORM EVENT OR WITH BIOFILTRATION IN TREATING RUNOFF PRODUCED FROM A RAIN INTENSITY OF AT LEAST 0.2 IN/HR.

       3. UNDER THE PCR PERFORMANCE REQUIREMENT NO. 3, PAGE PCR-9, SECTION
       V) (1), THE APPLICANT IS REQUIRED BY THE CITY TO USE STRUCTURAL STORMWATER CONTROL MEASURES THAT OPTIMIZE RETENTION AND RESULT IN OPTIMAL PROTECTION AND RESTORATION OF WATERSHED PROCESSES, SUCH AS STRUCTURAL CONTROL MEASURES ASSOCIATED WITH SMALL SCALE, DECENTRALIZED FACILITIES DESIGN TO INFILTRATE, EVAPOTRANSPIRATE, FILTER, OR CAPTURE AND USE STORMWATER. THE CITY STAFF RECOGNIZED THE CONSTRAINTS AND DIFFICULTIES TO PROVIDE DECENTRALIZED FACILITIES UPSTREAM AT THIS PARTICULAR PROJECT. HOWEVER, TO BEST MIMIC THE PRE-EXISTING HYDROLOGIC PROCESSES, THE CITY STAFF RECOMMENDS THE FOLLOWING ITEMS TO INCORPORATE INTO THE DESIGN:

          I. USE PERMEABLE PAVERS FOR THE DRIVEWAYS FROM ON SOME LOTS TO REDUCE IMPERVIOUS AREA FOOTPRINT, REDUCE HYDROLOGIC IMPACTS, AND OFFSET FOR THE CENTRALIZED TREATMENT AND RETENTION FACILITY.

       4. DUE TO THE LARGE BIORETENTION FOOTPRINT, THE APPLICANT SHALL PROVIDE A SITE-SPECIFIC SOIL ASSESSMENT TO DETERMINE THE NATIVE SOIL SATURATED HYDRAULIC CONDUCTIVITY. BASED ON THE SOIL ASSESSMENT THE APPLICANT SHALL EVALUATE THE DESIGN TO RETAIN THE 95TH PERCENTILE 24-HR RAINFALL EVENT OR APPLY FOR TECHNICAL INFEASIBILITY. BIORETENTION AREA FOOTPRINT SHALL BE KEPT TO THE REQUIRED MINIMUM.

    C. DESCRIBE AND PROVIDE A CONCEPTUAL DESIGN FOR STORMWATER MITIGATION FOR LOMA VISTA DRIVE EXTENSION. THE MITIGATION MAY BE PROVIDED ON OR OFF-SITE.

    D. STORM DRAINAGE

       1. PROVIDE A REDUNDANT OVERFLOW INLET STRUCTURE FOR EACH OUTFALL.

       2. RECONFIGURE AND ADD AT LEAST TWO MORE DRAINAGE OUTFALLS WITH ENERGY DISSIPATORS INTO THE BIORETENTION TO SPREAD OUT THE RUNOFF DISTRIBUTION AND REDUCE EROSION. MAINTAIN THE DRAINAGE DISTRIBUTION EQUALLY FOR EACH OUTFALL TO THE MAXIMUM PRACTICAL EXTENT FEASIBLE.

    E. SWCP & DRAINAGE STUDY

       1. EACH DRAINAGE TRIBUTARY AREA FOR EACH OUTFALL SHALL BE THE DELINEATION AS THE DRAINAGE MANAGEMENT AREA (DMA) FROM WHICH THE BIORETENTION FACILITY SHALL BE SIZED FOR TREATMENT, RETENTION, AND PEAK MANAGEMENT. A BIORETENTION BASIN SHALL BE DESIGNED FOR EACH OUTFALL; A SINGLE DMA IS NOT ACCEPTABLE.

       2. EACH BIORETENTION SHALL HAVE ONE CONTROL STRUCTURE WITH A REDUNDANT OVERFLOW. THE OVERFLOW STRUCTURE SHALL CONNECT DIRECTLY TO THE OUTFALL STORM DRAIN PIPE.

    F. DEFER TO BUILDING PERMIT STAGE, PROVIDE THE FOLLOWING:

       1. THE PRE AND POST-DEVELOPMENT RUNOFF RATES SHALL BE COMPUTED FOR EACH STORMWATER OUTFALL DISCHARGING INTO THE BIORETENTION. THE DRAINAGE CALCULATIONS FOR THE TRIBUTARY DRAINAGE AREAS SHALL INCLUDE BOTH THE PERVIOUS AND IMPERVIOUS SURFACES.

       2. REVISE THE ORIFICE CONTROL SIZING CALCULATIONS TO RELEASE THE PREDEVELOPMENT FLOWRATES FOR THE TRIBUTARY DRAINAGE AREA; IT APPEARS THAT THE PREDEVELOPMENT FLOW RATES CAME FROM THE DETENTION VOLUME SIZING CALCULATIONS WHICH ONLY ACCOUNT FOR THE PERVIOUS AREAS TO BE REPLACED WITH IMPERVIOUS.

       3. PERFORM A HYDRAULIC ANALYSIS AND SIZE THE DRAINAGE PIPE SYSTEM TO CONVEY THE 25-YEAR STORM EVENT.

       4. DEMONSTRATE THAT THE OVERFLOW CONTROL STRUCTURE CAN CONVEY THE 25-YEAR STORM EVENT THROUGH THE TRASH GRATE.

       5. PROVIDE THE DRAINAGE AND HYDRAULIC ANALYSIS AS AN APPENDIX TO THE SWCP. (CDD-E, PW)

39. **DESIGN-LEVEL GEOTECHNICAL INVESTIGATION AND FINAL GRADING PLAN (MM GEO-2).** PRIOR TO ISSUANCE OF A GRADING PERMIT FOR THE PROJECT, A DESIGN-LEVEL GEOTECHNICAL INVESTIGATION SHALL BE CONDUCTED AND MUST SHOW THAT SLOPES AND RETAINING WALLS ON THE PROJECT SITE WOULD BE STABLE UNDER BOTH STATIC AND SEISMIC CONDITIONS. THE DESIGN-LEVEL GEOTECHNICAL INVESTIGATION SHALL BE PREPARED BY A REGISTERED
    PROFESSIONAL GEOTECHNICAL ENGINEER AND SHALL PROVIDE SLOPE STABILITY ANALYSES BASED ON THE FINAL PROJECT DESIGN AND SHALL INCLUDE ADEQUATE FACTORS OF SAFETY FOR BOTH STATIC AND SEISMIC CONDITIONS. THE DESIGN-LEVEL GEOTECHNICAL INVESTIGATION SHALL EVALUATE THE FINAL GRADING PLAN FOR THE PROJECT AS WELL AS FINAL DESIGN PLANS FOR ONSITE STRUCTURES AND FOUNDATIONS. THE DESIGN-LEVEL GEOTECHNICAL INVESTIGATION SHALL RECOMMEND SLOPE STABILIZATION MEASURES, AS NECESSARY, TO ENSURE THAT SOILS ON THE PROJECT SITE REMAIN STABLE FOLLOWING GRADING AND CONSTRUCTION OF ONSITE STRUCTURES UNDER BOTH STATIC AND SEISMIC CONDITIONS. THESE MEASURES SHALL BE INCORPORATED INTO THE FINAL GRADING PLAN TO ENSURE SLOPES ARE STABLE UNDER THE CONDITIONS ANALYZED IN THE DESIGN-LEVEL GEOTECHNICAL INVESTIGATION. SLOPE STABILIZATION MEASURES MAY INCLUDE, BUT ARE NOT LIMITED TO: DECREASING THE INCLINATION OR HEIGHT OF THE GRADED SLOPE, BACKFILLING WITH LIGHTWEIGHT MATERIAL, INSTALLING PLASTIC MESH REINFORCEMENTS OR ROCK-FILLED BUTTRESSES, INSTALLING DRAIN PIPES OR OTHER DRAINAGE SYSTEMS, INSTALLING RETAINING WALLS, OR INSTALLING ANCHORS, BOLTS, OR MICRO-PILES, OR CHEMICALLY TREATING THE SOIL TO STABILIZE THE SLOPE. (CDD-B,
    -E, PW)

40. **GEOTECHNICAL EVALUATION RECOMMENDATIONS.** THE PROJECT DESIGN SHALL ADHERE TO THE SPECIFIC RECOMMENDATIONS AND CRITERIA IN THE GEOTECHNICAL EVALUATION PREPARED BY MILLER PACIFIC ENGINEERING GROUP FOR THE PROJECT (PREPARED MARCH 4, 2021; REVISED JANUARY 20, 2022). (CDD-E)

PRIOR TO RECORDATION OF THE FINAL MAP, THE FOLLOWING REQUIREMENTS SHALL BE SATISFIED:

41. PROVIDE A FINAL MAP PREPARED BY OR UNDER THE DIRECTION OF A LICENSED LAND SURVEYOR OR REGISTERED CIVIL ENGINEER, PREPARED IN ACCORDANCE WITH THE SUBDIVISION MAP ACT. SUBMIT FOUR (4) COPIES OF THE FINAL MAP, ONE 8-1/2" X 11" COPY OF THE SITE PLAN, TWO COPIES OF PROPERTY BOUNDARY CLOSURE CALCULATIONS AND ONE COPY OF A RECENT TITLE REPORT. (CDD-E)

PRIOR TO AND/OR CONCURRENT WITH ISSUANCE OF PERMITS FOR GRADING AND/OR BUILDING, THE FOLLOWING REQUIREMENTS SHALL BE SATISFIED:

42. **WORKER ENVIRONMENTAL AWARENESS PROGRAM TRAINING (MM CR-2A).** BEFORE INITIATION OF GROUND-DISTURBING ACTIVITY, WORKER ENVIRONMENTAL AWARENESS PROGRAM TRAINING SHALL BE ADMINISTERED BY A QUALIFIED PALEONTOLOGIST, AS DEFINED BY SOCIETY OF VERTEBRATE PALEONTOLOGY (SVP), OR HIS OR HER DESIGNATED REPRESENTATIVE. THE TRAINING SHALL INCLUDE A BRIEF OVERVIEW OF THE SIGNIFICANCE AND LEGAL PROTECTION OF PALEONTOLOGICAL RESOURCES AS WELL AS INFORMATION REGARDING THE TYPES OF FOSSIL RESOURCES THAT WORKERS MIGHT ENCOUNTER DURING CONSTRUCTION. A COPY OF THE TRAINING PROGRAM IN THE FORM OF HANDOUTS SHALL BE LEFT WITH CONSTRUCTION MANAGERS TO DISTRIBUTE TO NEW PERSONNEL THAT JOIN THE PROJECT CONSTRUCTION CREW AFTER THE WORKER ENVIRONMENTAL AWARENESS PROGRAM TRAINING HAS BEEN ADMINISTERED. (CDD-B, -E, PW)

43. **PRE-CONSTRUCTION CALIFORNIA RED-LEGGED FROG SURVEYS (MM BIO-2K).** WITHIN TWO WEEKS OF THE INITIATION OF CONSTRUCTION ACTIVITIES, INCLUDING MOBILIZATION AND STAGING, A BIOLOGIST APPROVED BY THE USFWS AND CDFW SHALL CONDUCT A SURVEY OF THE CONSTRUCTION AREA FOR ALL LIFE STAGES OF CALIFORNIA RED-LEGGED FROG. ALL AREAS WHERE THIS SPECIES OCCURS SHALL BE AVOIDED UNTIL THE APPROVED BIOLOGIST HAS
    DETERMINED THAT THIS SPECIES IS NO LONGER PRESENT. NO LIFE STAGES OF THIS SPECIES SHALL BE RELOCATED WITHOUT EITHER A USFWS-APPROVED BIOLOGICAL OPINION OR A TAKE AUTHORIZATION FROM THE USFWS AND/OR CDFW. IF RELOCATION IS AUTHORIZED, THE SPECIES SHALL BE TAKEN TO THE RELOCATION SITE DETERMINED BY MITIGATION MEASURE MM BIO-2B PRIOR TO INITIATION OF CONSTRUCTION ACTIVITIES. (CDD-B, -E, PW)

44. **EXCLUSION FENCE (MM BIO-2D).** PRIOR TO PROJECT CONSTRUCTION, SILT FENCING OR WILDLIFE EXCLUSION FENCING SHALL BE USED TO PREVENT CALIFORNIA RED-LEGGED FROGS AND WESTERN POND TURTLES FROM ENTERING WORK AREAS. THIS FENCING SHALL BE INSTALLED ALONG THE BOUNDARY OF THE PROJECT FOOTPRINT EXCEPT WHERE THIS FOOTPRINT EXTENDS INTO RIPARIAN AND MARSH HABITATS IN WATSONVILLE SLOUGH. IN RIPARIAN AND MARSH HABITAT AREAS, THE FENCING SHALL BE INSTALLED ALONG THE BOUNDARY BETWEEN RIPARIAN AND DEVELOPED HABITATS. IF EQUIPMENT NEEDS TO PASS THROUGH THIS FENCING FOR WORK ACTIVITIES, A GATE SHALL BE INSTALLED TO ALLOW ACCESS AND THE FENCE SHALL BE SEALED AT THE END OF EACH WORKING DAY.

    THE EXCLUSION FENCING SHALL BE AT LEAST THREE FEET HIGH AND THE LOWER SIX INCHES OF THE FENCE SHALL BE BURIED IN THE GROUND TO PREVENT ANIMALS FROM CRAWLING UNDER. THE REMAINING 2.5 FEET SHALL BE LEFT ABOVE GROUND TO SERVE AS A BARRIER FOR ANIMALS MOVING ON THE GROUND SURFACE. THE FENCE SHALL BE PULLED TAUT AT EACH SUPPORT TO PREVENT FOLDS OR SNAGS. FENCING SHALL BE INSTALLED AND MAINTAINED IN GOOD CONDITION DURING ALL CONSTRUCTION ACTIVITIES. SUCH FENCING SHALL BE INSPECTED AND MAINTAINED DAILY UNTIL THE COMPLETION OF EACH PROJECT PHASE. THE FENCING SHALL REMAIN UNTIL THE RETAINING WALL IS INSTALLED AND ALL CONSTRUCTION EQUIPMENT IS REMOVED FROM THE AREA BETWEEN THIS WALL AND THE EXCLUSION FENCE. (CDD-B, -E, PW)

45. **WORKER ENVIRONMENTAL AWARENESS PROGRAM (MM BIO-2A).** PRIOR TO ANY GROUND DISTURBING ACTIVITIES, A BIOLOGIST APPROVED BY THE USFWS AND CDFW SHALL CONDUCT A TRAINING SESSION FOR ALL CONSTRUCTION PERSONNEL. AT A MINIMUM, THE TRAINING SHALL INCLUDE A DESCRIPTION OF THE CALIFORNIA RED-LEGGED FROG AND WESTERN POND TURTLE, THEIR HABITAT, THE IMPORTANCE OF THE SPECIES, THE MEASURES THAT ARE BEING IMPLEMENTED TO AVOID AND MINIMIZE IMPACTS AS THEY RELATE TO THE PROJECT, AND THE BOUNDARIES WITHIN WHICH THE WORK MAY BE ACCOMPLISHED. (CDD-B, -E, PW)

46. **DETERMINATION OF APPROPRIATE RELOCATION SITE(S) (MM BIO-2B).** PRIOR TO THE INITIATION OF MITIGATION MEASURES MM BIO-2C THROUGH BIO-2I, A QUALIFIED BIOLOGIST SHALL DETERMINE, IN CONSULTATION WITH THE USFWS, APPROPRIATE RELOCATION SITES FOR ANY CALIFORNIA RED-LEGGED FROGS AND WESTERN POND TURTLES WITHIN THE SAME WATERSHED/STREAM COURSE THAT MAY BE OBSERVED DURING THE PRE-ACTIVITY SURVEY DESCRIBED BELOW AND THAT NEED TO BE RELOCATED. (CDD-B, -E, PW)

47. **PRE-ACTIVITY WESTERN POND TURTLE SURVEY (MM BIO-2C).** A QUALIFIED BIOLOGIST SHALL SURVEY THE PROJECT SITE WITHIN 48 HOURS OF INITIAL GROUND-DISTURBING ACTIVITIES FOR WESTERN POND TURTLES. IF WESTERN POND TURTLES ARE FOUND THE APPROVED BIOLOGIST SHALL RELOCATE THE INDIVIDUALS TO THE APPROPRIATE RELOCATION SITE, DETERMINED AS PART OF MITIGATION MEASURE MM BIO-2B, OUTSIDE OF THE WORK AREA. ONLY THE USFWS/CDFW-APPROVED BIOLOGISTS SHALL PARTICIPATE IN ACTIVITIES ASSOCIATED WITH THE CAPTURE AND HANDLING OF WESTERN POND TURTLES. (CDD-B, -E, PW)

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APN# 018-372-14
PLAN TYPE
RESIDENTIAL SUBDIVISION

CONDITIONS OF APPROVAL
HILLCREST SUBDIVISION
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NUMBER	BY	DESCRIPTION	DATE
C	GS/DMR	RESPONSE 3 - PLAN CHECK COMMENTS 03/11/2022	03/18/2022
B	GS/DMR	RESPONSE 2 - PLAN CHECK COMMENTS 10/08/2021	01/20/2022
A	GS/DMR	RESPONSE 1 - PLAN CHECK COMMENTS 09/21/2021	09/29/2021

REVISION BLOCK

DRAWN BY:	GS
DESIGNED BY:	DMR
DATE:	08/12/2021
SCALE:	AS NOTED
PROJECT NO:	20-021
SHEET:	

C1.1

Exhibit 3

48. **PRE-DISTURBANCE SANTA CRUZ TARPLANT SURVEY AND MITIGATION PLANTING (MM BIO-1).** PRIOR TO CONSTRUCTION OF THE PROJECT (EITHER "PHASE I OR II" AS DEFINED IN THE EIR), A FOCUSED SURVEY FOR SANTA CRUZ TARPLANT SHALL BE CONDUCTED BY A QUALIFIED BIOLOGIST IN AREAS OF THE PROJECT SITE WHERE THE QUALIFIED BIOLOGIST IDENTIFIES SUITABLE HABITAT. THE SURVEY SHALL BE CONDUCTED IN ACCORDANCE WITH THE CDFW'S *PROTOCOLS FOR SURVEYING AND EVALUATING IMPACTS TO SPECIAL STATUS NATIVE PLANT POPULATIONS AND SENSITIVE NATURAL COMMUNITIES, WHICH WAS PUBLISHED IN MARCH 2018*. THE SURVEY SHALL BE CONDUCTED DURING THE SPECIES' BLOOMING PERIOD (MAY-NOVEMBER), AND FINDINGS OF THE SURVEY SHALL BE SUBMITTED TO THE CITY OF WATSONVILLE FOR REVIEW AND APPROVAL.

IF A POPULATION OF SANTA CRUZ TARPLANT IS FOUND, MITIGATION FOR THE LOSS OF INDIVIDUALS SHALL BE CONDUCTED. MITIGATION SHALL BE ACHIEVED BY ESTABLISHING A NEW POPULATION OF SANTA CRUZ TARPLANT IN AN AREA APPROVED BY THE USFWS AND CDFW. THIS AREA SHALL NOT BE DEVELOPED AND SHALL CONTAIN SUITABLE HABITAT TYPES FOR ESTABLISHING A NEW POPULATION. MITIGATION SHALL BE A 1:1 RATIO (IMPACT MITIGATION) OF PLANT ESTABLISHMENT ON AN ACREAGE BASIS, OR OTHER RATIO OR ALTERNATIVE MITIGATION AS DETERMINED NECESSARY BY CDFW.

MONITORING OF THE NEW MITIGATION POPULATION SHALL OCCUR ANNUALLY. ANNUAL MONITORING SHALL INCLUDE QUANTITATIVE SAMPLING OF THE SANTA CRUZ TARPLANT POPULATION TO DETERMINE THE NUMBER OF PLANTS THAT HAVE GERMINATED AND SET SEED. THIS MONITORING SHALL CONTINUE ANNUALLY OR UNTIL SUCCESS CRITERIA HAVE BEEN MET; ONCE ANNUAL MONITORING HAS DOCUMENTED THAT A SELF-SUSTAINING POPULATION OF THIS ANNUAL SPECIES HAS BEEN SUCCESSFULLY ESTABLISHED ON SITE, THIS MITIGATION MEASURE SHALL BE DETERMINED TO HAVE BEEN MET AND THE PROJECT APPLICANT RELEASED FROM FURTHER RESPONSIBILITY.

ESTABLISHMENT OF THE PLANT POPULATION SHALL BE SUBJECT TO A HABITAT MITIGATION AND MONITORING PLAN. TO ENSURE THE SUCCESS OF MITIGATION SITES REQUIRED FOR COMPENSATION OF PERMANENT IMPACTS ON SANTA CRUZ TARPLANT, THE PROJECT APPLICANT SHALL RETAIN A QUALIFIED BIOLOGIST TO PREPARE A HABITAT MITIGATION AND MONITORING PLAN. THE HABITAT MITIGATION AND MONITORING PLAN SHALL BE SUBMITTED TO THE CITY OF WATSONVILLE FOR REVIEW AND APPROVAL PRIOR TO THE START OF CONSTRUCTION. THE HABITAT MITIGATION AND MONITORING PLAN SHALL INCLUDE, AT A MINIMUM, THE FOLLOWING INFORMATION:

- A SUMMARY OF HABITAT AND SPECIES IMPACTS AND THE PROPOSED MITIGATION FOR EACH ELEMENT
- A DESCRIPTION OF THE LOCATION AND BOUNDARIES OF THE MITIGATION SITE(S) AND DESCRIPTION OF EXISTING SITE CONDITIONS
- A DESCRIPTION OF ANY MEASURES TO BE UNDERTAKEN TO ENHANCE (E.G., THROUGH FOCUSED MANAGEMENT) THE MITIGATION SITE FOR SPECIAL-STATUS SPECIES
- IDENTIFICATION OF AN ADEQUATE FUNDING MECHANISM FOR LONG-TERM MANAGEMENT
- A DESCRIPTION OF MANAGEMENT AND MAINTENANCE MEASURES INTENDED TO MAINTAIN AND ENHANCE HABITAT FOR THE TARGET SPECIES (E.G., WEED CONTROL, FENCING MAINTENANCE)
- A DESCRIPTION OF HABITAT AND SPECIES MONITORING MEASURES ON THE MITIGATION SITE, INCLUDING SPECIFIC, OBJECTIVE PERFORMANCE CRITERIA, MONITORING METHODS, DATA ANALYSIS, REPORTING REQUIREMENTS, MONITORING SCHEDULE, ETC. MONITORING WILL DOCUMENT COMPLIANCE WITH EACH ELEMENT REQUIRING HABITAT COMPENSATION OR MANAGEMENT. AT A MINIMUM, PERFORMANCE CRITERIA WILL INCLUDE A MINIMUM 1:1 MITIGATION RATIO FOR THE NUMBER OF PLANTS IN THE IMPACTED POPULATION (AT LEAST ONE PLANT PRESERVED FOR EACH PLANT IMPACTED).
- A CONTINGENCY PLAN FOR MITIGATION ELEMENTS THAT DO NOT MEET PERFORMANCE OR FINAL SUCCESS CRITERIA WITHIN DESCRIBED PERIODS; THE PLAN WILL INCLUDE SPECIFIC TRIGGERS FOR REMEDIATION IF PERFORMANCE CRITERIA ARE NOT MET AND A DESCRIPTION OF THE PROCESS BY WHICH REMEDIATION OF PROBLEMS WITH THE MITIGATION SITE (E.G., PRESENCE OF NOXIOUS WEEDS) WILL OCCUR

A REQUIREMENT THAT THE PROJECT PROPONENT WILL BE RESPONSIBLE FOR MONITORING, AS SPECIFIED IN THE HABITAT MITIGATION AND MONITORING PLAN, FOR AT LEAST THREE (3) YEARS POST-CONSTRUCTION; DURING THIS PERIOD, ANNUAL REPORTING WILL BE PROVIDED TO THE CITY'S SUPERVISING ENVIRONMENTAL PLANNER. AT THE REQUEST OF THE CDFW OR USFWS, THE ANNUAL REPORTING SHALL ALSO BE PROVIDED TO THESE AGENCIES. (CDD-B, -E, PW)

DURING CONSTRUCTION, THE FOLLOWING CONDITIONS SHALL BE ADHERED TO:

49. **NOISE.** NOISE-GENERATING CONSTRUCTION EQUIPMENT, INCLUDING TRUCK TRAFFIC ARRIVING AND DEPARTING THE SITE, SHALL NOT OCCUR BETWEEN THE HOURS OF 7:00 P.M. AND 7:00 A.M., MONDAY THROUGH SATURDAY. NO BUILDING ACTIVITY WILL BE ALLOWED ON SUNDAYS OR HOLIDAYS. (CDD-B, PW)

50. **NOISE ABATEMENT.** ALL CONSTRUCTION EQUIPMENT POWERED BY INTERNAL COMBUSTION ENGINES SHALL BE PROPERLY MUFFLED AND MAINTAINED. ALL STATIONARY NOISE GENERATING CONSTRUCTION EQUIPMENT SUCH AS AIR COMPRESSORS SHALL BE LOCATED AS FAR AS PRACTICAL FROM THE EXISTING RESIDENCES. SUCH EQUIPMENT SHALL BE ACOUSTICALLY SHIELDED WHERE POSSIBLE. THE PRUDENT SELECTION OF EQUIPMENT ALONG WITH THE USE OF PROPER MUFFLERS SHOULD RESULT IN MAXIMUM CONSTRUCTION-RELATED NOISE GENERATED BY A PARTICULAR PIECE OF EQUIPMENT OF NO MORE THAN 85 DBA WHEN MEASURED AT A DISTANCE OF 50 FEET FROM THE PIECE OF EQUIPMENT OPERATING AT ITS NOISIEST MODE. (CDD-B, PW)

51. **CONSTRUCTION NOISE REDUCTION TECHNIQUES (MM N-6).** THE APPLICANT SHALL IMPLEMENT THE FOLLOWING CONSTRUCTION NOISE REDUCTION TECHNIQUES DURING CONSTRUCTION ACTIVITIES:
    A. DURING PROJECT CONSTRUCTION, ALL EQUIPMENT, FIXED OR MOBILE, SHALL BE OPERATED WITH CLOSED ENGINE DOORS AND SHALL BE EQUIPPED WITH PROPERLY OPERATING AND MAINTAINED MUFFLERS CONSISTENT WITH MANUFACTURERS' STANDARDS.
    B. THE CONTRACTOR SHALL PROVIDE STAGING AREAS ONSITE TO MINIMIZE OFF-SITE TRANSPORTATION OF HEAVY CONSTRUCTION EQUIPMENT. THESE AREAS SHALL BE LOCATED TO MAXIMIZE THE DISTANCE BETWEEN ACTIVITY AND SENSITIVE RECEPTORS. THIS WOULD REDUCE NOISE LEVELS ASSOCIATED WITH MOST TYPES OF IDLING CONSTRUCTION EQUIPMENT.
    C. A TEMPORARY SOUND ATTENUATION BARRIER SHALL BE ERECTED ALONG THE NORTH, SOUTH, AND WEST EDGE OF THE PROJECT SITE IMMEDIATELY SUBSEQUENT TO THE COMPLETION OF THE GRADING ACTIVITIES ALONG THE WESTERLY EDGE OF THE PROJECT SITE. THIS BARRIER MUST BREAK THE LINE OF SIGHT BETWEEN CONSTRUCTION AREAS
    AND THE GROUND FLOOR LEVEL OF ADJACENT RESIDENCES TO THE WEST AND SHALL BE DESIGNED TO ACHIEVE THE MAXIMUM SOUND ATTENUATION FEASIBLE. BARRIER DESIGN AND ITS ACOUSTIC PROPERTIES SHALL BE BASED ON A SITE-SPECIFIC ACOUSTIC ANALYSIS PREPARED BY A QUALIFIED ACOUSTIC ENGINEER PRIOR TO ISSUANCE OF GRADING OR CONSTRUCTION PERMITS.
    D. DURING PROJECT CONSTRUCTION, ALL UNNECESSARY IDLING OF EQUIPMENT WITH INTERNAL COMBUSTION ENGINES SHALL BE PROHIBITED.
    E. HEAVY CONSTRUCTION ACTIVITY SHALL BE LIMITED TO WEEKDAYS BETWEEN 9:00 AM AND 5:00 PM AND SATURDAYS BETWEEN 9:00 AM AND 4:00 PM, WITH NO CONSTRUCTION ON SUNDAYS OR HOLIDAY. THIS MEASURE IS APPLICABLE THROUGH THE DURATION OF ALL GRADING ACTIVITIES.
    F. THE PROJECT APPLICANT SHALL DESIGNATE A "DISTURBANCE COORDINATOR" WHO WOULD BE RESPONSIBLE FOR RESPONDING TO ANY COMPLAINTS ABOUT CONSTRUCTION NOISE. THE DISTURBANCE COORDINATOR SHALL BE RESPONSIBLE FOR DETERMINING THE CAUSE OF THE NOISE COMPLAINT (E.G., BAD MUFFLER, ETC.) AND SHALL REQUIRE THAT REASONABLE MEASURES BE IMPLEMENTED TO CORRECT THE PROBLEM TO THE SATISFACTION OF THE COMMUNITY DEVELOPMENT DIRECTOR.
    G. THE PROJECT APPLICANT AND/OR CONSTRUCTION CONTRACTOR(S) MUST USE THE NEWEST AVAILABLE POWER CONSTRUCTION EQUIPMENT WITH STANDARD RECOMMENDED NOISE SHIELDING AND MUFFLING DEVICES.(CDD-B, PW)

52. **NOISE COMPLIANT NOTICE.** REQUIRE POSTING OF SIGNS ON THE PROPERTY THAT INFORMS RESIDENTS OF THE NAME AND PHONE NUMBER OF THE PERSON DESIGNATED BY THE APPLICANT TO ADDRESS NOISE COMPLAINTS ARISING FROM PROJECT CONSTRUCTION. THIS "DISTURBANCE COORDINATOR" SHALL BE REQUIRED TO INVESTIGATE CITIZEN COMPLAINTS WITHIN 24 HOURS OF RECEIVING THE COMPLAINT AND CONTACT THE CONCERNED PARTY TO EXPLAIN HOW THE PROBLEM HAS BEEN ADDRESSED WITHIN 48 HOURS OF THE COMPLAINT. (CDD-E)

53. **WORK HOURS.** NO WORK SHALL BE PERFORMED WITHIN THE HOURS OF 7 P.M. TO 7 A.M. MONDAY THROUGH FRIDAY, NOR PRIOR TO 8 A.M. OR AFTER 5 P.M. ON SATURDAY. NO WORK SHALL OCCUR ON SUNDAYS OR HOLIDAYS. A SIGN SHALL BE POSTED AT A CONSPICUOUS LOCATION NEAR THE MAIN ENTRY TO THE SITE, PROMINENTLY DISPLAYING THESE HOUR RESTRICTIONS AND IDENTIFYING THE PHONE # OF THE JOB SUPERINTENDENT. (CDD-B)

54. **GRADING AREA.** LIMITS OF GRADING SHALL BE STAKED OR FLAGGED IN THE FIELD. (CDD-B, - E, PW)

55. **PREVENTION OF ENTRAPMENT (MM BIO-2E).** TO PREVENT THE INADVERTENT ENTRAPMENT OF INDIVIDUALS, ALL EXCAVATED, STEEP-WALLED HOLES OR TRENCHES SHALL BE COVERED AT THE END OF EACH WORKDAY WITH PLYWOOD OR SIMILAR MATERIALS. IF THIS IS NOT POSSIBLE, ONE OR MORE ESCAPE RAMPS CONSTRUCTED OF EARTH FILL OR WOODEN PLANKS SHALL BE ESTABLISHED IN THE HOLE. BEFORE SUCH HOLES OR TRENCHES ARE FILLED, THEY SHALL BE THOROUGHLY INSPECTED FOR ANY ANIMALS. IF AT ANY TIME A CALIFORNIA RED-LEGGED FROG IS FOUND TRAPPED OR INJURED IN THESE HOLES, THE INDIVIDUAL SHALL BE RELOCATED TO THE PRE- APPROVED RELOCATION SITE(S) IDENTIFIED AS PART OF MITIGATION MEASURE MM BIO-2B BY AN APPROVED BIOLOGIST. (CDD-B, -E, PW)

56. **DELINEATION OF WORK AREA (MM BIO-2F).** THE BOUNDARIES OF THE WORK AREA SHALL BE CLEARLY DELINEATED WITH ENVIRONMENTALLY SENSITIVE AREA FENCING (ORANGE-COLORED, PLASTIC CONSTRUCTION FENCING), TO PREVENT WORKERS OR EQUIPMENT FROM INADVERTENTLY
STRAYING FROM THE WORK AREA. ALL CONSTRUCTION PERSONNEL, EQUIPMENT, AND VEHICLE MOVEMENT SHALL BE CONFINED TO DESIGNATED CONSTRUCTION AND STAGING AREAS. STAGING AREAS ARE RESTRICTED TO AREAS DELINEATED IN THE PROJECT PLANS AND ENCOMPASSED BY THE ENVIRONMENTALLY SENSITIVE AREA FENCING. (CDD-B, -E, PW)

57. **FOOD TRASH REMOVAL (MM BIO-2G).** ALL FOOD TRASH FROM PROJECT PERSONNEL SHALL BE PLACED IN CONTAINERS WITH SECURE LIDS BEFORE THE END OF WORK EACH DAY IN ORDER TO REDUCE THE LIKELIHOOD OF ATTRACTING PREDATORS TO THE PROJECT SITE. IF CONTAINERS MEETING THESE CRITERIA ARE NOT AVAILABLE, ALL RUBBISH SHALL BE REMOVED FROM THE PROJECT SITE AT THE END OF EACH WORK DAY. (CDD-B, -E, PW)

58. **BIOLOGICAL MONITORING (MM BIO-2H).** A BIOLOGIST APPROVED BY THE USFWS AND CDFW SHALL REMAIN ONSITE AT ALL TIMES DURING PROJECT ACTIVITIES THAT OCCUR WITHIN MAPPED RIPARIAN RUDERAL GRASSLAND, RIPARIAN ORNAMENTAL WOODLAND, AND PERENNIAL FRESHWATER MARSH HABITATS. PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES EACH DAY, THE CDFW/USFWS-APPROVED BIOLOGIST SHALL SURVEY THE PROJECT SITE TO ENSURE NO SPECIAL-STATUS SPECIES ARE WITHIN THE WORK AREA. AT ALL TIMES BIOLOGICAL MONITORS SHALL BE LOCATED ON THE PROJECT SITE SO THAT EACH AREA OF WORK CAN BE OBSERVED TO AVOID TAKE OF SPECIAL-STATUS SPECIES. ANY CALIFORNIA RED-LEGGED FROGS FOUND IN AREAS WHERE THEY COULD BE IMPACTED BY WORK ACTIVITIES SHALL BE RELOCATED TO THE PRE- APPROVED RELOCATION SITE(S) IDENTIFIED BY MITIGATION MEASURE MM BIO-2B. IF ANY CALIFORNIA RED-LEGGED FROGS ARE KILLED OR INJURED DURING WORK ACTIVITIES, THE USFWS SHALL BE CONTACTED WITHIN 24 HOURS. THE CDFW/USFWS-APPROVED BIOLOGIST SHALL HAVE THE AUTHORITY TO HALT ANY ACTION THAT MAY RESULT IN THE TAKE OF SPECIAL-STATUS SPECIES. (CDD-B, -E, PW)

59. **WORK WINDOW (MM BIO-2I).** PROJECT INITIAL SITE GRADING, SURFACE TRASH AND FENCE REMOVAL, TREE PRUNING, OUTFALL CONSTRUCTION, AND SOIL REMEDIATION ACTIVITIES SHALL BE RESTRICTED TO THE DRY SEASON (I.E., APRIL 15 THROUGH OCTOBER 15), AND NO VEGETATION REMOVAL OR PROJECT WORK IN MAPPED RIPARIAN OR PERENNIAL FRESHWATER MARSH HABITATS SHALL OCCUR DURING OR WITHIN 24 HOURS FOLLOWING A MEASURABLE RAINFALL EVENT. (CDD- B, -E, PW)

60. **DOCUMENTATION AND REPORTING (MM BIO-2J).** IF FEDERALLY AND/OR STATE PROTECTED SPECIES ARE HARMED, A BIOLOGIST APPROVED BY THE USFWS AND CDFW SHALL DOCUMENT THE CIRCUMSTANCES THAT LED TO HARM AND SHALL DETERMINE IF PROJECT ACTIVITIES SHOULD CEASE OR BE ALTERED IN AN EFFORT TO AVOID ADDITIONAL HARM TO THESE SPECIES. DEAD OR INJURED SPECIAL STATUS-SPECIES SHALL BE DISPOSED OF AT THE DISCRETION OF THE CDFW AND USFWS. ALL INCIDENCES OF HARM SHALL BE REPORTED TO THE CDFW AND USFWS WITHIN 48 HOURS. (CDD-B, -E, PW)

61. **CALIFORNIA RED-LEGGED FROG HABITAT AVOIDANCE AND MINIMIZATION (MM BIO- 2L).** IF CALIFORNIA RED-LEGGED FROGS ARE DETECTED IN THE VICINITY OF THE PROJECT SITE, A BIOLOGIST APPROVED BY THE USFWS AND CDFW SHALL BE PRESENT ONSITE DURING ALL GROUND DISTURBING ACTIVITIES, INCLUDING VEGETATION REMOVAL, GRADING, AND EXCLUSION FENCE INSTALLATION AND REMOVAL. ONCE THESE ACTIVITIES HAVE BEEN COMPLETED, THE APPROVED BIOLOGIST SHALL CONDUCT PERIODIC INSPECTIONS OF THE WORK SITE OF NOT LESS THAN ONCE PER WEEK WHEN CONSTRUCTION ACTIVITIES ARE OCCURRING IN/ADJACENT TO SUITABLE HABITAT. ADDITIONAL SITE VISITS SHOULD OCCUR DURING RAIN EVENTS WHEN SPECIAL- STATUS AMPHIBIANS ARE LIKELY TO BE MOBILE TO ENSURE THAT THEY ARE NOT ENTERING WORK
AREAS. WORK ACTIVITIES IN OR ADJACENT TO SUITABLE HABITAT SHALL BE COMPLETED BETWEEN APRIL 15 AND OCTOBER 15 TO THE GREATEST EXTENT FEASIBLE.

ALL VEHICLE MAINTENANCE/FUELING/STAGING SHALL OCCUR NO LESS THAN 100 FEET FROM ANY RIPARIAN HABITAT OR WATER BODY. SUITABLE CONTAINMENT PROCEDURES SHALL BE IMPLEMENTED TO PREVENT SPILLS. A MINIMUM OF ONE SPILL KIT SHALL BE AVAILABLE AT EACH WORK LOCATION NEAR RIPARIAN HABITAT OR WATER BODIES.

THE CDFW/USFWS-APPROVED BIOLOGIST SHALL REMOVE INVASIVE AQUATIC SPECIES SUCH AS BULLFROGS AND CRAYFISH FROM SUITABLE AQUATIC HABITAT WHENEVER OBSERVED AND SHALL DISPATCH THEM IN A HUMANE MANNER AND DISPOSE OF PROPERLY. (CDD-B, - E, PW)

62. **ONSITE RIPARIAN ENHANCEMENT (MM BIO-2M).** THE PROJECT APPLICANT SHALL COMPENSATE FOR PROJECT IMPACTS ON BREEDING AND FORAGING HABITAT FOR CALIFORNIA RED- LEGGED FROGS BY RESTORING HIGH QUALITY, NATURAL/HISTORICAL FUNCTIONS TO THE LOW-QUALITY, DEGRADED RIPARIAN HABITAT AND PERENNIAL FRESHWATER MARSH HABITAT WITHIN THE PROJECT SITE, AS DESCRIBED IN THE SUNSHINE VISTA DEVELOPMENT PROJECT MITIGATION AND MONITORING PLAN (MMP) PREPARED BY H.T. HARVEY & ASSOCIATES (APPENDIX G TO THE DRAFT EIR FOR THE PROJECT). THE PROPOSED MITIGATION SHALL BE COMMENSURATE WITH THE AMOUNT AND TYPE OF IMPACT ARISING FROM THE PHASED DEVELOPMENT OF THE PROJECT, AND SHALL PROVIDE HABITAT FOR THE CALIFORNIA RED-LEGGED FROG OF GREATER VALUE THAN THE HABITAT BEING AFFECTED ON THE PROJECT SITE.

THE PROJECT APPLICANT SHALL USE A COMBINATION OF NONNATIVE EUCALYPTUS REMOVAL, SELECTIVE INVASIVE PLANT CONTROL, AND ARROYO WILLOW REVEGETATION TO RESTORE NATIVE WILLOW THICKET HABITAT ALONG WATSONVILLE SLOUGH, AS DESCRIBED IN THE MMP. BOTH TEMPORARY AND PERMANENT IMPACTS TO PERENNIAL FRESHWATER MARSH HABITAT FROM THE PHASED DEVELOPMENT OF THE PROJECT SHALL BE RESTORED THROUGH NATURAL RE-ESTABLISHMENT AND ACTIVE PLANTING WITH LOCALLY COLLECTED ARROYO WILLOW THICKET PLANTINGS. THESE PLANTINGS SHALL PROVIDE COVER, FORAGING OPPORTUNITIES, AND EGG MASS ATTACHMENT SITE FOR CALIFORNIA RED-LEGGED FROGS. NATIVE WILLOW CUTTINGS SHALL BE PLANTED IN 50-FOOT-LONG BY 10-FOOT-WIDE THICKETS ALONG THE WATERLINE ALONG APPROXIMATELY 1,400 LINEAR FEET OF SLOUGH ADJACENT TO AND IN THE PROJECT SITE. THE THICKETS SHALL BE SEPARATED BY APPROXIMATELY 50-FOOT-LONG GAPS TO PROMOTE NATURAL RECRUITMENT AND HABITAT DIVERSITY ALONG THE SLOUGH EDGE. INITIAL WILLOW THICKET PLANTING EFFORT SHALL PROVIDE APPROXIMATELY 0.16 ACRE OF NATIVE DOMINATED RIPARIAN HABITAT.

APPROXIMATELY 83 NONNATIVE EUCALYPTUS TREES AND UP TO 10 ADDITIONAL NONNATIVE TREES WOULD BE CUT AND REMOVED FROM THE MITIGATION AREA. EACH STUMP SHALL BE CUT AT GROUND LEVEL AND LEFT IN PLACE TO MINIMIZE GROUND DISTURBANCE AND PRESERVE BANK STABILITY. NO NATIVE RIPARIAN TREES SHALL BE REMOVED. PRIOR TO TREE REMOVAL ACTIVITIES, A QUALIFIED BIOLOGIST SHALL CONDUCT A TREE SURVEY TO IDENTIFY ALL EXISTING TREES WITHIN THE RESTORATION AREA TO ENSURE ONLY NON- NATIVE TREES WILL BE REMOVED. ALL NONNATIVE TREES TO BE REMOVED SHALL BE FLAGGED CLEARLY IN THE FIELD BY THE QUALIFIED BIOLOGIST AND REMOVED TO ENSURE THE SUCCESS OF PLANTING AND RECRUITMENT OF NATIVE RIPARIAN PLANTS. BECAUSE THE EUCALYPTUS TREES IN THE MITIGATION AREA ARE MATURE AND HAVE EXTENSIVE ROOT SYSTEMS, THE EUCALYPTUS STUMPS SHALL BE LEFT IN PLACE. LEAVING THESE IN PLACE WILL PREVENT BANK FAILURE OR DESTABILIZATION WHILE STILL REMOVING THE
UNDESIRABLE LITTER INPUT AND SHADING OF THE SHORELINE. THE STUMPS SHALL BE GROUND DOWN TO SURFACE LEVEL. HOWEVER, ONGOING CONTROL ACTIVITIES SHALL BE REQUIRED TO PREVENT RE-SPROUTING OF THESE TREES. THE PROJECT APPLICANT SHALL BE RESPONSIBLE FOR CONDUCTING CONTROL ACTIVITIES. RE-SPROUTING CONTROL ACTIVITIES SHALL BE CONDUCTED WITH HAND TOOLS AND POWER TOOLS THAT DO NOT REQUIRE GROUND DISTURBANCE, SUCH AS PRUNING SHEARS, HAND SAWS AND CHAIN SAWS. SIMILARLY, BACKPACK SPRAYERS NOT REQUIRING GROUND DISTURBANCE SHALL BE USED FOR APPLICATION OF HERBICIDES TO CONTROL RE- SPROUTING. CONTROL ACTIVITIES SHALL BE CONDUCTED FOR A PERIOD OF TWO YEARS, COMMENCING WITHIN 30 DAYS OF STUMP GRINDING. AN ASSESSMENT SHALL BE MADE AFTER TWO YEARS TO DETERMINE IF THE APPLICANT MUST CONTINUE TO IMPLEMENT CONTROL ACTIVITIES OR IF SPROUTING HAS EFFECTIVELY BEEN PREVENTED. EVENTUALLY POISON OAK AND BLACKBERRY WILL LIKELY EXPAND TO COVER THE STUMP AREAS.

REMOVAL AND ONGOING CONTROL OF NONNATIVE, INVASIVE SPECIES SHALL BE REQUIRED IN THE IMMEDIATE VICINITY OF THE WILLOW THICKET PLANTING AREAS. HOWEVER, DUE TO THE POTENTIAL PRESENCE OF CALIFORNIA RED-LEGGED FROGS AND THEIR LIKELY USE OF AREAS BELOW THE DENSE HIMALAYAN BLACKBERRY, AND IVY VEGETATION, THE APPLICANT SHALL NOT REMOVE THE UNDERSTORY WEED INFESTATIONS WITHIN THE RESTORED RIPARIAN HABITAT. DISTURBANCE FROM OUTFALL TRENCHING AREAS SHALL BE RE-SEEDED WITH A NATIVE GRASSLAND SEED MIX FOR EROSION CONTROL, AND ALLOWED TO NATURALLY REVEGETATE WITH POISON OAK AND BLACKBERRY.

THE SOIL REMEDIATION AREA BELOW TOP OF BANK ON APN 018-381-01 SHALL BE CAPPED DUE TO LEACHABLE LEAD. IT SHALL BE EXCAVATED, CAPPED WITH AN IMPERMEABLE ASPHALT OR CONCRETE CAP, AND THEN TWO FEET OF CLEAN, IMPORT SOIL SHALL BE PLACED OVER THE CAP IN A STABLE CONFIGURATION. THIS CAPPED AREA SHALL BE SEEDED WITH A NATIVE GRASSLAND MIX, PLANTED WITH CALIFORNIA ROSE, POISON OAK, AND COYOTE BRUSH, AND SHALL BE MAINTAINED AS A SENSITIVE HABITAT AREA BEHIND THE SPLIT RAIL FENCE.

THE PROJECT APPLICANT SHALL SUBMIT THE MMP TO THE USFWS FOR APPROVAL AT LEAST 30 CALENDAR DAYS BEFORE THE DATE OF INITIAL GROUND DISTURBANCE REQUIRED FOR THE PHASED DEVELOPMENT OF THE PROJECT. GROUND DISTURBANCE SHALL NOT BE INITIATED UNTIL APPROVAL OF THE MMP HAS BEEN RECEIVED FROM THE USFWS. THE PROJECT APPLICANT IS ULTIMATELY RESPONSIBLE FOR OVERSEEING IMPLEMENTATION OF ACTIVITIES DESCRIBED IN THE MMP, INCLUDING ANY MODIFICATIONS, REVISIONS, OR ADDITIONS PENDING USFWS APPROVAL, AND SHALL BE RESPONSIBLE FOR FUNDING THE PLANNING AND IMPLEMENTATION OF ANY REMEDIAL MEASURES REQUIRED BY THE USFWS. (CDD-B, -E, PW)

63. **NESTING BIRD AVOIDANCE (MM BIO-3).** TO THE EXTENT FEASIBLE, CONSTRUCTION ACTIVITIES SHALL BE SCHEDULED TO AVOID THE NESTING SEASON. IF CONSTRUCTION ACTIVITIES ARE SCHEDULED TO TAKE PLACE OUTSIDE THE NESTING SEASON, ALL IMPACTS ON NESTING BIRDS PROTECTED UNDER THE MIGRATORY BIRD TREATY ACT AND CALIFORNIA FISH AND GAME CODE SHALL BE AVOIDED. THE NESTING SEASON FOR MOST BIRDS IN SANTA CRUZ COUNTY EXTENDS FROM FEBRUARY 1 THROUGH AUGUST 31.

IF IT IS NOT POSSIBLE TO SCHEDULE CONSTRUCTION ACTIVITIES BETWEEN SEPTEMBER 1 AND JANUARY 31 THEN PRECONSTRUCTION SURVEYS FOR NESTING BIRDS SHALL BE CONDUCTED BY A QUALIFIED ORNITHOLOGIST TO ENSURE THAT NO NESTS WILL BE DISTURBED DURING PROJECT IMPLEMENTATION. THESE SURVEYS SHALL BE CONDUCTED NO MORE THAN SEVEN DAYS PRIOR TO THE INITIATION OF CONSTRUCTION ACTIVITIES AND SHALL BE CONDUCTED PRIOR TO TREE
REMOVAL, TREE TRIMMING, OR OTHER VEGETATION CLEARING. DURING THE SURVEY, THE ORNITHOLOGIST SHALL INSPECT ALL TREES AND OTHER POTENTIAL NESTING HABITATS, INCLUDING TREES, SHRUBS, RUDERAL GRASSLANDS, AND BUILDINGS IN AND IMMEDIATELY ADJACENT TO THE IMPACT AREAS FOR NESTS.

IF AN ACTIVE NEST IS FOUND SUFFICIENTLY CLOSE TO WORK AREAS TO BE DISTURBED BY THESE ACTIVITIES, THE ORNITHOLOGIST SHALL DETERMINE THE EXTENT OF A CONSTRUCTION-FREE BUFFER ZONE TO BE ESTABLISHED AROUND THE NEST (TYPICALLY 300 FEET FOR RAPTORS AND 100 FEET FOR OTHER SPECIES), TO ENSURE THAT NO NESTS OF SPECIES PROTECTED BY THE MIGRATORY BIRD TREATY ACT AND CALIFORNIA FISH AND GAME CODE SHALL BE DISTURBED DURING PROJECT IMPLEMENTATION.

IF CONSTRUCTION ACTIVITIES ARE NOT BE INITIATED UNTIL AFTER THE START OF THE NESTING SEASON, ALL POTENTIAL NESTING SUBSTRATES, INCLUDING BUSHES, TREES, GRASSES, AND OTHER VEGETATION, THAT ARE SCHEDULED TO BE REMOVED BY THE PROJECT SHALL BE REMOVED PRIOR TO THE START OF THE NESTING SEASON ON FEBRUARY 1. THIS WILL PRECLUDE THE INITIATION OF NESTS IN THIS VEGETATION, AND PREVENT THE POTENTIAL DELAY OF THE PROJECT DUE TO THE PRESENCE OF ACTIVE NESTS IN THESE SUBSTRATES. (CDD-B, -E, PW)

64. **PREVENT THE SPREAD OF INVASIVE SPECIES (MM BIO-4).** INVASIVE PLANTS FOUND WITHIN THE PHASE ONE AND TWO FOOTPRINTS SHALL BE REMOVED AND DISPOSED OF IN A SANITARY LANDFILL, INCINERATED OFF-SITE, OR DISPOSED OF IN A HIGH-TEMPERATURE COMPOSTING FACILITY THAT CAN COMPOST USING METHODS KNOWN TO KILL WEED SEEDS. HIMALAYAN BLACKBERRY HAS HABITAT VALUES FOR THE CALIFORNIA RED-LEGGED FROG AND SHALL NOT BE SYSTEMATICALLY REMOVED FROM THE PROJECT SITE. WHEN REMOVING INVASIVE PLANT MATERIAL FROM THE RIPARIAN HABITAT, SEED AND/OR PROPAGULE DISPERSAL SHALL BE MINIMIZED BY BAGGING MATERIAL OR COVERING TRUCKS TRANSPORTING SUCH MATERIAL FROM THE PROJECT SITE.

DURING CONSTRUCTION ACTIVITIES, ALL SEEDS AND STRAW MATERIALS USED ON SITE SHALL BE WEED-FREE, AND ALL GRAVEL AND FILL MATERIAL SHALL BE CERTIFIED WEED FREE TO THE EXTENT FEASIBLE. IN ADDITION, CONSTRUCTION VEHICLES AND ALL EQUIPMENT SHALL BE WASHED, INCLUDING WHEELS, UNDERCARRIAGES, AND BUMPERS, BEFORE ENTERING THE PHASE ONE AND TWO FOOTPRINTS. VEHICLES SHALL BE CLEANED AT EXISTING CONSTRUCTION YARDS OR CAR WASHES. THE PROJECT APPLICANT SHALL DOCUMENT THAT ALL VEHICLES HAVE BEEN WASHED PRIOR TO COMMENCING WORK. IN ADDITION, TOOLS SUCH AS CHAINSAWS, HAND CLIPPERS, AND PRUNERS SHALL BE WASHED BEFORE ENTERING THE WORK AREAS. ALL WASHING SHALL TAKE PLACE WHERE RINSE WATER IS COLLECTED AND DISPOSED OF IN EITHER A SANITARY SEWER OR A LANDFILL. (CDD-B, -E, PW)

65. **RIPARIAN WOODLAND PROTECTION AND RESTORATION (MM BIO-5).** FOR OUTFALL TRENCHING ACTIVITIES, AN AIR SPADE SHALL BE USED WHEN UNDER THE DRIPLINE OF THE RIPARIAN CANOPY TO AVOID DAMAGE TO PRIMARY ROOT SYSTEMS OF RIPARIAN TREES.

NO TREES WITHIN THE RIPARIAN ZONE SHALL BE REMOVED DURING PROJECT CONSTRUCTION ACTIVITIES. PRIOR TO THE START OF CONSTRUCTION, THE BOUNDARIES OF THE WORK AREAS WITHIN THE RIPARIAN ZONE SHALL BE CLEARLY DELINEATED WITH ENVIRONMENTALLY SENSITIVE AREA FENCING (ORANGE-COLORED, PLASTIC CONSTRUCTION FENCING), TO PREVENT WORKERS OR EQUIPMENT FROM INADVERTENTLY STRAYING FROM THE WORK AREA. ALL CONSTRUCTION PERSONNEL, EQUIPMENT, AND VEHICLE MOVEMENT SHALL BE CONFINED TO DESIGNATED
CONSTRUCTION AND STAGING AREAS. STAGING AREAS ARE RESTRICTED TO AREAS DELINEATED IN THE PROJECT PLANS AND ENCOMPASSED BY THE ENVIRONMENTALLY SENSITIVE AREA FENCING. NO STAGING SHALL BE ALLOWED UNDER THE DRIPLINE OF THE RIPARIAN CANOPY.

PERMANENT IMPACTS ON THE UNDERSTORY OF RIPARIAN ORNAMENTAL WOODLANDS SHALL BE MITIGATED AS PER THE DESCRIPTION IN MITIGATION MEASURE MM BIO-2M AT A REPLACEMENT RATIO OF 2:1 (REPLACEMENT WILLOW PLANTING AREA TO PERMANENT IMPACT AREA) FOR A TOTAL OF 0.02 ACRE. COMPENSATION REQUIREMENTS FOR TEMPORARY PROJECT- RELATED IMPACTS TO RIPARIAN WOODLAND SHALL BE BASED ON THE REMOVED ACREAGE OF UNDERSTORY COVER, AND SHALL BE MITIGATED AT A REPLACEMENT RATIO OF AT LEAST 1:1 (WILLOW PLANTING AREA TO SHRUB REMOVAL AREA) FOR A TOTAL OF 0.01 ACRE. THE MITIGATION SHALL BE DEEMED COMPLETE AND THE PROJECT APPLICANT SHALL BE RELEASED FROM FURTHER RESPONSIBILITIES WHEN THE FINAL SUCCESS CRITERIA HAVE BEEN MET AS DETERMINED BY THE CITY AND RESPONSIBLE PERMITTING AGENCIES. (CDD-B, -E, PW)

66. **RIPARIAN RUDERAL GRASSLAND COMMUNITY RESTORATION (MM BIO-6).** TEMPORARY IMPACTS TO RIPARIAN RUDERAL GRASSLAND SHALL BE MITIGATED AT A REPLACEMENT RATIO OF 1:1 (REPLACEMENT PLANTING AREA TO TEMPORARY IMPACT AREA) FOR A TOTAL OF 0.32 ACRE. THE MITIGATION PLANTING AREA SHALL BE ESTABLISHED ON THE CAPPED AREA ON APN 018- 381-01. THE CAPPED AREA SHALL BE SEEDED WITH A NATIVE GRASSLAND MIX, PLANTED WITH CALIFORNIA ROSE, POISON OAK, AND COYOTE BRUSH, AND SHALL BE MAINTAINED AS A SENSITIVE HABITAT AREA BEHIND THE SPLIT RAIL FENCE POST CONSTRUCTION. THE MITIGATION SHALL BE DEEMED COMPLETE AND THE PROJECT APPLICANT SHALL BE RELEASED FROM FURTHER RESPONSIBILITIES WHEN THE FINAL SUCCESS CRITERIA HAVE BEEN MET AS DETERMINED BY THE CITY AND RESPONSIBLE PERMITTING AGENCIES. (CDD-B, -E, PW)

67. **PERENNIAL FRESHWATER MARSH COMMUNITY RESTORATION (MM BIO-7).** PERMANENT IMPACTS ON PERENNIAL FRESHWATER MARSH SHALL BE MITIGATED AT A REPLACEMENT RATIO OF 3:1 (REPLACEMENT WILLOW PLANTING AREA TO IMPACT AREA) FOR A TOTAL OF 0.01 ACRE. BOTH TEMPORARY AND PERMANENT IMPACTS TO PERENNIAL FRESHWATER MARSH HABITAT SHALL BE RESTORED THROUGH NATURAL RE-ESTABLISHMENT AND ACTIVE PLANTING WITH LOCALLY COLLECTED ARROYO WILLOW THICKET PLANTINGS ALONG THE WATSONVILLE SLOUGH WITHIN THE PROJECT SITE. THE MITIGATION SHALL BE DEEMED COMPLETE AND THE PROJECT APPLICANT SHALL BE RELEASED FROM FURTHER RESPONSIBILITIES WHEN THE FINAL SUCCESS CRITERIA HAVE BEEN MET AS DETERMINED BY THE CITY AND THE RESPONSIBLE PERMITTING AGENCIES. (CDD-B, -E, PW)

68. **ARCHAEOLOGICAL RESOURCES CONSTRUCTION MONITORING (MM CR-1A).** ALL PROJECT- RELATED GROUND DISTURBING ACTIVITIES IN NATIVE SOILS AT THE PROJECT SITE SHALL BE MONITORED BY A QUALIFIED ARCHAEOLOGIST. ARCHAEOLOGICAL MONITORING SHALL BE PERFORMED UNDER THE DIRECTION OF AN ARCHAEOLOGIST MEETING THE SECRETARY OF THE INTERIOR'S PROFESSIONAL QUALIFICATION STANDARDS FOR ARCHAEOLOGY (NATIONAL PARK SERVICE, 1983). SHOULD THE PROJECT SITE BE DETERMINED TO HAVE LITTLE IF ANY POTENTIAL TO YIELD SUBSURFACE CULTURAL RESOURCES DEPOSITS, THE QUALIFIED ARCHAEOLOGIST MAY RECOMMEND THAT MONITORING BE REDUCED OR ELIMINATED AFTER CONSULTING WITH THE CITY AND NATIVE AMERICAN REPRESENTATIVES. (CDD-B, -E, PW)

69. **UNANTICIPATED DISCOVERY OF CULTURAL RESOURCES (MM CR-1B).** IN THE EVENT THAT CULTURAL RESOURCES ARE ENCOUNTERED DURING GROUND-DISTURBING ACTIVITIES, WORK IN THE IMMEDIATE AREA SHALL HALT, AND THE QUALIFIED ARCHAEOLOGIST SHALL EVALUATE THE FIND.
EVALUATION OF SIGNIFICANCE FOR THE FIND MAY INCLUDE THE DETERMINATION OF WHETHER OR NOT THE FIND QUALIFIES AS AN ARCHAEOLOGICAL SITE. IF NECESSARY, THE EVALUATION SHALL REQUIRE PREPARATION OF A TREATMENT PLAN AND ARCHAEOLOGICAL TESTING FOR CRHR ELIGIBILITY. IF THE DISCOVERY PROVES TO BE SIGNIFICANT UNDER CEQA AND CANNOT BE AVOIDED BY THE PROJECT, ADDITIONAL WORK, SUCH AS DATA RECOVERY EXCAVATION, MAY BE WARRANTED TO MITIGATE ANY SIGNIFICANT IMPACTS TO HISTORICAL RESOURCES. MITIGATION OF SIGNIFICANT IMPACTS TO THE FIND MAY INCLUDE A DAMAGE ASSESSMENT OF THE FIND, ARCHIVAL RESEARCH, AND/OR DATA RECOVERY TO REMOVE ANY IDENTIFIED ARCHAEOLOGICAL DEPOSITS, AS DETERMINED BY THE QUALIFIED ARCHAEOLOGIST. AFTER EFFECTS TO THE FIND HAVE BEEN APPROPRIATELY MITIGATED, WORK IN THE AREA MAY RESUME. (CDD-B, -E, PW)

70. **UNANTICIPATED DISCOVERY OF PALEONTOLOGICAL RESOURCES (MM CR-2B).** IF FOSSILS ARE DISCOVERED BY CONSTRUCTION PERSONNEL, ALL WORK IN THE IMMEDIATE VICINITY OF THE FIND SHALL CEASE AND A QUALIFIED PALEONTOLOGIST SHALL BE CONTACTED TO EVALUATE THE FIND BEFORE RESTARTING WORK IN THE AREA. A QUALIFIED PALEONTOLOGIST IS DEFINED BY THE SVP STANDARDS AS AN INDIVIDUAL WITH A MASTER'S OF SCIENCE OR DOCTORATE DEGREE IN PALEONTOLOGY OR GEOLOGY WHO IS EXPERIENCED WITH PALEONTOLOGICAL PROCEDURES AND TECHNIQUES, WHO IS KNOWLEDGEABLE IN THE GEOLOGY OF CALIFORNIA, AND WHO HAS WORKED AS A PALEONTOLOGICAL MITIGATION PROJECT SUPERVISOR FOR A LEAST ONE YEAR (SVP, 2010). IF THE QUALIFIED PALEONTOLOGIST DETERMINES THAT THE FOSSIL OR FOSSILS ARE SCIENTIFICALLY SIGNIFICANT, THE FIND SHALL BE RECOVERED UNDER HIS OR HER SUPERVISION. IF NECESSARY, THE PALEONTOLOGIST SHALL HAVE THE AUTHORITY TO TEMPORARILY DIRECT, DIVERT, OR HALT CONSTRUCTION ACTIVITY TO ENSURE THAT THE FOSSIL OR FOSSILS CAN BE REMOVED IN A SAFE AND TIMELY MANNER. ONCE SALVAGED, SIGNIFICANT FOSSILS SHALL BE IDENTIFIED TO THE LOWEST POSSIBLE TAXONOMIC LEVEL, PREPARED TO A CURATION-READY CONDITION AND CURATED IN A SCIENTIFIC INSTITUTION WITH A PERMANENT PALEONTOLOGICAL COLLECTION, SUCH AS THE UNIVERSITY OF CALIFORNIA MUSEUM OF PALEONTOLOGY, ALONG WITH ALL PERTINENT FIELD NOTES, PHOTOS, DATA, AND MAPS. FOSSILS OF UNDETERMINED SIGNIFICANCE AT THE TIME OF COLLECTION MAY ALSO WARRANT CURATION AT THE DISCRETION OF THE QUALIFIED PALEONTOLOGIST. ADDITIONAL MEASURES SUCH AS IMPLEMENTATION OF A PALEONTOLOGICAL MITIGATION AND MONITORING PROGRAM AND PREPARATION OF A FINAL MITIGATION AND MONITORING REPORT MAY ALSO BE WARRANTED. POTENTIAL MITIGATION REQUIRED IN A PALEONTOLOGICAL MITIGATION AND MONITORING PROGRAM MAY INCLUDE, BUT WOULD NOT BE LIMITED TO IDENTIFICATION OF AREAS REQUIRING MONITORING, CONTRACTING OF A QUALIFIED PALEONTOLOGICAL MONITOR(S) TO CONDUCT ONGOING MONITORING, COLLECTION OF PALEONTOLOGICAL RESOURCES AND ASSOCIATED DATA, CURATION OF PALEONTOLOGICAL RESOURCES IN AN ACCREDITED INSTITUTION AND PREPARATION OF A FINAL MITIGATION AND MONITORING REPORT. (CDD-B, -E, PW)

71. **NATIVE AMERICAN CONSTRUCTION MONITORING (MM CR-4).** A NATIVE AMERICAN REPRESENTATIVE SHALL MONITOR ALL EARTH-MOVING ACTIVITIES WITHIN NATIVE SOIL. IF CULTURAL MATERIALS THAT MAY BE IMPORTANT TO NATIVE AMERICANS ARE IDENTIFIED DURING CONSTRUCTION, WORK IN THE IMMEDIATE AREA MUST HALT AND THE FIND EVALUATED FOR SIGNIFICANCE UNDER CEQA. SHOULD THE PROJECT SITE BE DETERMINED TO HAVE LITTLE IF ANY POTENTIAL TO IDENTIFY CULTURAL MATERIALS THAT MAY BE IMPORTANT TO NATIVE AMERICANS, THE NATIVE AMERICAN REPRESENTATIVE MAY RECOMMEND THAT MONITORING BE REDUCED OR ELIMINATED AFTER CONSULTING WITH THE CITY. (CDD-B, -E, PW)

72. **DESIGN-LEVEL GEOTECHNICAL INVESTIGATION AND FINAL GRADING PLAN (MM GEO-2).** PRIOR TO ISSUANCE OF A GRADING PERMIT FOR THE PHASED DEVELOPMENT OF THE PROJECT, A DESIGN-LEVEL GEOTECHNICAL INVESTIGATION SHALL BE CONDUCTED AND MUST SHOW THAT SLOPES AND RETAINING WALLS ON THE PROJECT SITE WOULD BE STABLE UNDER BOTH STATIC AND SEISMIC CONDITIONS. THE DESIGN-LEVEL GEOTECHNICAL INVESTIGATION SHALL BE PREPARED BY A REGISTERED PROFESSIONAL GEOTECHNICAL ENGINEER AND SHALL PROVIDE SLOPE STABILITY ANALYSES BASED ON THE FINAL PROJECT DESIGN AND SHALL INCLUDE ADEQUATE FACTORS OF SAFETY FOR BOTH STATIC AND SEISMIC CONDITIONS. THE DESIGN-LEVEL GEOTECHNICAL INVESTIGATION SHALL EVALUATE THE FINAL GRADING PLAN FOR THE PROJECT AS WELL AS FINAL DESIGN PLANS FOR ONSITE STRUCTURES AND FOUNDATIONS. THE DESIGN-LEVEL GEOTECHNICAL INVESTIGATION SHALL RECOMMEND SLOPE STABILIZATION MEASURES, AS NECESSARY, TO ENSURE THAT SOILS ON THE PROJECT SITE REMAIN STABLE FOLLOWING GRADING AND CONSTRUCTION OF ONSITE STRUCTURES UNDER BOTH STATIC AND SEISMIC CONDITIONS. THESE MEASURES SHALL BE INCORPORATED INTO THE FINAL GRADING PLANS TO ENSURE SLOPES ARE STABLE UNDER THE CONDITIONS ANALYZED IN THE DESIGN-LEVEL GEOTECHNICAL INVESTIGATION. SLOPE STABILIZATION MEASURES MAY INCLUDE, BUT ARE NOT LIMITED TO: DECREASING THE INCLINATION OR HEIGHT OF THE GRADED SLOPE, BACKFILLING WITH LIGHTWEIGHT MATERIAL, INSTALLING PLASTIC MESH REINFORCEMENTS OR ROCK-FILLED BUTTRESSES, INSTALLING DRAIN PIPES OR OTHER DRAINAGE SYSTEMS, INSTALLING RETAINING WALLS, OR INSTALLING ANCHORS, BOLTS, OR MICRO-PILES, OR CHEMICALLY TREATING THE SOIL TO STABILIZE THE SLOPE. (CDD-B, -E, PW)

73. **RAINGARDEN OPERATIONS & MAINTENANCE MANUAL (MM HWQ-1).** THE PROJECT APPLICANT SHALL PREPARE AN OPERATIONS AND MAINTENANCE MANUAL FOR THE PROPOSED RAINGARDENS. THE OPERATIONS AND MAINTENANCE MANUAL SHALL INCLUDE, AT A MINIMUM, A SCHEDULE OF ANNUAL MAINTENANCE ACTIVITIES THAT THE APPLICANT SHALL BE RESPONSIBLE FOR COMPLETING. IN ORDER TO FACILITATE MAINTENANCE OF THE RAINGARDENS, THE OPERATIONS AND MAINTENANCE MANUAL SHALL SPECIFY THAT THE RAINGARDENS WILL BE PLANTED WITH NATIVE GRASSES, SEDGES AND RUSHES, AND THAT PLANTING OF TREES IN THE RAINGARDEN SHALL BE AVOIDED. THE OPERATIONS AND MAINTENANCE MANUAL SHALL ALSO PROHIBIT MAINTENANCE ACTIVITIES FROM OCCURRING DURING THE BREADING SEASON OF CALIFORNIA RED-LEGGED FROG (DECEMBER THROUGH MAY), AND THAT IDEALLY MAINTENANCE SHALL BE CONDUCTED DURING SEPTEMBER. THE APPLICANT SHALL SUBMIT THE OPERATIONS AND MAINTENANCE MANUAL TO THE CITY FOR REVIEW AND APPROVAL PRIOR TO ISSUANCE OF THE SITE GRADING OR BUILDING PERMITS FOR PHASE TWO OF THE PROJECT. (CDD-E, PW)

74. **DUST CONTROL.** BLOWING DUST SHALL BE REDUCED BY TIMING CONSTRUCTION ACTIVITIES SO THAT PAVING AND BUILDING CONSTRUCTION BEGIN AS SOON AS POSSIBLE AFTER COMPLETION OF GRADING, AND BY LANDSCAPING DISTURBED SOILS AS SOON AS POSSIBLE. FURTHER, WATER TRUCKS SHALL BE PRESENT AND IN USE AT THE CONSTRUCTION SITE. ALL PORTIONS OF THE SITE SUBJECT TO BLOWING DUST SHALL BE WATERED AS OFTEN AS DEEMED NECESSARY BY THE CITY IN ORDER TO INSURE PROPER CONTROL OF BLOWING DUST FOR THE DURATION OF THE PROJECT. WATERING ON PUBLIC STREETS SHALL NOT OCCUR. STREETS WILL BE CLEANED BY STREET SWEEPERS OR BY HAND AS OFTEN AS DEEMED NECESSARY BY THE CITY. ALL PUBLIC STREETS AND MEDIANS SOILED OR LITTERED DUE TO THIS CONSTRUCTION ACTIVITY ARE TO BE CLEANED AND SWEPT ON A DAILY BASIS DURING THE WORKWEEK TO THE SATISFACTION OF THE CITY. TO MINIMIZE DUST/GRADING IMPACTS DURING CONSTRUCTION THE APPLICANT SHALL:
    a. SPRAY WATER ON ALL EXPOSED EARTH SURFACES DURING CLEARING, GRADING, EARTH MOVING AND OTHER SITE PREPARATION ACTIVITIES THROUGHOUT THE DAY TO MINIMIZE DUST.
    b. USE TARPAULINS OR OTHER EFFECTIVE COVERS ON ALL STOCKPILED EARTH MATERIAL AND ON ALL HAUL TRUCKS TO MINIMIZE DUST.
    c. SWEEP THE ADJACENT STREET FRONTAGES AT LEAST ONCE A DAY OR AS NEEDED TO REMOVE SILT AND OTHER DIRT WHICH IS EVIDENT FROM CONSTRUCTION ACTIVITIES.
    d. ENSURE THAT CONSTRUCTION VEHICLES ARE CLEANED PRIOR TO LEAVING THE CONSTRUCTION SITE TO PREVENT DUST AND DIRT FROM BEING TRACKED OFF-SITE.
    e. THE CITY SHALL HAVE THE AUTHORITY TO STOP ALL GRADING OPERATIONS, IF IN OPINION OF CITY STAFF, INADEQUATE DUST CONTROL OR EXCESSIVE WIND CONDITIONS CONTRIBUTE TO FUGITIVE DUST EMISSIONS. (CDD-E, PW)

75. **CONSTRUCTION TRAFFIC ROUTES (MM TRA-4).** CONSTRUCTION TRUCK TRAFFIC SHALL TRAVEL TO AND FROM THE SITE VIA BEACH STREET AND OHLONE PARKWAY SOUTH OF THE SITE. CONSTRUCTION TRUCK TRAFFIC MUST AVOID TRAVELLING ALONG THE MAIN STREET CORRIDOR AND IMMEDIATELY IN FRONT OF THE LANDMARK ELEMENTARY SCHOOL. ADDITIONALLY, A FLAGGER SHALL BE PROVIDED WHERE CONSTRUCTION TRUCK TRAFFIC ENTERS AND EXITS OHLONE PARKWAY. (CDD-E, PW)

76. **CONSTRUCTION TRAFFIC ROUTE VIA ERRINGTON ROAD.** CONSTRUCTION TRUCK TRAFFIC TO AND FROM THE SITE SHALL USE ERRINGTON ROAD AND AVOID USING LOMA VISTA DRIVE. CONSTRUCTION TRUCK TRAFFIC INCLUDES TRIPS ASSOCIATED WITH GRADING, DEMOLITION AND BUILDING ACTIVITIES. AS NOTED IN CONDITION OF APPROVAL NO. 72, A FLAGGER SHALL BE PROVIDED WHERE CONSTRUCTION TRUCK TRAFFIC ENTERS AND EXITS OHLONE PARKWAY. (CDD- E, PW)

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REGISTERED PROFESSIONAL ENGINEER
DAVID RAMSEY
NO. C73735
CIVIL
STATE OF CALIFORNIA

DAVID RAMSEY DATE
RCE# 73735

APN# 018-372-14
PLAN TYPE
RESIDENTIAL
SUBDIVISION

CONDITIONS OF APPROVAL
HILLCREST SUBDIVISION
511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

NUMBER	BY	DESCRIPTION	DATE
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SHEET:	C1.2

77. **ONSITE SUPERINTENDENT.** APPLICANT SHALL HAVE ONSITE AT ALL TIMES, A SUPERINTENDENT THAT SHALL ACT AS THE OWNER'S REPRESENTATIVE AND AS A POINT OF CONTACT FOR THE CITY'S PUBLIC WORKS INSPECTOR. THE SUPERINTENDENT SHALL BE AUTHORIZED BY THE OWNER TO DIRECT THE WORK OF ALL CONTRACTORS DOING WORK ON PUBLIC AND PRIVATE IMPROVEMENTS. (PW)

78. **UTILITY SCREENING.** THE LOCATIONS OF SURFACE MOUNTED UTILITY FACILITIES SUCH AS PEDESTALS, TRANSFORMERS BACKFLOW DEVICES AND FIRE SERVICES SHALL BE PLANNED SO THAT MAY BE SCREENED UTILIZING LANDSCAPING OR OTHER ACCEPTABLE, VISUALLY PLEASING MEANS, SUBJECT TO THE REVIEW AND APPROVAL OF THE COMMUNITY DEVELOPMENT DIRECTOR. (CDD-P, -E, PW)

79. **UNDERGROUND UTILITY SERVICE.** ELECTRIC AND COMMUNICATIONS SERVICES TO NEW BUILDINGS SHALL BE CONSTRUCTED UNDERGROUND. AERIAL SERVICES ARE PROHIBITED. (CDD- E, PW)

80. **LETTERS FROM DESIGN PROFESSIONALS.** PRIOR TO FINAL CITY ACCEPTANCE OF THE PROJECT, ALL DESIGN PROFESSIONALS WHO PREPARED IMPROVEMENT PLANS FOR THE PROJECT (CIVIL, GEOTECHNICAL, ELECTRICAL AND STRUCTURAL ENGINEERS), SHALL PROVIDE LETTERS ATTESTING THAT THEY HAVE PERIODICALLY MONITORED THE CONSTRUCTION AND HAVE REVIEWED THE COMPLETED WORK AND THAT IT WAS CONSTRUCTED IN SUBSTANTIAL CONFORMANCE WITH THEIR PLANS AND RECOMMENDATIONS. WHERE SPECIAL INSPECTIONS AND TESTING WERE INVOLVED, THE LETTERS OF COMPLIANCE SHALL BE ACCOMPANIED BY INSPECTION LOGS, TESTING AND ANALYSIS THAT SUPPORT THE ENGINEER'S CONCLUSIONS. (CDD-B, -E, PW)

81. **HAZARDOUS MATERIALS.** THE SUBDIVIDER SHALL BE SUBJECT TO COMPLIANCE WITH ALL APPLICABLE REGULATIONS GOVERNING THE DISPOSAL, USE, STORAGE, AND TRANSPORTATION OF HAZARDOUS MATERIALS INCLUDING: LOCAL FIRE CODES; THE HAZARDOUS MATERIALS TRANSPORTATION ACT; THE CALIFORNIA HEALTH AND SAFETY CODE; THE RESOURCE CONSERVATION AND RECOVERY ACT OF 1976; AND THE CALIFORNIA HAZARDOUS WASTE CONTROL ACT. (PW)

82. **SOLID WASTE.** ALL SOLID WASTE GENERATED INSIDE WATSONVILLE CITY LIMITS MUST BE HAULED FROM THE SITE OF GENERATION BY THE CITY OF WATSONVILLE SOLID WASTE DIVISION AS PER WATSONVILLE MUNICIPAL CODE, CHAPTER 6-3, CITY UTILITIES. THIS INCLUDES ALL WASTES GENERATED AT CONSTRUCTION SITES, EXCAVATION PROJECTS, LAND CLEARING, DEMOLITION, EARTHWORK PROJECTS, REMODELS, GRADING AND TENANT IMPROVEMENT PROJECTS. (PW)

83. **SOLID WASTE DISPOSAL.** THE APPLICANT SHALL PROVIDE SOLID WASTE DISPOSAL CONTAINERS ON-SITE DURING ALL PHASES OF CONSTRUCTION. THE ACCUMULATION OF REFUSE AND DEBRIS WHICH MAY CONSTITUTE AN UNSIGHTLY/UNSAFE PUBLIC NUISANCE TO SURROUNDING PROPERTIES IS NOT PERMITTED. (PW)

84. **ADDRESS ASSIGNMENTS.** APPLICANT SHALL SUBMIT AN APPLICATION FOR AN ADDRESS ASSIGNMENT FOR EACH NEW LOT. (CDD-E).

PRIOR TO OCCUPANCY, THE FOLLOWING CONDITIONS MUST BE ADHERED TO:

85. **IMPROVEMENTS.** ALL PUBLIC AND PRIVATE IMPROVEMENTS NECESSARY TO SERVE EACH UNIT INCLUDING WATER, SEWER, STORM DRAIN, LIGHTING, AND LANDSCAPING AND IRRIGATION SHALL BE CONSTRUCTED TO THE SATISFACTION OF THE COMMUNITY DEVELOPMENT AND PUBLIC WORKS AND UTILITIES DEPARTMENTS. (CDD-E, PW)

86. **AS BUILT PLANS.** SUBMIT ELECTRONIC COPIES (PREFERABLY IN PDF FILE FORMAT) OF THE APPROVED AS BUILT PLANS FOR CIVIL AND LANDSCAPE/IRRIGATION AND THE STORM WATER CONTROL PLAN & SEWER OPERATION & MAINTENANCE PLAN FOR CITY RECORD KEEPING. (CDD-E)

87. **RIGHT TURN OVERLAP SIGNAL PHASE (MM TRA-2A).** THE PROJECT APPLICANT SHALL ADD AN EASTBOUND MAIN STREET (HIGHWAY 152) RIGHT TURN OVERLAP SIGNAL PHASE TO THE INTERSECTION OF OHLONE PARKWAY - CLIFFORD AVENUE/MAIN STREET. THE ADDITION OF THIS SIGNAL PHASE WOULD ALLOW EASTBOUND MAIN STREET RIGHT TURN TRAFFIC TO PROCEED UNIMPEDED WHILE THE NORTHBOUND OHLONE PARKWAY LEFT TURN TRAFFIC IS ALSO MOVING. (PW, CALTRANS)

88. **SIGNAL TIMING & COORDINATION (MM TRA-2B).** THE PROJECT APPLICANT SHALL PROVIDE FOR MINOR SIGNAL TIMING ADJUSTMENTS AT THE INTERSECTION OF GREEN VALLEY ROAD/MAIN STREET (HIGHWAY 152). THE PROJECT APPLICANT SHALL ACCOMPLISH THESE TIMING ADJUSTMENTS BY EITHER RE-OPTIMIZING THE SIGNAL COORDINATION ALONG MAIN STREET, OR BY PROVIDING PRO RATA CONTRIBUTION TO INCLUDE THIS INTERSECTION IN THE CITY'S ADAPTIVE TRAFFIC CONTROL SYSTEM ALONG GREEN VALLEY ROAD AND INSTALL THE INTERSECTION IMPROVEMENTS REQUESTED VIA CALTRANS ENCROACHMENT PERMIT APPLICATION 0518 NSN 0244, SCR-152-T0.68. THE ENCROACHMENT PERMIT APPLICATION CALLS FOR THE
INSTALLATION OF A 2070 NAZTEC CONTROLLER WITH SYNCHROGREEN ADAPTIVE MODULE NETWORK SWITCH, AND PTZ CAMERA. IMPLEMENTATION OF THIS MITIGATION MEASURE WILL REQUIRE CALTRANS APPROVAL. THE PROJECT APPLICANT SHALL WORK WITH CALTRANS AND THE CITY TO FINALIZE SIGNAL TIMING MODIFICATIONS. (PW, CALTRANS)

89. **STOP SIGN AT WESTBOUND LOMA VISTA (STREET "A") AT PARAISO COURT/DEL RIO COURT.** THE PROJECT APPLICANT SHALL PROVIDE A STOP SIGN AT WESTBOUND LOMA VISTA (STREET "A") AT ITS INTERSECTION AT PARAISO COURT/DEL RIO COURT, WHICH WILL REDUCE SPEEDS AND PROVIDE MORE EQUAL RIGHT OF WAY PRIORITY FOR TRAFFIC EXITING THE EXISTING TOWNHOMES VIA PARAISO COURT AND DEL RIO COURT. IT WILL BE EXPECTED TO REDUCE SPEEDS OF VEHICLES EXITING THE PROJECT SITE AS THEY APPROACH THIS INTERSECTION. (PW)

KEY TO DEPARTMENT RESPONSIBILITY

CDD-B- COMMUNITY DEVELOPMENT DEPARTMENT (BUILDING) CDD-P - COMMUNITY DEVELOPMENT DEPARTMENT (PLANNING) CDD-E - COMMUNITY DEVELOPMENT DEPARTMENT (ENGINEERING) PW - PUBLIC WORKS DEPARTMENT
WFD - WATSONVILLE FIRE DEPARTMENT WPD - WATSONVILLE POLICE DEPARTMENT CAT - CITY ATTORNEY

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CITY OF WATSONVILLE
PLANNING COMMISSION

EXHIBIT C

APN: 018-372-14 & 018-381-01

APPLICATION NO: PP2016-199 & PP2017-116

APPLICANT: CALIFORNIA SUNSHINE DEVELOPMENT
HEARING DATE: JUNE 5, 2018

SPECIFIC DEVELOPMENT PLAN/SPECIAL USE PERMIT WITH DESIGN REVIEW
CONDITIONS OF APPROVAL

GENERAL CONDITIONS:

1. **APPROVAL.** THIS APPROVAL APPLIES TO THE PLAN SET IDENTIFIED AS "SUNSHINE VISTA HOMES" LOCATED AT 511 OHLONE PARKWAY, RECEIVED BY THE COMMUNITY DEVELOPMENT DEPARTMENT ON MAY 21, 2018, AND FILED BY PACIFIC SUNSHINE DEVELOPMENT LLC, APPLICANT/PROPERTY OWNER. (CDD-P)

2. **CONDITIONAL APPROVAL TIMEFRAME.** THIS SPECIAL USE PERMIT SHALL BE NULL AND VOID IF NOT ACTED UPON WITHIN **24 MONTHS** FROM THE EFFECTIVE DATE OF THE APPROVAL THEREOF. TIME EXTENSIONS MAY BE CONSIDERED UPON RECEIPT OF WRITTEN REQUEST SUBMITTED NO LESS THAN FORTY-FIVE (45) DAYS PRIOR TO EXPIRATION AND IN ACCORDANCE WITH THE PROVISIONS OF SECTION 14-10.1201 OF THE WATSONVILLE MUNICIPAL CODE (WMC). (CDD-P)

3. **MODIFICATIONS.** MODIFICATIONS TO THE PROJECT OR CONDITIONS IMPOSED MAY BE CONSIDERED IN ACCORDANCE WITH WMC SECTIONS 14-12.1000 AND 14-10.1305. ALL REVISIONS SHALL BE SUBMITTED PRIOR TO FIELD CHANGES AND ARE TO BE CLOUDED ON THE PLANS. (CDD-P)

4. **SUBSTANTIAL COMPLIANCE.** PROJECT DEVELOPMENT SHALL BE ACCOMPLISHED IN SUBSTANTIAL ACCORDANCE WITH THE APPROVED PLAN SET. ANY REQUIRED REVISIONS TO THE PLAN SET SHALL BE COMPLETED TO THE SATISFACTION OF THE COMMUNITY DEVELOPMENT DIRECTOR OR DESIGNEE. (CDD-P)

5. **GROUNDS FOR REVIEW.** THE PROJECT SHALL BE IN COMPLIANCE WITH THE CONDITIONS OF APPROVAL, ALL LOCAL CODES AND ORDINANCES, APPROPRIATE DEVELOPMENT STANDARDS, AND CURRENT CITY POLICIES. ANY DEVIATION WILL BE GROUNDS FOR REVIEW BY THE CITY AND MAY POSSIBLY RESULT IN REVOCATION OF THE USE PERMIT, PURSUANT TO PART 13 OF WMC CHAPTER 14-10. (CDD-P)

6. **EFFECTIVE DATE.** THIS USE PERMIT SHALL NOT BE EFFECTIVE UNTIL 14 DAYS AFTER APPROVAL BY THE DECISION-MAKING BODY OR FOLLOWING FINAL ACTION ON ANY APPEAL. (CDD-P)

7. **NECESSARY REVISIONS.** THE APPLICANT SHALL MAKE AND NOTE ALL REVISIONS NECESSARY TO COMPLY WITH ALL CONDITIONS OF APPROVAL. THE APPLICANT SHALL CERTIFY IN WRITING BELOW THE LIST(S) OF CONDITIONS THAT THE BUILDING PLANS COMPLY WITH THE CONDITIONS OF APPROVAL. (CDD-P)

8. **CONDITIONS OF APPROVAL.** A COPY OF THE FINAL CONDITIONS OF APPROVAL MUST BE PRINTED ON THE FIRST OR SECOND SHEET OF PLANS SUBMITTED FOR FUTURE PERMITS. ***PLANS WITHOUT THE CONDITIONS OF APPROVAL PRINTED DIRECTLY ON THE FIRST OR SECOND PAGE WILL NOT BE ACCEPTED AT THE PLAN CHECK PHASE.*** (CDD-P)

PROJECT SPECIFIC CONDITIONS:

9. **MITIGATION & MONITORING PLAN (MMP).** WHERE NOT IN CONFLICT WITH SPECIFIC CONDITIONS OF APPROVAL, THE PROJECT IS SUBJECT TO COMPLIANCE WITH THE MITIGATION & MONITORING PLAN ADOPTED FOR THE PROJECT. A REPORTING PROGRAM SHALL BE PREPARED AND SUBMITTED TO THE CITY THAT ESTABLISHES A FORMAT AND TIMING FOR SUBMITTAL OF HOW MITIGATIONS HAVE BEEN IMPLEMENTED. (CDD-P)

10. **AFFORDABLE HOUSING AGREEMENT.** THE APPLICANT SHALL EXECUTE AN AFFORDABLE HOUSING AGREEMENT APPROVED BY THE CITY COUNCIL IN ACCORDANCE WITH THE WMC CHAPTER 14-46, WHICH REQUIRES A MINIMUM OF 20 PERCENT OF THE UNITS TO BE RESERVED AS AFFORDABLE UNITS. THE AFFORDABLE HOUSING AGREEMENT SHALL BE EXECUTED PRIOR TO ISSUANCE OF A BUILDING PERMIT. (CDD-H, CAT)

11. **FENCING PLAN.** THE APPLICANT SHALL SUBMIT A FENCING PLAN FOR REVIEW AND APPROVAL BY THE COMMUNITY DEVELOPMENT DIRECTOR PRIOR TO ISSUANCE OF A BUILDING PERMIT. THE FENCING PLAN SHALL PROVIDE THE MATERIALS AND DESIGN ALONG WITH THE LOCATION AND HEIGHT OF THE NEW FENCING THAT ENCLOSES THE PRIVATE YARD AND/OR PATIO AREAS. ACCEPTABLE MATERIALS AND DESIGNS INCLUDE SOLID BOARD, DECORATIVE WOOD, ROD IRON AND MASONRY WALL FENCING. NEW FENCING SHALL NOT ENCLOSE COMMON OPEN SPACE AREAS TO THE REAR OF THE PROPOSED DUPLEX-STYLE TOWNHOUSES (I.E., BEHIND LOTS #46-57 AND LOTS #97-102). (CDD-P)

12. **COLORS & MATERIALS.** THE APPLICANT SHALL SUBMIT A COLOR AND MATERIALS BOARD FOR REVIEW AND APPROVAL BY THE COMMUNITY DEVELOPMENT DIRECTOR OR DESIGNEE PRIOR TO ISSUANCE OF A BUILDING PERMIT. (CDD-P)

13. **PEDESTRIAN ACCESS TO EMERGENCY ACCESS ROAD.** PEDESTRIAN ACCESS SHALL BE PROVIDED TO THE EMERGENCY VEHICLE/RESTRICT ACCESS ROAD CONNECTING THE SOUTHEAST CORNER OF THE PROJECT SITE TO AN EMERGENCY VEHICLE ACCESS ROAD EXTENDING FROM THE END OF A STREET IN THE SUNSHINE GARDEN RESIDENTIAL PROJECT. (CDD-P, -B)

14. **LANDSCAPING & IRRIGATION PLAN.** THE APPLICANT SHALL SUBMIT THREE COPIES OF THE FINAL LANDSCAPING AND IRRIGATION PLAN FOR REVIEW AND APPROVAL BY THE COMMUNITY DEVELOPMENT DIRECTOR PRIOR TO ISSUANCE OF A BUILDING PERMIT. THE LANDSCAPING PLAN SHALL PROVIDE DROUGHT-TOLERANT PLANTS SUITABLE FOR THE CENTRAL COAST REGION IN LANDSCAPING THE FRONT YARD, PATIO, PLANTER AND PERIMETER AREAS. THE IRRIGATION PLAN SHALL PROVIDE AN AUTOMATIC WATER SYSTEM (*E.G.*, DRIP SYSTEM) TO IRRIGATE ALL LANDSCAPE AREAS. (CDD-B-E-P)

A. LANDSCAPING - THE LANDSCAPE PLAN SHALL INDICATE THE TYPES, QUANTITIES, LOCATIONS AND SIZES OF ALL PLANT MATERIAL, INCLUDING ANY EXISTING MAJOR VEGETATION DESIGNATED TO REMAIN AND METHOD OF PROTECTING PLANTING AREAS FROM VEHICULAR TRAFFIC. THE LANDSCAPE PLAN SHALL BE DRAWN TO SCALE, AND PLANT TYPES SHALL BE CLEARLY LOCATED AND LABELED. THE PLANT LIST SHALL GIVE THE BOTANICAL NAME, COMMON NAME, GALLON SIZES TO BE PLANTED, AND QUANTITY OF EACH PLANTING. A MINIMUM OF 25 PERCENT OF ALL SHRUB MATERIAL SHALL HAVE A MINIMUM 5-GALLON CONTAINER SIZE. (CDD-E-P)

B. IRRIGATION SYSTEM - AUTOMATIC, LOW-FLOW IRRIGATION SYSTEM(S) SHALL BE INSTALLED IN ALL LANDSCAPED AREAS. IRRIGATION SHALL BE PROGRAMMED FOR NIGHT OR EARLY MORNING HOURS IN ORDER TO MINIMIZE EVAPORATION. (CDD-P)

C. WATER CONSERVATION - THE PROJECT SHALL UTILIZE WATER CONSERVATION, WATER RECYCLING, AND XERISCAPING TO THE MAXIMUM EXTENT POSSIBLE. IRRIGATION SYSTEMS SHALL BE DESIGNED AND MAINTAINED TO AVOID RUN-OFF, OVER-SPRAY, OR OTHER SIMILAR CONDITIONS WHERE WATER FLOWS TO WASTE. (CDD-B-E-P)

D. NEW TREES - AS PROPOSED IN THE PRELIMINARY LANDSCAPE PLANS, THE PROJECT SHALL PROVIDE A MINIMUM OF THIRTEEN TREES.

E. LANDSCAPE & IRRIGATION INSTALLATION - ALL LANDSCAPING AND IRRIGATION SHALL BE APPROVED AND INSTALLED PRIOR TO OCCUPANCY OF THE PROJECT. (CDD-P)

F. WATER EFFICIENT LANDSCAPE ORDINANCE - THE APPLICANT SHALL SUBMIT A LANDSCAPE DOCUMENTATION PACKAGE AND DEMONSTRATE COMPLIANCE WITH WMC SECTION 6-3.8 WATER EFFICIENT LANDSCAPE ORDINANCE. (CDD-P, -E)

15. **LANDSCAPE PLAN REVISIONS.** THE APPLICANT SHALL REVISE THE LANDSCAPE PLAN (SHEET L-1.0) TO:

A. PROVIDE LANDSCAPING AND/OR REVEGETATION ALONG THE PERIMETER OF THE SITE, IN BETWEEN THE NATURE TRAIL AND THE SLOUGH;

B. SHOW AN ACCESS PATH TO THE CONCRETE CAP/KNOB/OVERLOOK AREA; AND

C. ADD A NOTE STATING, "ALL PLANT MATERIAL USED WITHIN THE TRAIL CORRIDOR, RAINGARDEN, AND ALL AREAS OUTSIDE RESIDENTIAL AND STREET AREAS NEAR WETLANDS OR NATURAL OPEN SPACE, SHOULD INCLUDE ONLY PLANT SPECIES NATIVE TO THE WATSONVILLE SLOUGH WATERSHED. PRIOR TO PLANTING, CITY APPROVED BIOLOGIST SHALL REVIEW AND APPROVE PLANT MATERIAL, AND PROVIDE INSTRUCTIONS TO LANDSCAPE CONTRACTOR FOR LAYOUT OF PLANT MATERIAL. NATIVE PLANT MATERIAL SHOULD BE CONTRACTED IN ADVANCE SO IT CAN BE SOURCED FROM WITHIN THE PAJARO VALLEY WATERSHED TO THE MAXIMUM EXTENT POSSIBLE."

16. **NATURE TRAIL AND RAINGARDEN AREA PLANT MATERIAL.** THE APPLICANT SHALL REVISE THE LANDSCAPE PLAN (SHEET L-1.0) TO MODIFY THE PLANT MATERIAL AS FOLLOWS:

A. ENSURE CLEAR LINE-OF-SITE BETWEEN THE NATURE TRAIL AND RAINGARDEN, THEREBY BENEFITTING TRAIL USER SAFETY AND MORE EASILY FACILITATING ON-GOING MAINTENANCE OF THE RAINGARDEN;

B. WITHIN TRAIL CORRIDOR, WETLANDS, AND OPEN SPACE ADJACENT TO WETLANDS, PLANT MATERIAL SHOULD REFLECT PLANTS NATIVE TO WATSONVILLE SLOUGH WATERSHED;

C. FOR ALL LARGE NATIVE TREES OUTSIDE OF RETAINING WALL, WITHIN TRAIL CORRIDOR AND ADJACENT TO RAINGARDEN AREA, USE ONLY COAST LIVE OAK (*QUERCUS AGRIFOLIA*) OR WESTERN SYCAMORE (*PLANTANUS RACEMOSE*), WHERE POSSIBLE DUE TO SOIL MOISTURE CONDITIONS;

D. FOR ALL SMALL NATIVE TREES WITHIN THIS AREA, USE ONLY COFFEEBERRY (*FRANGULA CALIFORNICA*), TOYON (*HETEROMELES CALIFORNICA*), AND/OR ELDERBERRY (*SAMBUCUS CAERULEA*);

E. EXISTING RAINGARDEN AREA LANDSCAPE SELECTION PRESENTS SIGNIFICANT CONCERN FOR ANNUAL MAINTENANCE OF RAINGARDEN AND IS LIKELY TO PROVIDE LOCATIONS FOR ENCAMPMENTS AND HANGOUTS. IT WILL ALSO PROVIDE BENEFICIAL HABITAT FOR THREATENED WILDLIFE, SUCH AS CALIFORNIA RED-LEGGED FROGS AND NESTING BIRDS, COMPLICATING MAINTENANCE. MODIFY PLANT MATERIAL LIST FOR THE RAINGARDEN TO INCLUDE ONLY LOW GROWING NATIVE GRASSES, SEDGES AND RUSHES, SUCH AS:

I. CREEPING WILDRYE (*ELYMUS TRITICOIDES*)

II. MEADOW BARLEY (*HORDEUM BRACYANTHERUM*)

III. RED FESCUE (*FESTUCA RUBRA*)

IV. WESTERN GOLDENROD (*EUTHAMIA OCCIDENTALIS*)

V. MARSH BACCHARIS (*BACCHARIS GLUTINOSA*)

VI. BOG RUSH (*JUNCUS EFFUSES*)

VII. SPREADING RUSH (*JUNCUS PATENS*)

VIII. DENSE RUSH (*CAREX DENSA*)

IX. SANTA BARBARA SEDGE (*CAREX BARBARAE*)

F. SUBSTITUTE THE PROPOSED GROUND COVERS AND LOW SHRUBS WITH PLANTS FROM THE FOLLOWING LIST:

X. CREEPING WILDRYE (*ELYMUS TRITICOIDES*)

XI. HILL-DWELLER SEDGE (*CAREX TUMILACOLA*)

XII. CALIFORNIA LILAC (*CEANOTHUS THYSIFLORUS, "CARMEL CREEPER"*)

XIII. PACIFIC COAST IRIS (*IRIS DOUGLAUSIANA, "NON HYBRID"*)

XIV. HOOKERS MANZANITA (*ARCTOSTAPHYLOS HOOKERI*)

XV. PAJARO MANZANITA (*ARCTOSTAPHYLOS PAJAROENSIS*)

XVI. OCEAN SPRAY (*HOLODISCUS DISCOLOR*)

XVII. OTHER PLANT SPECIES NATIVE TO THE WATSONVILLE SLOUGH WATERSHED

BUILDING AND FIRE-RELATED CONDITIONS:

17. **REQUIRED PERMITS.** THE APPLICANT SHALL OBTAIN ALL REQUIRED BUILDING PERMITS (BUILDING, ELECTRICAL, PLUMBING, MECHANICAL, GRADING, ETC.) FOR THIS PROJECT. (CDD-B, -E)

18. **BUILDING CODE.** PROJECT CONSTRUCTION SHALL COMPLY WITH THE LATEST VERSION OF THE CALIFORNIA BUILDING CODE. (CDD-B)

19. **FIRE CODE.** PROJECT CONSTRUCTION SHALL COMPLY WITH CALIFORNIA FIRE CODE AS ADOPTED BY THE CITY (COMMENT SHEET ATTACHED). (WFD)

20. **KNOX BOX.** PLANS FOR A KEY LOCK BOX (KNOX-BOX) SYSTEM SHALL BE SUBMITTED TO THE CITY FIRE DEPARTMENT FOR APPROVAL AND PERMITS PRIOR TO INSTALLATION OF THE BOX. (WFD)

21. **ENERGY EFFICIENCY.** THE PROJECT DESIGN SHALL CONFORM WITH ENERGY CONSERVATION MEASURES ARTICULATED IN TITLE 24 OF THE CALIFORNIA ADMINISTRATIVE CODE AND WILL ADDRESS MEASURES TO REDUCE ENERGY CONSUMPTION SUCH AS LOW-FLOW SHOWER HEADS, FLOW RESTRICTORS FOR TOILETS, LOW CONSUMPTION LIGHTING FIXTURES, AND INSULATION AND SHALL USE DROUGHT TOLERANT LANDSCAPING. (CDD-B)

22. **ADDRESS ASSIGNMENT.** PRIOR TO BUILDING PERMIT ISSUANCE, COMPLETE AND SUBMIT AN

APPLICATION FOR ADDRESS ASSIGNMENT. (CDD-E)

23. **WORK HOURS.** NO WORK FOR WHICH A BUILDING PERMIT IS REQUIRED SHALL BE PERFORMED WITHIN THE HOURS OF 7 P.M. TO 7 A.M. MONDAY THROUGH FRIDAY, NOR PRIOR TO 8 A.M. OR AFTER 5 P.M. ON SATURDAY. NO WORK SHALL OCCUR ON SUNDAYS OR HOLIDAYS. A SIGN SHALL BE POSTED AT A CONSPICUOUS LOCATION NEAR THE MAIN ENTRY TO THE SITE, PROMINENTLY DISPLAYING THESE HOUR RESTRICTIONS AND IDENTIFYING THE PHONE # OF THE JOB SUPERINTENDENT. (CDD-B)

PRIOR TO OCCUPANCY, THE FOLLOWING CONDITIONS SHALL BE MET:

24. ALL TRASH AND CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE SITE. (CDD-B, PW)

ONGOING CONDITIONS:

25. ALL TRASH, RECYCLING AND GREENWASTE MATERIALS GENERATED ONSITE SHALL BE DISPOSED OF AT A CITY-APPROVED LANDFILL OR RECYCLING CENTER. THE APPLICANT SHALL CONTACT THE SOLID WASTE DIVISION OF THE CITY PUBLIC WORKS DEPARTMENT TO COORDINATE DISPOSAL OF ALL TRASH, RECYCLING AND GREENWASTE MATERIALS. (PW)

26. TRASH AND RECYCLING CONTAINERS SHALL BE STORED OUT OF PUBLIC VIEW WITHIN THE GARAGE OR STORAGE SHED OF EACH BUILDING, EXCEPT FOR THE 18-HOUR PERIODS DIRECTLY BEFORE AND AFTER SCHEDULED CITY COLLECTION SERVICES. (PW)

27. LANDSCAPING AND ALL OTHER SITE IMPROVEMENTS SHALL BE MAINTAINED IN PERPETUITY. LANDSCAPING SHALL BE MAINTAINED IN GOOD GROWING CONDITION BY A PROFESSIONAL LANDSCAPE MAINTENANCE COMPANY; AND SUCH MAINTENANCE SHALL INCLUDE, WHERE APPROPRIATE, WEEDING, MOWING, PRUNING, CLEANING, FERTILIZING AND REGULAR WATERING. ALL DEAD, DYING AND DISEASED VEGETATION SHALL BE IMMEDIATELY REPLACED IN KIND. (CDD-P)

28. COMMON OPEN SPACE AREAS, LANDSCAPING, STREET TREES, ROADWAY PAVEMENT, DRIVEWAYS, PARKING SPACES, WALKS, FENCES AND RETAINING WALLS SHALL BE MAINTAINED ON AN ONGOING BASIS BY THE HOMEOWNERS ASSOCIATION (HOA) FOR THE ENTIRE DEVELOPMENT AREA. (CDD-P)

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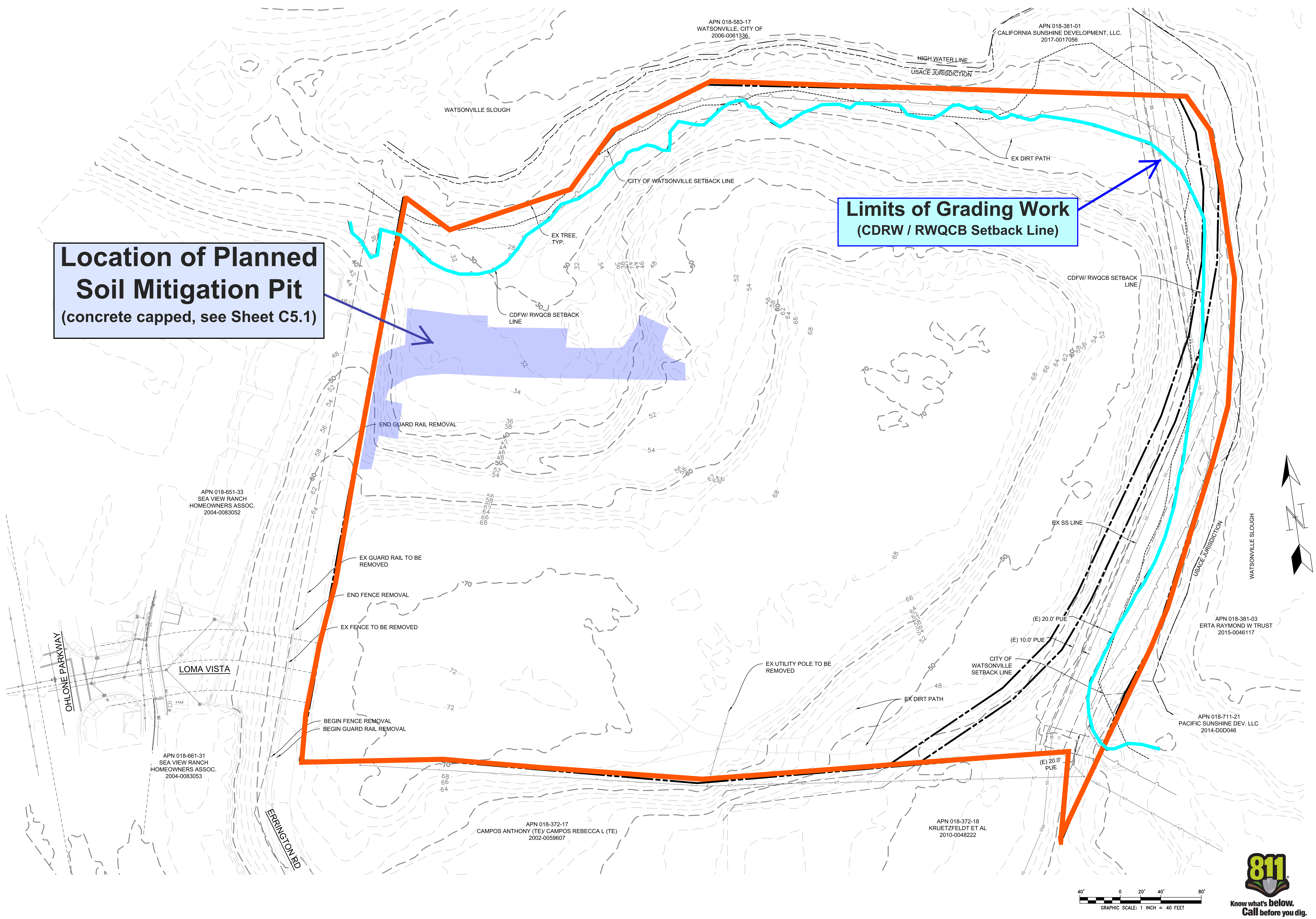

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REGISTERED PROFESSIONAL ENGINEER DAVID RAMSEY NO. C73735 CIVIL STATE OF CALIFORNIA

DAVID RAMSEY DATE
RCE# 73735

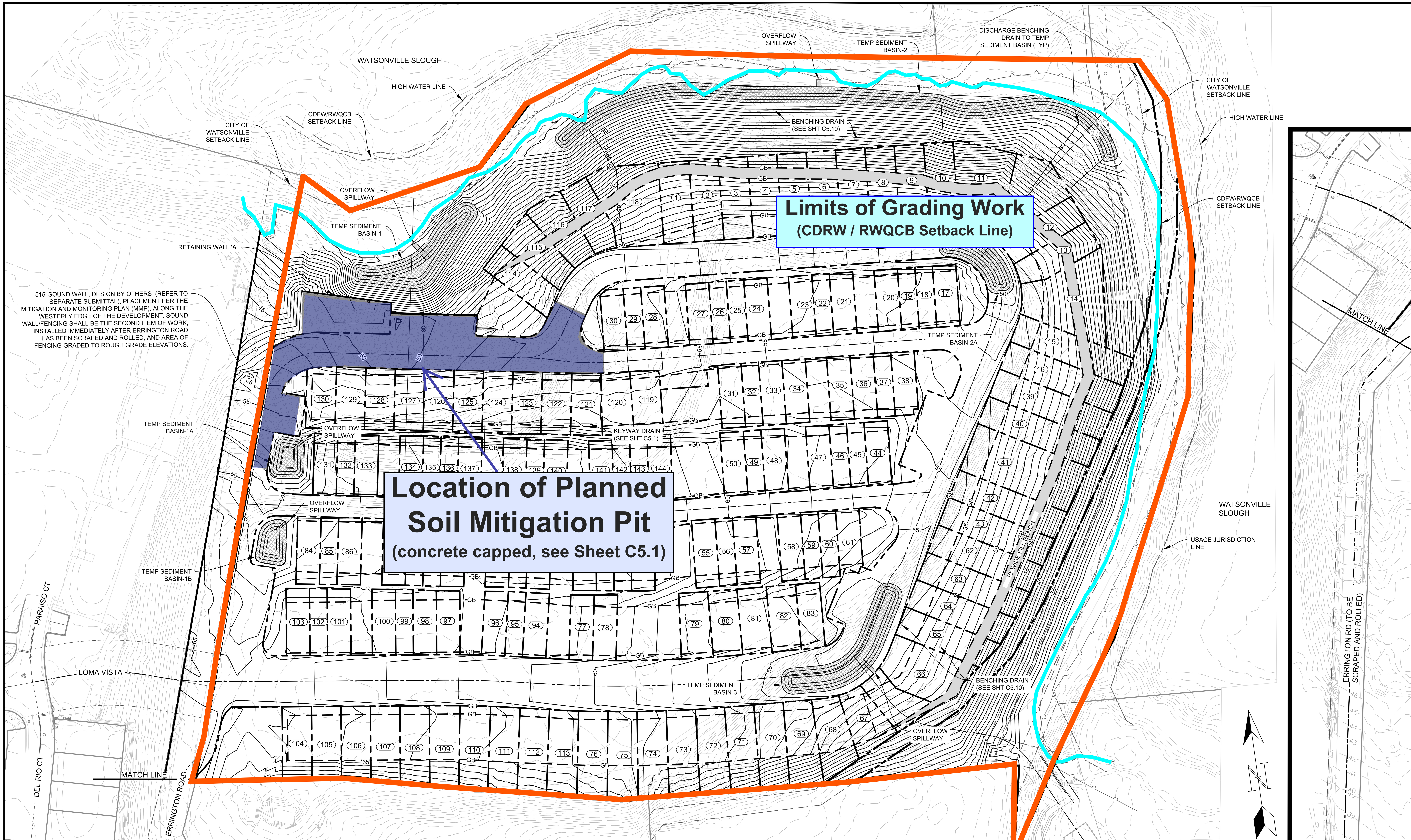
APN# 018-372-14
PLAN TYPE
RESIDENTIAL SUBDIVISION

EXISTING CONDITIONS
HILLCREST SUBDIVISION
511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

NUMBER	BY	DESCRIPTION	DATE
C	GS/DMR	RESPONSE 3 - PLAN CHECK COMMENTS 03/11/2022	03/18/2022
B	GS/DMR	RESPONSE 2 - PLAN CHECK COMMENTS 10/08/2021	01/20/2022
A	GS/DMR	RESPONSE 1 - PLAN CHECK COMMENTS 09/21/2021	09/29/2021

REVISION BLOCK

DRAWN BY:	GS
DESIGNED BY:	DMR
DATE:	08/12/2021
SCALE:	AS NOTED
PROJECT NO:	20-021
SHEET:	C2.0



ROUGH GRADING NOTES

1. DEVELOPER SHALL ASSIGN AN ONSITE SUPERINTENDENT FOR THE GRADING ACTIVITIES, WHOM WILL REMAIN ONSITE AT ALL TIMES DURING CONSTRUCTION ACTIVITIES.
2. GRADING PLAN SHALL COMPLY WITH THE CITY OF WATSONVILLE GRADING ORDINANCE, UNLESS OTHERWISE SPECIFIED, IN THE INSTANCE OF THE PROPOSED 2:1 SLOPES. ADDITIONAL TESTING HAS BEEN PERFORMED BY MPEG FOR SOIL STABILITY. IT IS MPEG'S PROFESSIONAL OPINION THAT THE PROPOSED USE OF 2:1 SLOPES IS ACCEPTABLE FOR THIS DESIGN. SEE SUPPLEMENTAL GEOTECHNICAL REPORT AND REVIEW LETTER.
3. GRADING, INCLUDING EXCAVATION AND FILL ACTIVITIES, SHALL ADHERE TO THE RECOMMENDATIONS AND REQUIREMENTS SET FORTH IN THE SUPPLEMENTAL GEOTECHNICAL EVALUATION FOR THE HILLCREST RESIDENTIAL SUBDIVISION, PREPARED BY MILLER PACIFIC ENGINEERING GROUP, DATED JANUARY 20, 2022 (PROJECT NO. 3317.001)
4. ERRINGTON ROAD SHALL BE USED AS THE EGRESS/INGRESS FOR GRADING ACTIVITIES. THE EXISTING ROAD BASE SHALL BE SCRAPED, AND POT HOLES FILLED, TO CREATE A SMOOTH ACCESS ROAD. GENERAL SLOPES AND CROSS SLOPES OF THE ROAD SHALL REMAIN WITH MINOR CHANGES.
5. A FULL TRAFFIC CONTROL PLAN, IF REQUIRED, WILL BE PROVIDED BY THE GENERAL CONTRACTOR UPON APPROVAL OF PLANS.
6. REFER TO SHEET C5.7 FOR TEMPORARY SEDIMENT BASIN DETAILS.
7. THE GEOTECHNICAL ENGINEER MAY ADJUST THE LOCATION OF THE FILL BENCHING AS NEEDED IN FIELD DURING CONSTRUCTION. THE GEOTECHNICAL ENGINEER WILL BE ON-SITE DURING THESE GRADING ACTIVITIES AND SHALL DIRECT THE CONTRACTOR ACCORDINGLY. ADDITIONAL SLOPE DRAINS MAY BE NECESSARY AND WILL BE DETERMINED BY THE GEOTECHNICAL ENGINEER IN FIELD. THE GEOTECHNICAL ENGINEER SHALL HAVE FULL DISCRETION TO ADJUST THE LOCATION OF THE PROPOSED BENCHING DRAINS AS NEEDED IN FIELD.

HATCH LEGEND

- REMEDIATION PIT WITH CONC CAP
- TEMPORARY SEDIMENT BASIN (PER SHEET C5.7)
- FILL BENCHING (SEE SECTIONS SHEET C5.10)

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REGISTERED PROFESSIONAL ENGINEER DAVID RAMSEY NO. C73735 CIVIL STATE OF CALIFORNIA
DAVID RAMSEY DATE
RCE# 73735

APN# 018-372-14

PLAN TYPE
RESIDENTIAL SUBDIVISION

FULL SITE ROUGH GRADING & DRAINAGE PLAN

HILLCREST SUBDIVISION

511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

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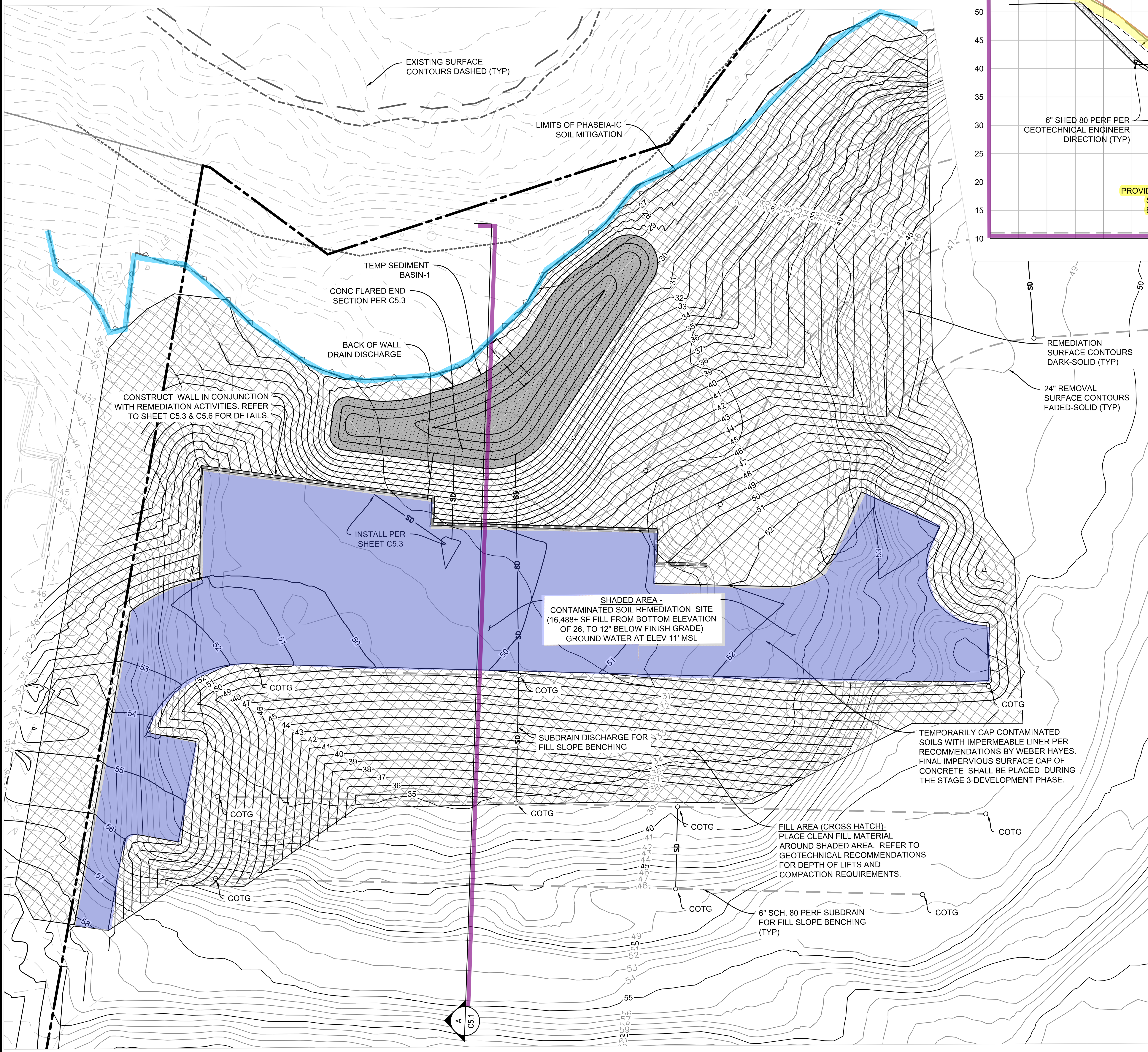
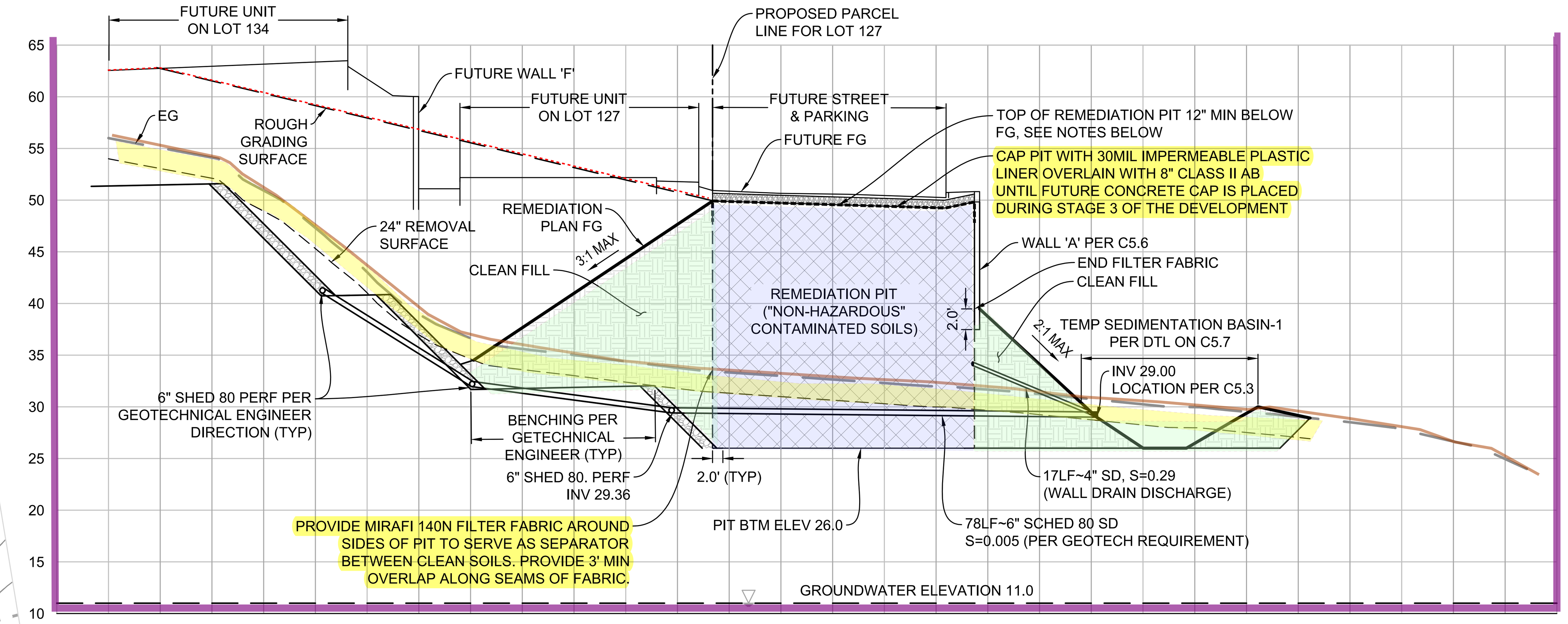
Exhibit B





SECTION - A

H: 1" = 20'
V: 1" = 10'

SECTION NOTES:

1. THIS SECTION IS PROVIDED FOR GRAPHICAL REPRESENTATION ONLY.
2. ALL 'FUTURE' ELEMENTS SHOWN ARE TO BE CONSTRUCTED DURING THE DEVELOPMENT PHASES OF THIS PROJECT. THEY ARE SHOWN FOR GRAPHICAL REFERENCE ONLY.
3. WALL FOOTINGS ARE NOT SHOWN.
4. FUTURE BUILDING FOUNDATIONS ARE NOT SHOWN.
5. CONTRACTOR TO PROVIDE TEMPORARY SAFETY RAILING AT TOP OF WALL UNTIL FINAL RAILING IS INSTALLED.
6. CONTRACTOR TO COORDINATE ALLOWABLE CONSTRUCTION VEHICLE SETBACKS TO WALL 'A' FOR SAFE PASSAGE WITH STRUCTURAL ENGINEER.
7. FINAL SECTION OF ROAD BASE ABOVE REMEDIATION PIT MAY VARY, BUT FOR ROUGH GRADING PURPOSES IS ASSUMED TO BE 12" MAX. SECTION. IF FINAL SECTION EXCEEDS 12" THEN ADDITIONAL CONTAMINATED SOILS WILL BE EXCAVATED AND REMOVED OFFSITE TO AN APPROVED FACILITY, AS NOTED BELOW.
8. REFER TO THE GEOTECHNICAL EVALUATION REPORT, BY MILLER PACIFIC ENGINEERING GROUP, DATED 3/4/21 AND REVISED 01/20/22, FOR GEOTECHNICAL RECOMMENDATIONS AND REQUIREMENTS.
9. CONTRACTOR SHALL ENSURE THAT AN ASSOCIATE FROM WEBER HAYES IS PRESENT DURING THE PLACEMENT OF CONTAMINATED FILLS.
10. A LICENSED SURVEYOR SHALL STAKE THE LIMITS OF THE FILL PIT TO VERIFY THAT THE BOTTOM ELEVATION OF 26.0 HAS BEEN MET AND THAT THE APPROPRIATE FOOTPRINT IS MAINTAINED. THE CONTRACTOR SHALL USE GPS TECHNOLOGY TO VERIFY THAT THE CONTAMINATED SOILS ARE PLACED IN THE CORRECT LOCATION DURING THE FILLING PROCESS. A LICENSED SURVEYOR SHALL VERIFY THE FINAL ELEVATION AND EXTENTS OF THE FILL PIT.
11. THE SURVEYOR SHALL VERIFY THE FOOTPRINT AREA OF THE PIT FOR APPROXIMATELY EVERY FIVE FEET OF VERTICAL FILL TO ENSURE THAT THE FOOTPRINT IS BEING MAINTAINED. IF EXCESS CONTAMINATED FILL EXTENDS BEYOND THE FOOTPRINT, MATERIAL SHALL BE REMOVED AND PLACED ON TOP OF THE NEXT FILL SECTION.
12. THE EXACT LOCATION AND LIMITS OF THE FILL BENCHING SHALL BE SUBJECT TO THE DISCRETION OF THE GEOTECHNICAL ENGINEER IN FIELD.

PLAN NOTES:

1. THE 'REMEDIATION SURFACE CONTOURS' SHOWN ON THIS SHEET ARE INTENDED TO BE A TEMPORARY DESIGN CONDITION (INTERMEDIATE GRADING BETWEEN EXISTING CONDITION AND ROUGH GRADING CONDITION). REFER TO SHEET C5.0 FOR 'FINAL' ROUGH GRADING CONTOURS.
2. THE EXACT LOCATION AND LIMITS OF THE FILL BENCHING SHALL BE SUBJECT TO THE DISCRETION OF THE GEOTECHNICAL ENGINEER IN FIELD.
3. ALL DISCIPLINES INCLUDING CIVIL, GEOTECHNICAL, AND ENVIRONMENTAL CONSULTANTS WILL BE DIRECTLY INVOLVED DURING THE ROUGH GRADING PROCESS AND WILL PROVIDE ADDITIONAL SUPPORT AND DIRECTION AS NEEDED AND/OR AS REQUESTED BY THE CONTRACTOR(S).

20' 0 10' 20' 40'
GRAPHIC SCALE: 1 INCH = 20 FEET

PROJECT SITE - PHASE I(a), I(b), & I(c)

PRE-SITE IMPROVEMENTS: SOIL MITIGATION & ROUGH GRADING SEQUENCE

PHASE I(a) 1,500 CY CLASS I HAZ SOILS OFF-HAUL PER WEBER, HAYES REPORT (REFER TO QUADRANTS 8, 9 & 11, ON SHEET C5.2, AS DESIGNATED BY WEBER HAYES AND ASSOCIATES), TO KETTLEMAN HILL HAZARDOUS WASTE FACILITY.

PHASE I(b) 8,240 CY* SOURCE: THE TOP 6 INCHES (SURFACE LAYER) FROM ACROSS THE ENTIRE SITE. THESE CLASS 3, NON-HAZARDOUS CONTAMINATED SOILS TO BE OFF-HAULED TO HOLLISTER, CA

PHASE I(c) 25,460 CY** SOURCE: SOIL FROM THE TOP 6-TO-24-INCHES TO BE REMOVED FOLLOWING PHASE 1(b). 830 CY OF THESE NON-HAZARDOUS CONTAMINATED SOILS TO BE INSTALLED IN COMPACTED LIFTS IN THE REMEDIATION PIT AND THE REMAINING VOLUME (APPROXIMATELY 6,600 CY) SHALL BE OFF-HAULED TO AN APPROVED SITE OR CLASS II LANDFILL.

TOTAL CONTAMINATED SOIL VOLUMES	35,200 CY
-TOTAL VOLUMES BURIED ON-SITE	18,000 CY
-TOTAL VOLUMES REMOVED OFF SITE	17,200 CY

*AFTER DEDUCING 555 CY OF KETTLEMAN, CA OFF-HAUL
**AFTER DEDUCTING 945 CY OF KETTLEMAN, CA OFF-HAUL

NOTES FOR PHASE I (c) - SPECIFIC REFERENCE TO C5.1 AND C5.2:

1. AFTER PHASE I(B) REMOVAL OF 6 INCHES ON QUADRANTS #1 THROUGH # 4, THE NEXT 18 INCHES OF SOIL, IS PLACED ON QUADRANTS # 5 THROUGH #8. THEN THE SOIL IN QUADRANTS #1 THROUGH #4 (MINIMUM 24 IN FROM EXISTING GRADE) WILL BE NON-CONTAMINATED (CLEAN) SOILS. THESE SOILS WILL BE REMOVED AS NECESSARY TO FILL IN THE AREAS TO THE WEST, EAST, AND SOUTH OF THE PROPOSED REMEDIATION PIT. THE NORTH SIDE OF THE REMEDIATION PIT SHALL BE CONTAINED BY THE CONSTRUCTION OF THE REMEDIATION PIT WALL. CLEAN SOILS WILL BE SCRAPPED FROM THE MIDDLE PORTION OF THE PROPERTY AFTER THE 24 INCHES ARE REMOVED.
2. EXCAVATE SOILS IN THE REMEDIATION PIT TO A DEPTH OF 15 FT MINIMUM ABOVE THE HIGH WATER MARK (ELEVATION 11). THIS SOIL IS STOCKPILED ON THE SITE (SEE C5.2) IN QUADRANT 1 THROUGH #4 ESTIMATED AT 5,605 CY. THE REMEDIATION PIT, AT THE TIME IT STARTS TO ACCEPT CONTAMINATED SOILS, HAS A BOTTOM DEPTH ELEVATION = 26FT MIN (15FT ABOVE MSL ELEVATION=11).
3. THE REMEDIATION PIT WILL BE CONSTRUCTED BACKFILLING WITH CONTAMINATED SOILS IN INCREMENTS WHILE SIMULTANEOUSLY CONSTRUCTING THE BLOCK WALL ALONG THE NORTH SIDE OF THE REMEDIATION PIT. PLACE GEO-GRID REINFORCEMENT MATERIAL AS DIRECTED BY THE STRUCTURAL PLANS. BACKFILLING ASSUMES A 15% COMPACTION FACTOR AT 12 IN LIFTS COMPACTED AT 90% MIN. RELATIVE COMPACTION, OR AS DIRECTED OTHERWISE BE THE GEOTECHNICAL ENGINEER.
4. ONCE THE FINAL ELEVATION OF THE PIT IS REACHED, 12 INCHES BELOW FINAL PAVEMENT/CONCRETE ELEVATIONS, INSTALL A TEMPORARY IMPERMEABLE PLASTIC LINER (30 MIL MIN.) TOPPED WITH CLEAN BACKFILL MATERIAL.
5. REMEDIATION PIT ON-SITE VOLUME CAPACITY FOR CONTAMINATED SOIL IS ESTIMATED TO BE 18,000 CY, TAKEN TO BOTTOM OF IMPERVIOUS SURFACE SUBBASE.
6. APPROXIMATELY 7,460 (PHASE I(c)) CY OF SURPLUS, NON-HAZARDOUS CONTAMINATED SOIL GENERATED FROM THE UPPER 2-FEET OF SOILS AND ARE IN EXCESS OF THE REMEDIATION PIT CAPACITY OF 18,000 CY, SHALL BE OFF-HAULED TO AN APPROVED SITE OR CLASS II LANDFILL.

OTHER MITIGATIONS

- NATURE TRAIL SOIL MITIGATION WILL CONSIST OF REMOVAL OF 12-INCHES OF SOIL AND REPLACTEMENT WITH A CAP OF CLEAN SOIL AND ASPHALT (I.E. 9-INCHES OF COMPACTED CLASS II AGGREGATE BASE OVERLAIN BY 3-INCHES OF ASPHALT). THE STRUCTURAL SECTION OF THE NEW TRAIL AREA =12,865 SF [476 CY OF OFF-HAUL MATERIAL]

GENERAL NOTES

1. CONTAMINATED SOIL REMEDIATION AREA TO OCCUR UNDER IMPERVIOUS SURFACES PER WEBER HAYES REPORT. THE TEMPORARY CONDITIONS WILL INCLUDE AN IMPERMEABLE LINER WITH CLASS II BASE ROCK SET ATOP OF LINER. ONCE UTILITIES HAVE BEEN INSTALLED THE FINAL CAP OF CONCRETE WILL BE PLACED , PER WHA REPORT.
2. EXCAVATED MATERIALS (NON-CONTAMINATED) TO BE USED ELSEWHERE ON-SITE FOR FILL PURPOSES.
3. ALL VOLUMES ARE APPROXIMATE AND VOLUMES TO BE CONVERTED TO TONNAGE AT THE RATIO OF 1.48
4. A TOTAL OF 7,635 CY OF CLEAN (NON-CONTAMINATED) SOILS, FROM THE SITE, SHALL BE USED FOR BACKFILLING ADJACENT TO THE REMEDIATION PIT. THEREFORE, IN ADDITION TO THE VOLUMES FROM ITEM 2, ABOVE, AN ADDITIONAL 1,930 CY OF NON-CONTAMINATED SOILS SHALL BE EXCAVATED FROM THE SITE FOR THESE FILL ACTIVITIES.

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REGISTERED PROFESSIONAL ENGINEER
DAVID RAMSEY
NO. C73735
CIVIL
STATE OF CALIFORNIA

DAVID RAMSEY DATE
RCE# 73735

APN# 018-372-14

PLAN TYPE
RESIDENTIAL
SUBDIVISION

REMEDIATION PIT GRADING PLAN

HILLCREST SUBDIVISION

511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

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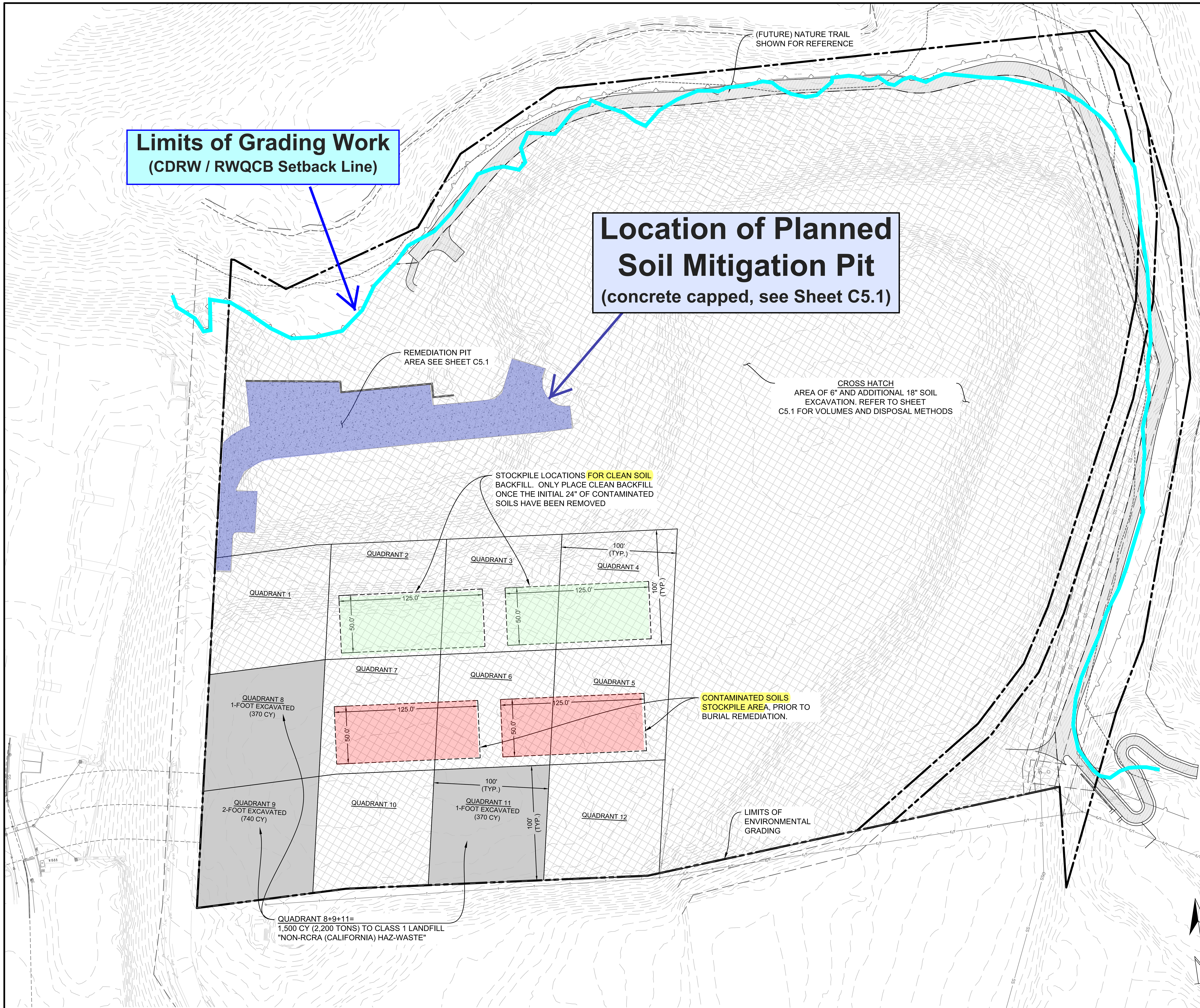
Exhibit



NOTES:

1. EXCAVATION ACTIVITIES SHALL BE PERFORMED BY A CALIFORNIA LICENSED CONTRACTOR WITH A HAZARDOUS SUBSTANCE REMOVAL CERTIFICATION PER SECTION 5.2 OF THE UPDATED REMEDIAL ACTION PLAN, BY WEBER HAYES AND ASSOCIATES, DATED JANUARY 12, 2021 (UPDATED FROM THE ORIGINALLY APPROVED REPORT DATED JUNE 15, 2018, AND ANY SUBSEQUENT REVISIONS.
2. QUADRANT AREA ARE PER WEBER HAYES & ASSOCIATES FIG. 1 (PROJECT 2X623) LANDFILL ACCEPTANCE OF SURPLUS SOILS
3. REFER TO SHEET C5.1 FOR SOIL DISPOSAL BREAKDOWN
4. VOLUMES SPECIFIED IN QUADRANTS 8, 9 AND 11 SHALL BE DISPOSED OF AT A CLASS 1 LANDFILL.
5. ALL REMAINING SOILS FROM THE 24" EXCAVATION ARE NON-HAZARDOUS, AND SHALL BE EITHER BURIED AND CAPPED ONSITE, OR REMOVED TO AN APPROVED SITE OR CLASS 2 LANDFILL, SEE SHEET C5.1 FOR VOLUME BREAKDOWN.
6. ONCE THE UPPER 24" OF SOIL HAS BEEN REMOVED, THE CONTRACTOR SHALL COORDINATE WITH AN ASSOCIATE FROM WEBER HAYES TO DETERMINE THE LOCATION AND FREQUENCY OF SOIL TESTING THAT IS REQUIRED IN ORDER TO VERIFY THAT THE UNDERLYING SOIL MEETS THE ACCEPTABLE CONTAMINANT LEVELS PER THE REMEDIAL ACTION PLAN.
7. THE SITE SHALL BE WATERED TWO TIMES PER DAY TO CONTROL CONSTRUCTION DUST PER THE EIR IMPACT AIR-5.
8. GRADING QUANTITIES SHOWN ON THESE PLANS FOR PHASE 1A & PHASE 1B ARE APPROXIMATE ONLY. QUANTITIES DO NOT INCLUDE POTENTIAL TRASH OR DEBRIS VOLUMES.
9. ALL DISTURBED GROUND SHALL BE STABILIZED PRIOR TO OCTOBER 15. THE APPLICANT SHALL OBTAIN AUTHORIZATION FROM THE CITY OF WATSONVILLE IF GROUND AND SOIL DISTURBANCE ON THE PROJECT IS EXPECTED TO OCCUR IN THE WINTER SEASON, BEYOND OCT. 15.
10. ALL PROPOSED SITE REMEDIATION AND MONITORING TASKS WILL BE COMPLETED AND DOCUMENTED UNDER THE DIRECT SUPERVISION OF A CALIFORNIA REGISTERED PROFESSIONAL GEOLOGIST WITH EXPERTISE IN ENVIRONMENTAL ASSESSMENT AND REMEDIATION.
11. A LICENSED SURVEYOR WILL ESTABLISH PRE-EXCAVATION GRADE AND THE SELECTED EARTHWORKS CONTRACTOR WILL USE LASER/GIS TECHNOLOGY TO CONTROL GRADING DEPTHS.
12. WEBER, HAYES, & ASSOCIATES STAFF WILL MANAGE ENVIRONMENTAL ASPECTS OF THIS PROJECT INCLUDING AGENCY COORDINATION, ENVIRONMENTAL SITE SAFETY (INCLUDING DAILY TAIL GATE SAFETY MEETINGS), DETERMINING THE LIMITS OF THE TARGET EXCAVATIONS, COLLECTION OF BASE AND SIDEWALL SAMPLES WHERE NECESSARY FOR CONFIRMATION LABORATORY TESTING, SOIL STOCKPILE MANAGEMENT, LANDFILL ACCEPTANCE PROFILING AND DISPOSAL DOCUMENTATION, AND SUMMARY REPORTING.
13. EARTHWORKS: ALL SOIL REMOVAL, STOCKPILING, AND TRUCK LOADING WORK WILL BE CONDUCTED USING HEAVY EQUIPMENT (EXCAVATORS, BACKHOES) AND THE TRANSPORT OF IMPACTED SOILS TO THE BURIAL ENVELOPE AND/OR TO A CLASS I/III LANDFILL BE USE TARP END DUMPS). THERE WILL NO TRENCH WORK/WORKERS FOR THIS GRADING PROJECT AND NO CONSTRUCTION WORKER ENTRY INTO THE SHALLOW EXCAVATIONS IS EXPECTED. SITE ACCESS WILL BE CONTROLLED TO ALLOW ONLY AUTHORIZED PERSONNEL ON-SITE.
14. EARTHWORKS WILL BE MONITORED VISUALLY USING WINDSOCKS, FLAGGING AND HAND-HELD WIND METERS TO GAUGE WIND SPEED, AND ON-GOING PARTICULATE MONITORING TO MEASURE AND CONTROL DUST ON-SITE. SOILS WILL BE WETTED AS NECESSARY TO PREVENT VISIBLE DUST DRIFT AND EARTHWORKS WILL BE HALTED IF WIND GUSTS EXCEED 15 MPH OR IF CONTINUOUSLY-MEASURED PARTICULATE DUST IN THE WORK AREA OR AT THE PERIMETER EXCEEDS REGULATORY LEVELS DOCUMENTS IN THE SITE SAFETY & DUST MONITORING PLAN (SEPARATE SUBMITTAL). GLOVES WILL BE USED WHEN HANDLING SOILS.
15. SITE SOILS WILL BE REMOVED USING STANDARD EARTHMOVING EQUIPMENT AND ELEVATION CONTROL/SAMPLE LOCATIONS WILL BE CONFIRMED BY A LICENSED SURVEYOR TO ESTABLISH PRE-EXCAVATION GRADE/SAMPLE LOCATION AND LASER/GIS TECHNOLOGY TO BE USED BY THE EARTHWORKS CONTRACTOR TO CONTROL GRADING DEPTHS. EXCAVATED SOILS WILL BE SEGREGATED AND STOCKPILED ON-SITE FOR LANDFILL ACCEPTANCE TESTING AND THEN LOADED ONTO TRUCKS FOR HAZARDOUS AND NON-HAZARDOUS TRANSPORT TO A LOCAL CLASS I/III LANDFILL (ACCEPTANCE PENDING RESULTS OF STOCKPILE SAMPLE TESTING AND LANDFILL ACCEPTANCE PROFILE APPROVAL).
16. ANY STOCKPILED SOILS FROM THE TARGET (IMPACTED) LOCATIONS WILL BE PLACED ON AN IMPERMEABLE SURFACE (i.e., ASPHALT, PLASTIC SHEETING); IF EXCAVATED MATERIAL IS PLACED ON NATIVE SOILS, AT LEAST 2-TO-4 INCHES OF UNDERLYING SOILS WILL BE SCRAPED TO PREVENT LEAVING CROSS-CONTAMINATED SOILS AT THE SITE. ALL STOCKPILES WILL BE TARPED WITH PLASTIC SHEETING THAT IS ADEQUATELY HELD DOWN TO PREVENT WIND DISTURBANCE OF THE COVER OR INFILTRATION FROM RAINS.

PHASE IA-PHASE IC:
NO GRADING SHALL OCCUR WITHIN THE JURISDICTIONAL SETBACK LINES ALONG THE WATSONVILLE SLOUGH - CONTRACTOR SHALL STAKE SETBACK LINE AND STRING BETWEEN STAKES TO PREVENT GRADING FROM CROSSING INTO SETBACK AREAS.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)
A SWPPP (STORWATER POLLUTION PREVENTION PLAN) HAS BEEN ESTABLISHED THIS PROJECT. REFER TO CALIFORNIA STATE WATER BOARD: WDID# - 3 44C380348

EXCERPTS FROM RAP REPORT:
DISCLAIMER: THE FOLLOWING INFORMATION IS SHOWN FOR REFERENCE ONLY. REFER TO THE FINAL RAP REPORT BY WEBER HAYES & ASSOCIATES FOR OFFICIAL DOCUMENTATION. REFER TO FULL RAP REPORT FOR ALL ATTACHMENT REFERENCES.

FROM SECTION 6.1.2 CONFIRMATION SAMPLING:

- CONFIRMATION SAMPLES WILL BE COLLECTED FROM THE BASE OF THE DEEPER EXCAVATIONS AND SIDE-WALLS IN ACCORDANCE WITH SC-HSA SITE MITIGATION STANDARDS (SC-HSA, 2010). IN ADDITION, AT THE COMPLETION OF GRADING IN EACH OF THE TEN (10) SITE SUB AREAS, CONFIRMATIONS BASE SAMPLES WILL BE COLLECTED TO CONFIRM THAT REMOVAL GOALS HAVE BEEN ACHIEVED (SEE STOCKPILE PLAN & CONFIRMATION TESTING GRID, FIGURE 7).
  - SPECIFICALLY, TWO (2), 4-POINT COMPOSITE SAMPLES PER SUB AREA WILL BE TESTED FOR THE FULL RANGE OF COPCs PREVIOUSLY DETECTED IN THAT SUB AREA.
  - THE TWO (2), 4-POINT COMPOSITE SAMPLES (8 SAMPLES PER SUB AREA) WILL BE COLLECTED EQUIDISTANTLY THROUGHOUT THE SUB AREA. THE STATE-CERTIFIED TESTING LABORATORY WILL COMPLETE THE COMPOSTING AT THEIR FACILITY. IF THE COMPOSITE SAMPLE COPC CONCENTRATION EXCEEDS $\frac{1}{4}$ THE VALUE OF APPLICABLE SCREENING THRESHOLD (i.e., ESL OR BTV), THEN EACH OF THE FOUR DISCREET SAMPLES COMPRISING THAT COMPOSITE SAMPLE BE INDEPENDENTLY ANALYZED. ADDITIONAL SOIL REMOVAL WILL BE COMPLETED UNTIL SCREENING THRESHOLDS ARE ACHIEVED.
- **CLEARANCE**: INDIVIDUAL SUBAREA/DEEPER EXCAVATION AREAS (DESCRIBED ABOVE) WILL ONLY BE DESIGNED AS CLEAN-CLOSED 1) BASED ON STATE-CERTIFIED LABORATORY RESULTS AND 2) WITH CONCURRENCE BY ENVIRONMENTAL HEALTH STAFF.
- REFER TO APPENDIX E OF THE RAP REPORT FOR SOIL SAMPLING FIELD METHODOLOGY.

20' 0 10' 20' 40'
GRAPHIC SCALE: 1 INCH = 20 FEET

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PLAN TYPE
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SITE ENVIRONMENTAL GRADING PLAN
HILLCREST SUBDIVISION
511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

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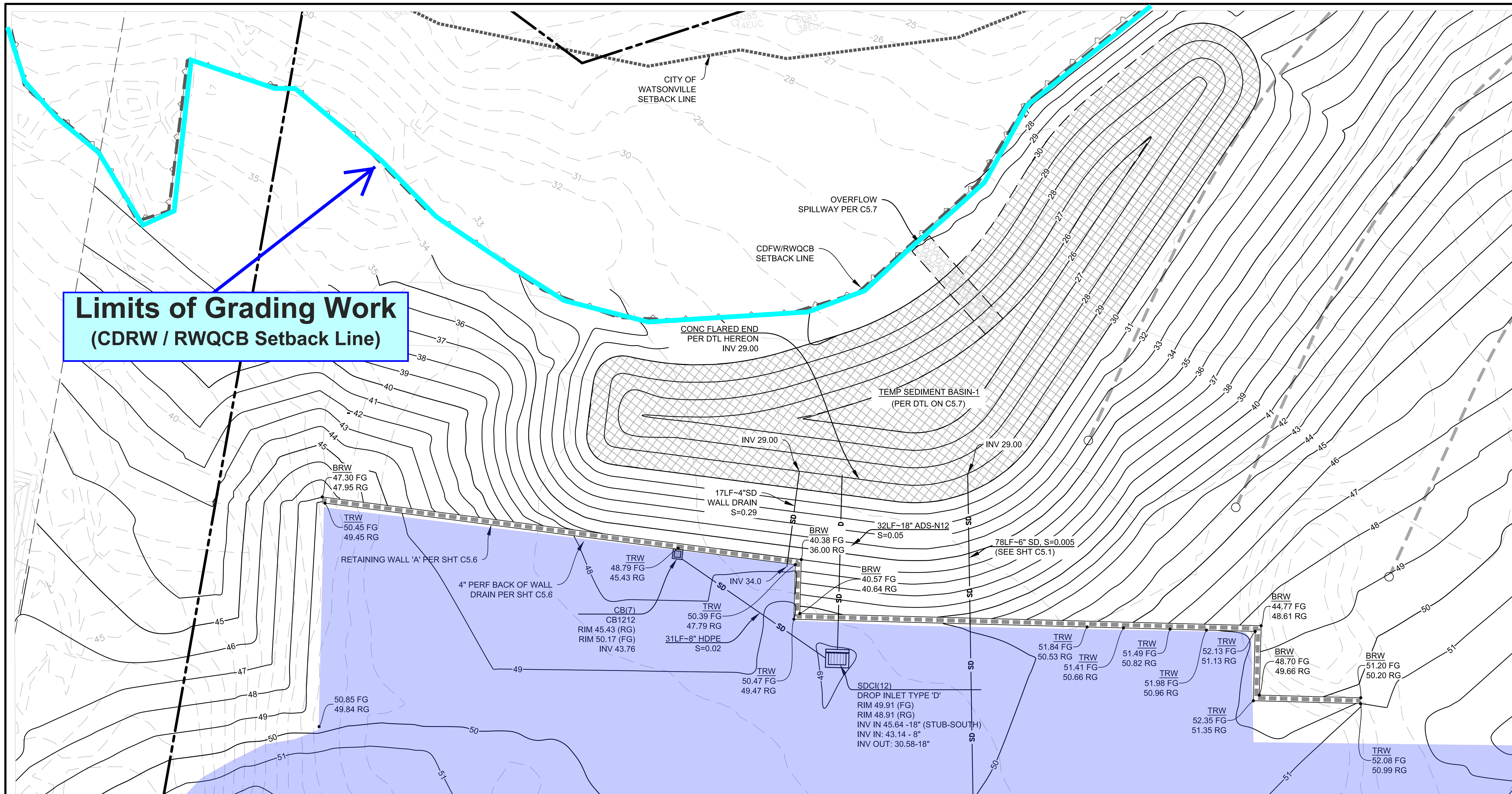
Exhibit B

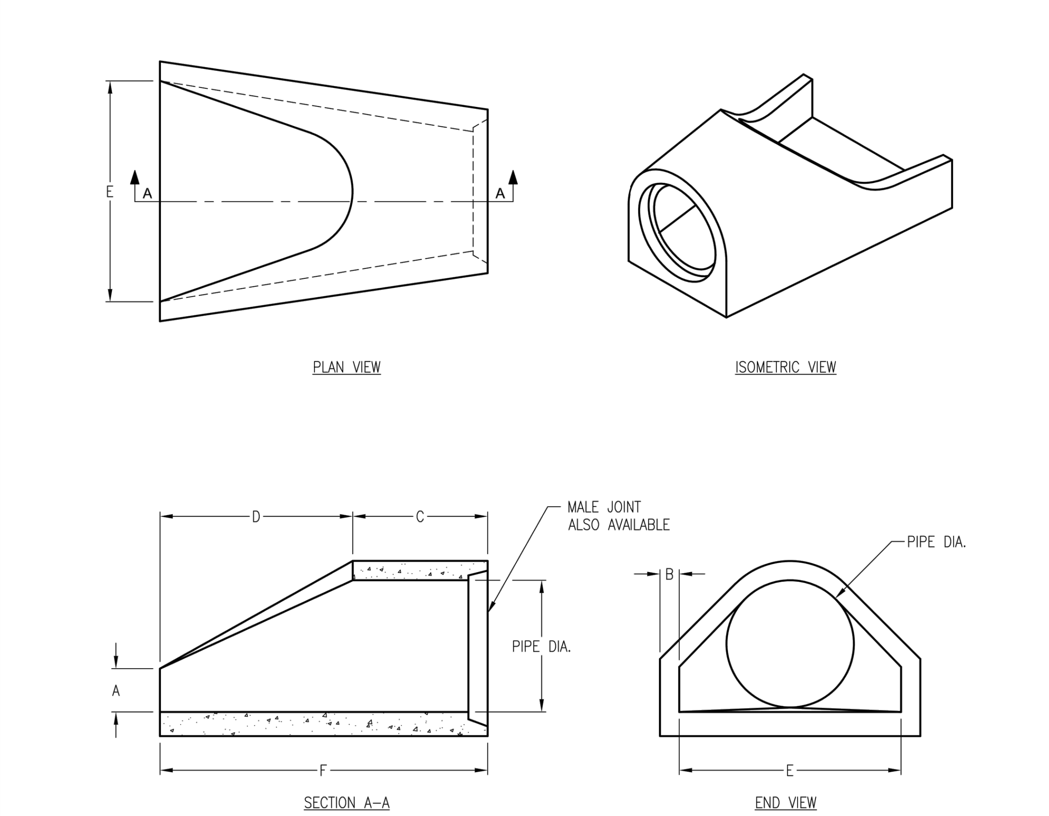


LEGEND:
XX.XX FG - FUTURE FINISHED GRADES (SHOWN FOR REFERENCE ONLY)
XX.XX RG - ROUGH GRADING ELEVATIONS

NOTES:
1. REINFORCEMENT SHALL BE EQUAL TO THAT REQUIRED FOR CLASS III RCP OF CORRESPONDING DIAMETER PER CALTRANS SPECIFICATIONS.

CDOT–14–2

PIPE DIA.	A	B	C	D	E	F	WEIGHTS LBS.
12"	4"	2"	13"	24"	24"	37"	400
18"	9"	2½"	13"	27"	36"	40"	900
24"	9½"	3"	16"	42"	48"	56"	1,400
30"	12"	3½"	18"	54"	60"	72"	2,300
36"	15"	4"	18"	63"	72"	81"	4,100
42"	21"	5"	18"	63"	78"	81"	5,200
48"	24"	5"	18"	72"	84"	90"	6,500
54"	27"	6"	18"	65"	90"	83"	7,400

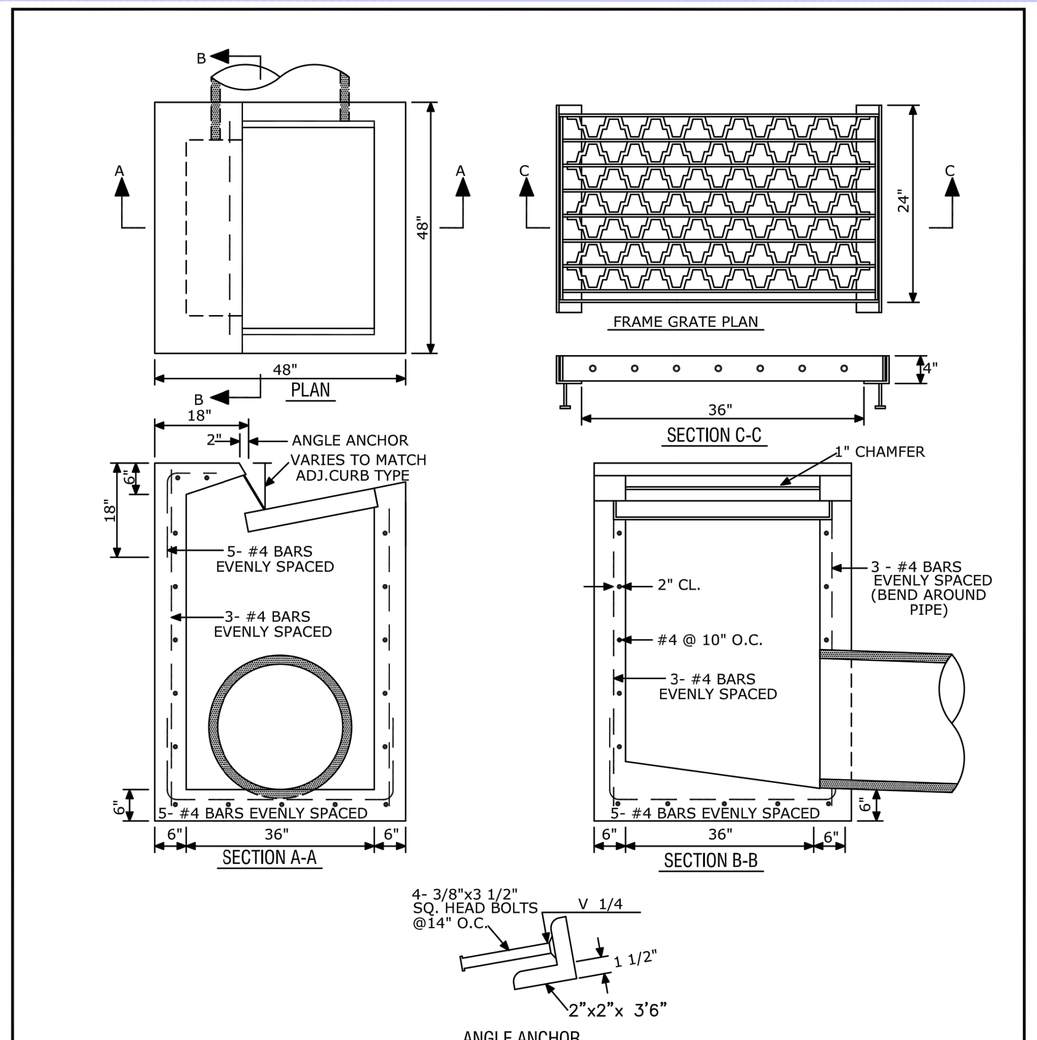


DRAWING MAY NOT CONFORM TO THE MOST CURRENT SPECIFICATION

Oldcastle Precast
Northern California
Madera • Morgan Hill • Pleasanton • Santa Rosa • Stockton • Tulare
Phone: 925-750-6650 Fax: 925-750-6660

FLARED ENDS
FILE NAME: CDOT–14–2.DWG
REVISED: MARCH 2016
www.oldcastleprecast.com

CONCRETE FLARED END SECTIONS CALTRANS



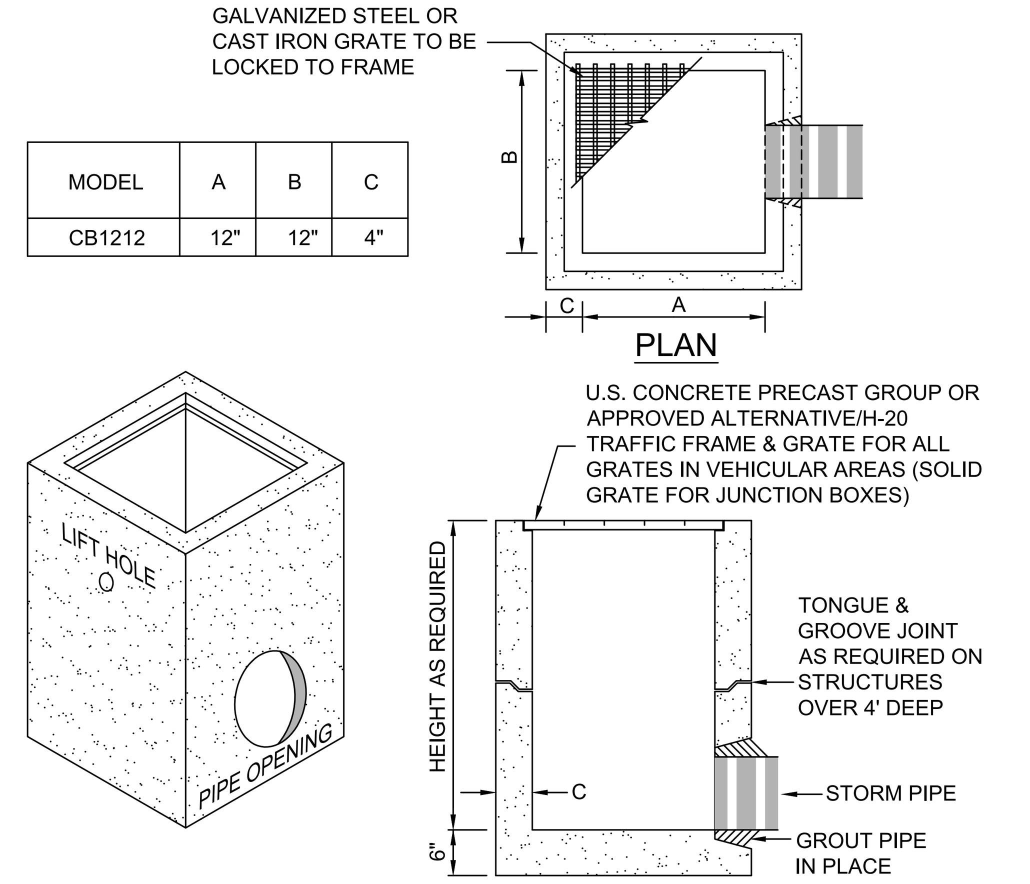
NOTES:
1) GRATE SHALL BE GRADE TYPE 24-10S AS DETAILED BY CALTRANS STANDARD PLAN D77B.
2) FRAME SHALL BE AS DETAILED BY CALTRANS STANDARD PLAN D77A.
3) CONCRETE SHALL CONFORM TO THE PROVISIONS OF SECTION 90-2, "MINOR CONCRETE", OF THE CALTRANS STANDARD SPECIFICATIONS.
4) PRE-CAST BASES ARE PROHIBITED.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

NOT TO SCALE	CITY OF WATSONVILLE	STANDARD DRAWING FOR DROP INLET TYPE "D"	DRAWN: 9/11	REV.: 5/13
DRAWN BY: P.A.C.			RESOLUTION: 76–13 (CM)	
CHECKED BY: T.S.		MARIA ESTHER RODRIGUEZ, CITY ENGINEER	DRAWING No. S-205	

GALVANIZED STEEL OR CAST IRON GRATE TO BE LOCKED TO FRAME

MODEL	A	B	C
CB1212	12"	12"	4"



NOTES:
1. ALL GRATES WITHIN DRIVE AISLES AND WALKWAYS SHALL BE HEEL PROOF ACCESSIBLE AND RATED FOR H-20 HEAVY TRAFFIC LOADING.
2. ENSURE THAT THE BASE OF THE CATCH BASIN IS WATER-TIGHT IN ORDER TO PREVENT SEEPAGE INTO THE UNDERLYING SOILS.

CATCH BASIN 1212
NTS

PLAN NOTES:
1. ALL PROPOSED ELEVATIONS ARE BASED ON THE ROUGH FINISHED GRADE SURFACE, UNLESS SPECIFIED OTHERWISE.
2. REFER TO SHEET C5.6 FOR WALL 'A' DESIGN DETAIL.
3. COORDINATE WALL GEO-GRID INSTALLATION WITH CATCH BASIN & PIPE INSTALLATION.
4. CATCH BASIN RIM ELEVATIONS SHALL BE SET TO ROUGH GRADING (RG) ELEVATIONS. UPON FINAL IMPROVEMENTS, RIMS SHALL BE RAISED TO FINAL FINISHED GRADE ELEVATIONS (FG).

GRAPHIC SCALE: 1 INCH = 20 FEET

Know what's below. Call before you dig.

RAMSEY CIVIL ENGINEERING INC
CIVIL ENGINEERING
LAND PLANNING
PROJECT MANAGEMENT
CONSTRUCTION SUPPORT
QSD AND QSP SERVICES

2905 KRISTIE COURT
SANTA CRUZ, CA 95065
TEL (831) 462-2905
www.ramseycivilengineering.com

REGISTERED PROFESSIONAL ENGINEER DAVID RAMSEY NO. C73735 CIVIL STATE OF CALIFORNIA
DAVID RAMSEY RCE# 73735 DATE

APN# 018-372-14
PLAN TYPE
RESIDENTIAL SUBDIVISION

ROUGH GRADING - WALL 'A'
HILLCREST SUBDIVISION
511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

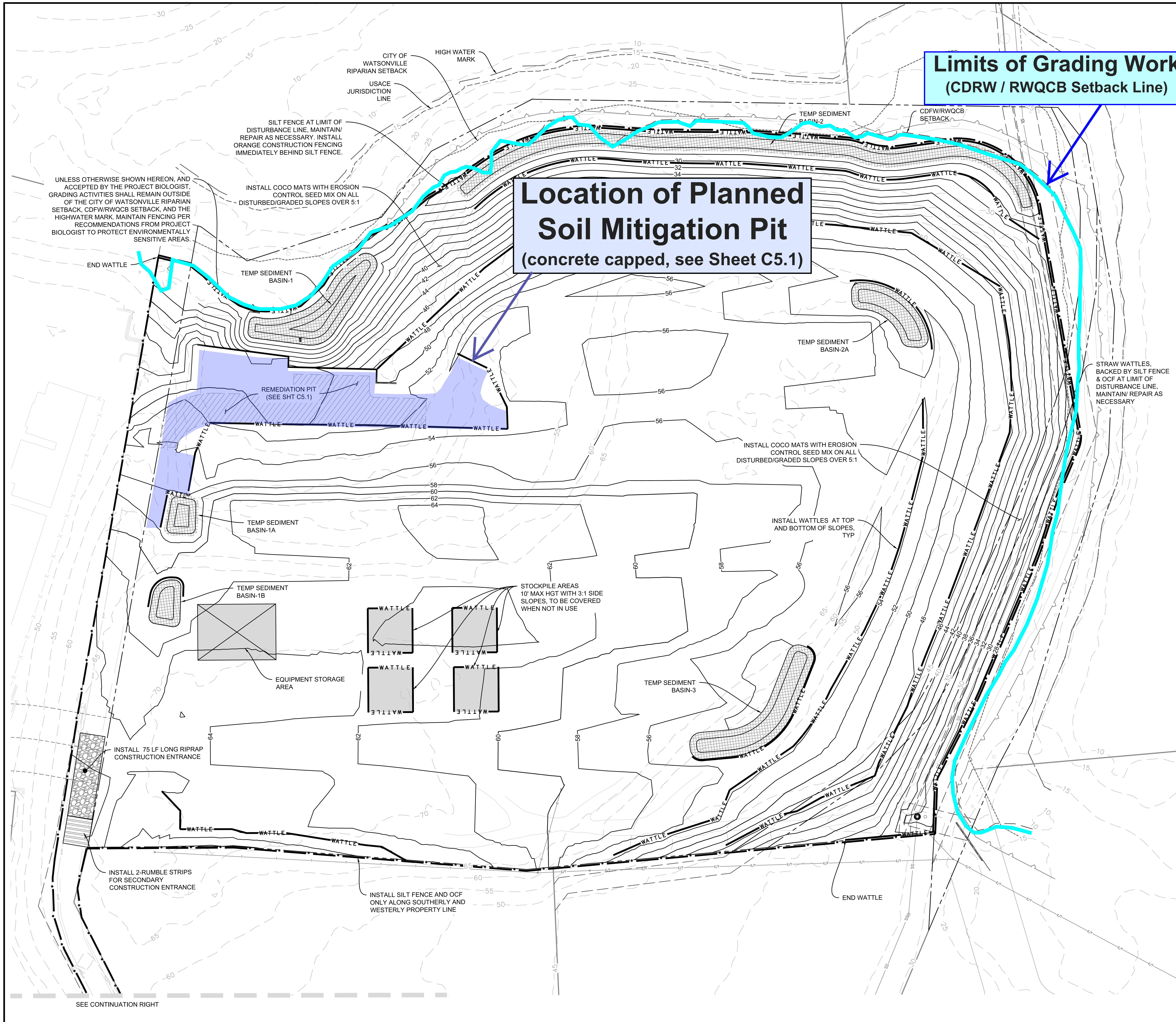
NUMBER	BY	DESCRIPTION	DATE
C	GS/DMR	RESPONSE 3 - PLAN CHECK COMMENTS 03/11/2022	03/18/2022
B	GS/DMR	RESPONSE 2 - PLAN CHECK COMMENTS 10/08/2021	01/20/2022
A	GS/DMR	RESPONSE 1 - PLAN CHECK COMMENTS 09/21/2021	09/29/2021

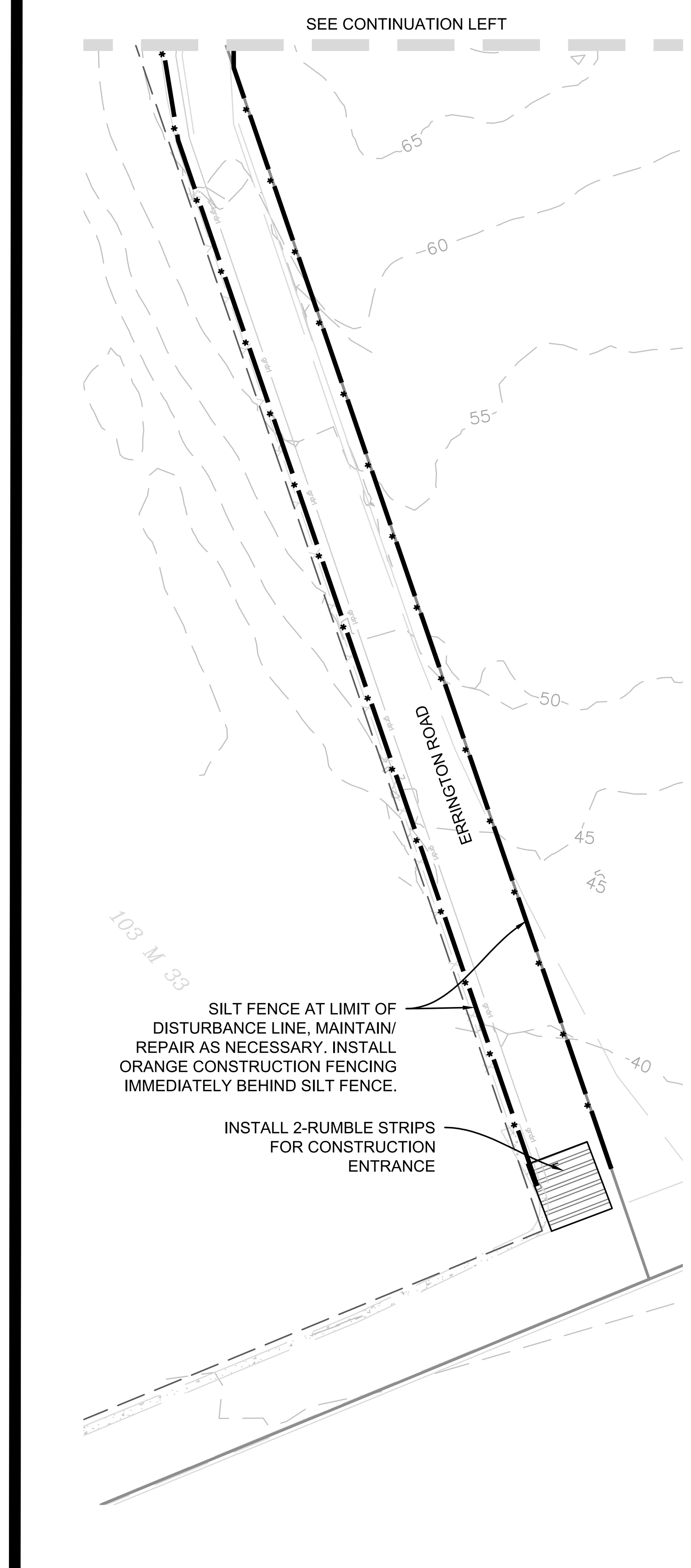
REVISION BLOCK

DRAWN BY:	GS
DESIGNED BY:	DMR
DATE:	08/12/2021
SCALE:	AS NOTED
PROJECT NO:	20-021

SHEET:
C5.3

Exhibit B





NOTE:
1. REFER TO SHEET C5.5 FOR ALL EROSION CONTROL PLAN NOTES.
2. EXISTING CONTOURS ARE SHOWN AT 5-FOOT INTERVALS.
3. PROPOSED CONTOURS ARE SHOWN AT 2-FOOT INTERVALS.

GRAPHIC SCALE: 1 INCH = 40 FEET

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PROJECT MANAGEMENT
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2905 KRISTIE COURT
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DAVID RAMSEY RCE# 73735 DATE

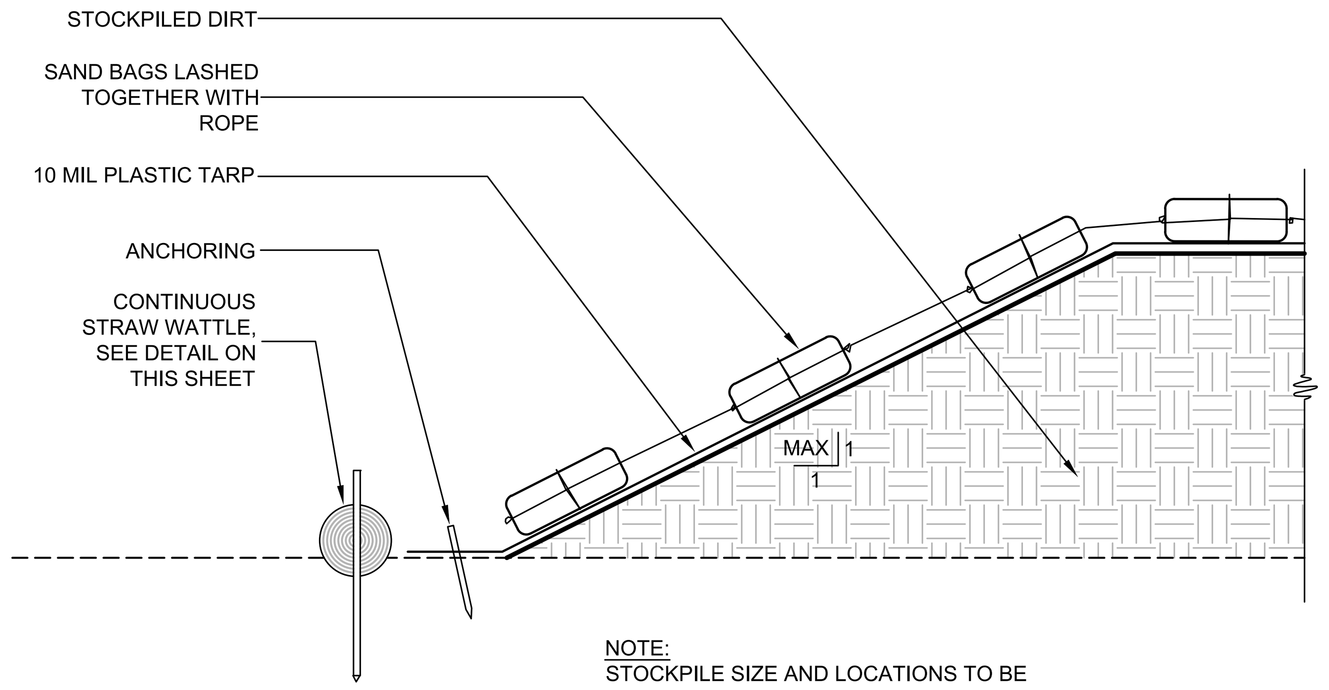
APN# 018-372-14
PLAN TYPE
RESIDENTIAL SUBDIVISION

ROUGH GRADING - EROSION CONTROL PLAN
HILLCREST SUBDIVISION
511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

NUMBER	BY	DESCRIPTION	DATE
C	GS/DMR	RESPONSE 3 - PLAN CHECK COMMENTS 03/11/2022	03/18/2022
B	GS/DMR	RESPONSE 2 - PLAN CHECK COMMENTS 10/08/2021	01/20/2022
A	GS/DMR	RESPONSE 1 - PLAN CHECK COMMENTS 09/21/2021	09/29/2021

REVISION BLOCK

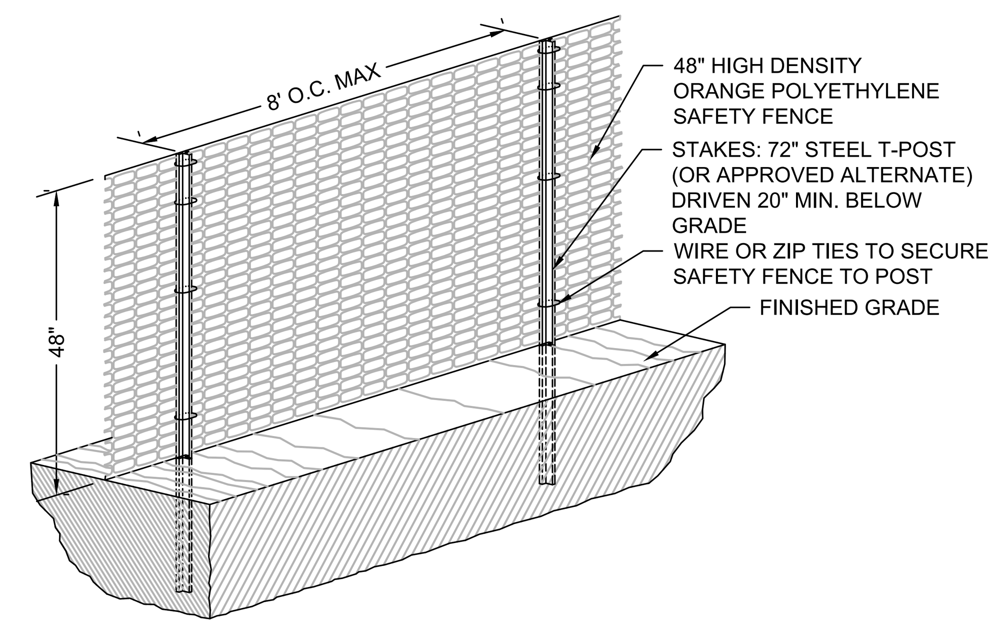
DRAWN BY:	GS
DESIGNED BY:	DMR
DATE:	08/12/2021
SCALE:	AS NOTED
PROJECT NO:	20-021
SHEET:	C5.4



NOTE:
STOCKPILE SIZE AND LOCATIONS TO BE DETERMINED BY CONTRACTOR WITH ENGINEERS APPROVAL.

DIRT STOCKPILE

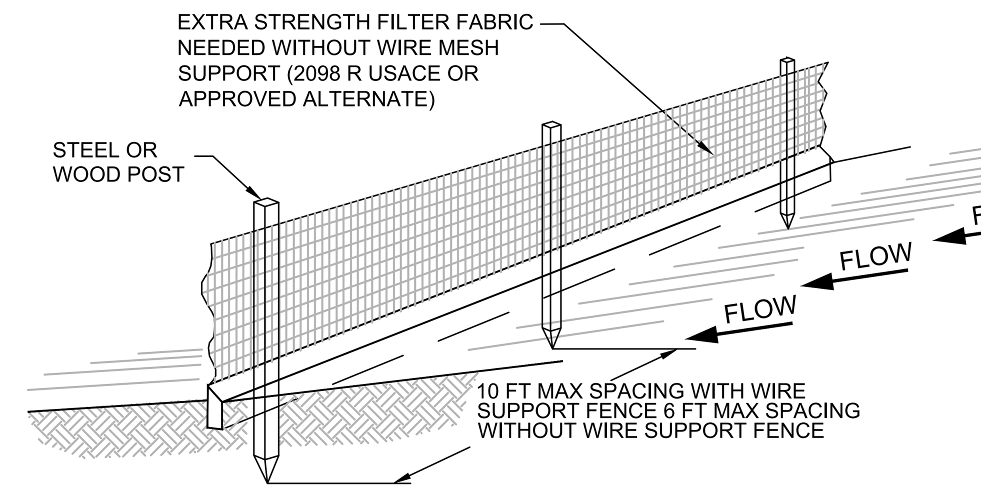
N.T.S.

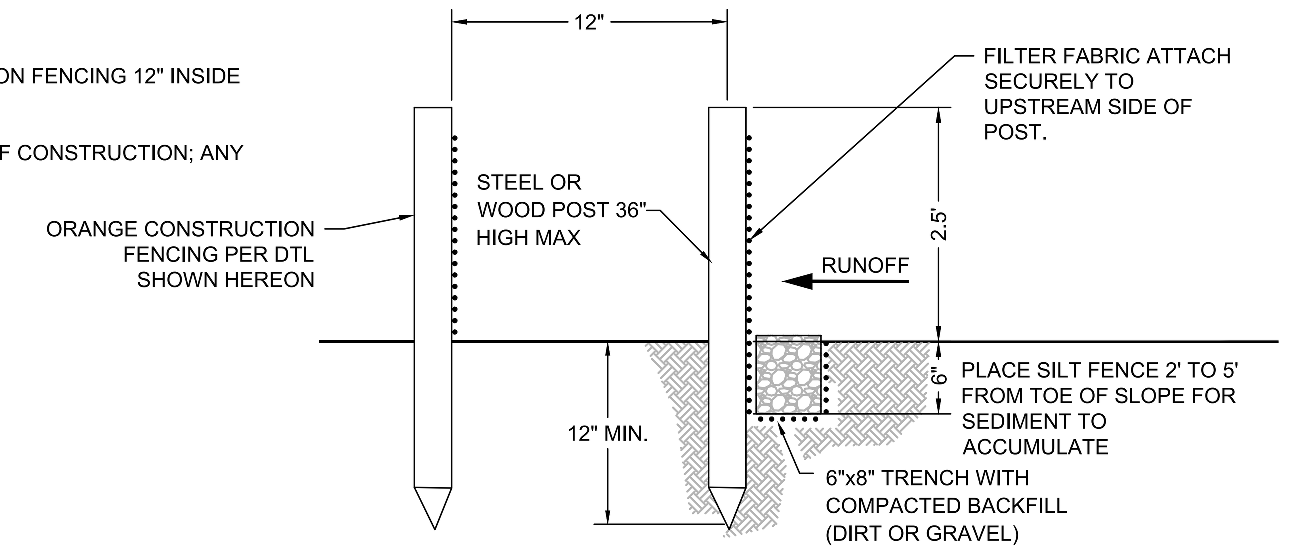


NOTES:
1. FENCING LOCATION PER PLAN. PLACE ORANGE CONSTRUCTION FENCING 12" INSIDE OFFSET FROM THE PROPOSED SILT FENCING.
2. SAFTY FENCE SHOULD BE FASTENED SECURELY TO POSTS.
3. THE FENCING MUST REMAIN IN PLACE DURING ALL PHASES OF CONSTRUCTION; ANY CHANGE OF THE PROTECTIVE FENCING MUST BE APPROVED.

ORANGE CONSTRUCTION FENCE

N.T.S.





NOTES:
1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.

2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.

SILT FENCE

N.T.S.

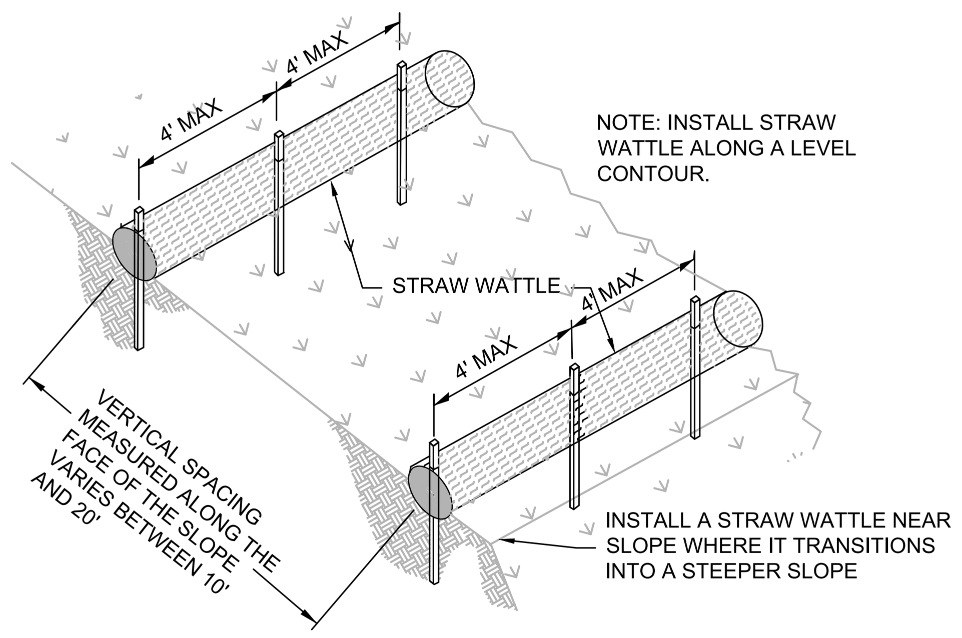
CONSTRUCTION SPECIFICATIONS:

1. THE HEIGHT OF A SILT FENCE SHALL NOT EXCEED 36 INCHES (0.9 M). STORAGE HEIGHT AND PONDING HEIGHT SHALL NEVER EXCEED 18 INCHES (0.5 M). THE FENCE LINE SHALL FOLLOW THE CONTOUR AS CLOSELY AS POSSIBLE.
2. IF POSSIBLE, THE FILTER FABRIC SHALL BE CUT FROM A CONTINUOUS ROLL TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED ONLY AT A SUPPORT POST, WITH A MINIMUM 6 INCH (0.15 M) OVERLAP AND BOTH ENDS SECURELY FASTENED TO THE POST.
3. POSTS SHALL BE SPACED A MAXIMUM OF 10 FEET (3.1 M) APART AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 12 INCHES (0.3 M). WHEN EXTRA-STRENGTH FABRIC IS USED WITHOUT THE WIRSUPPORT FENCE, POST SPACING SHALL NOT EXCEED 6 FEET (1.8 M). TURN THE ENDS OF THE FENCE (LAST 6 FEET) UPHILL IN "J" OR "L" SHAPES TO ALLOW FOR PONDING
4. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 6 INCHES (152 MM) WIDE AND 8 INCHES (0.2 M) DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER.
5. WHEN STANDARD-STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH (25.4 MM) LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 2 INCHES (51 MM) AND SHALL NOT EXTEND MORE THAN 36 INCHES (0.9 M) ABOVE THE ORIGINAL GROUND SURFACE.
6. THE STANDARD-STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 6 INCHES (0.15 M) OF THE FABRIC SHALL EXTEND INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES (0.9 M) ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
7. WHEN EXTRA-STRENGTH FILTER FABRIC AND CLOSER POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS.
8. EXTRA STRENGTH FILTER FABRIC SHALL BE 8 OZ NONWOVERN GEOTEXTILE FILTER FABRIC
9. THE TRENCH SHALL BE BACKFLLLED AND THE SOIL COMPACTED OVER THE TOE OF THE FILTER FABRIC.
10. SILT FENCES PLACED AT THE TOE OF A SLOPE SHALL BE SET AT LEAST 2 FEET (0.6M) TO 5 FEET (1.5M) FROM THE TOE IN ORDER TO INCREASE PONDING VOLUME.
11. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED AND ANY SEDIMENT STORED BEHIND THE SILT FENCE HAS BEEN REMOVED.

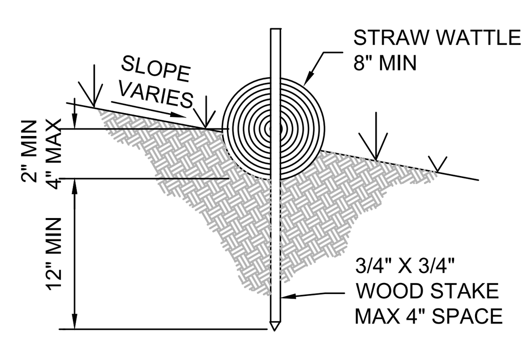
INSPECTION AND MAINTENANCE:

SILT FENCES AND FILTER BARRIERS SHALL BE INSPECTED WEEKLY AFTER EACH SIGNIFICANT STORM (1 INCH (25.4 MM) IN 24 HOUR). ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY. SEDIMENT SHOULD BE REMOVED WHEN IT REACHES 1/3 HEIGHT OF THE FENCE OR 9 INCHES (0.3 M) MAXIMUM.

THE REMOVED SEDIMENT SHALL CONFORM WITH THE EXISTING GRADE AND BE VEGETATED OR OTHERWISE STABILIZED.



TYPICAL INSTALLATION



ENTRENCHMENT DETAIL

STRAW WATTLES PART 1

NTS

CONSTRUCTION SPECIFICATIONS

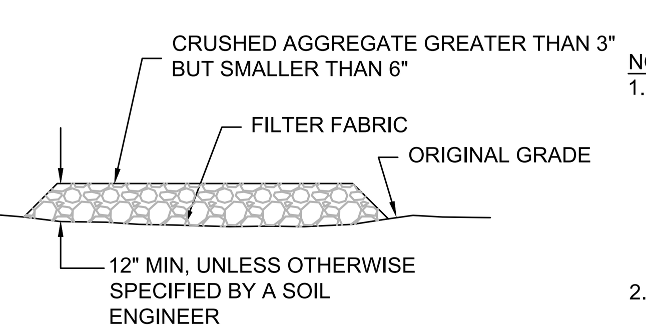
1. PREPARE SLOPE BEFORE THE WATTLING PROCEDURE IS STARTED. SHALLOW GULLIES SHOULD BE SMOOTHED AS WORK PROGRESSES.
2. DIG SMALL TRENCHES ACROSS SLOPE ON CONTOUR, TO PLACE WATTLES IN. THE TRENCH SHOULD BE DEEP ENOUGH TO ACCOMMODATE HALF THE THICKNESS OF THE WATTLE. WHEN THE SOIL IS LOOSE AND UNCOMPACTED, THE TRENCH SHOULD BE DEEP ENOUGH TO BURY THE WATTLE 2/3 OF ITS THICKNESS BECAUSE THE GROUND WILL SETTLE. IT IS CRITICAL THAT WATTLES ARE INSTALLED PERPENDICULAR TO WATER MOVEMENT, PARALLEL TO THE SLOPE CONTOUR.
3. START BUILDING TRENCHES AND INSTALL WATTLES FROM THE BOTTOM OF THE SLOPE AND WORK UP.
4. CONSTRUCT TRENCHES AT CONTOUR INTERVALS OF THREE TO EIGHT FEET APART DEPENDING ON STEEPNESS OF SLOPE. THE STEEPER THE SLOPE, THE CLOSER TOGETHER THE TRENCHES.
5. LAY THE WATTLE ALONG THE TRENCHES FITTING IT SNUGLY AGAINST THE SOIL. MAKE SURE NO GAPS EXIST BETWEEN THE SOIL AND THE STRAW WATTLE. USE A STRAIGHT BAR TO DRIVE HOLES THROUGH THE WATTLE AND INTO THE SOIL FOR THE WOODEN STAKES.
6. DRIVE THE STAKE THROUGH THE PREPARED HOLE INTO THE SOIL. LEAVE ONLY ONE OR TWO INCHES OF STAKE EXPOSED ABOVE WATTLE. IF USING WILLOW STAKES REFER TO USDA SOIL CONSERVATION SERVICE TECHNICAL GUIDE, BIOENGINEERING, FOR GUIDELINES TO PREPARING LIVE WILLOW MATERIAL.
7. INSTALL STAKES AT LEAST EVERY FOUR FEET APART THROUGH WATTLE. ADDITIONAL STAKES MAY BE DRIVEN ON THE DOWNSLOPE SIDE OF THE TRENCHES ON HIGHLY EROSIVE OR VERY STEEP SLOPES.

INSTALLATION AND MAINTENANCE

8. INSPECT THE STRAW WATTLE AND THE SLOPES AFTER SIGNIFICANT STORMS. MAKE SURE THE WATTLES ARE IN CONTACT WITH THE SOIL.
9. REPAIR ANY RILLS OR GULLIES PROMPTLY.
10. RESEED OR REPLANT VEGETATION IF NECESSARY UNTIL THE SLOPE IS STABILIZED.

STRAW WATTLES PART 2

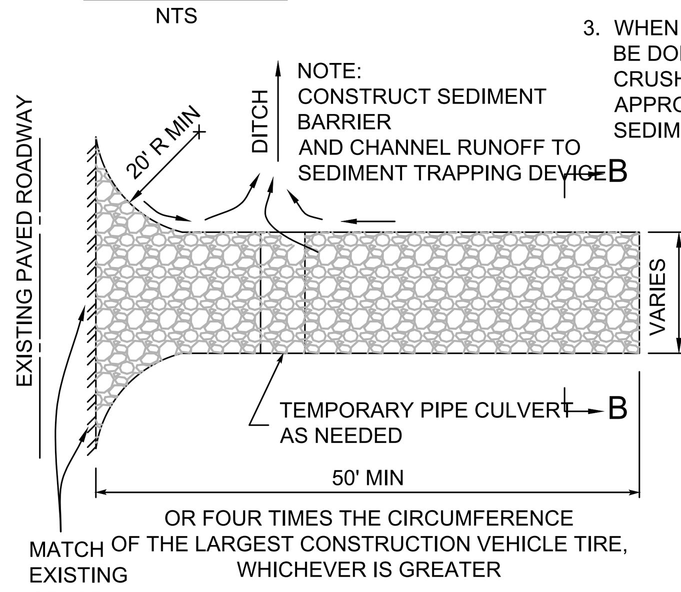
NTS



SECTION B-B

NTS

NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.



STABILIZED CONSTRUCTION ENTRANCE PART 1

NTS

CONSTRUCTION SPECIFICATIONS:

1. THE AGGREGATE SIZE FOR CONSTRUCTION OF THE PAD SHALL BE 2-3 INCH (50-75 MM) STONE. PLACE THE GRAVEL TO THE SPECIFIC GRADE AND DIMENSIONS SHOWN ON THE PLANS, AND SMOOTH IT.
2. THE THICKNESS OF THE PAD SHALL NOT BE LESS THAN 6 INCHES (152 MM). USE GEOTEXTILE FABRICS, IF NECESSARY, TO IMPROVE STABILITY OF THE FOUNDATION IN LOCATIONS SUBJECT TO SEEPAGE OR HIGH WATER TABLE.
3. THE WIDTH OF THE PAD SHALL NOT BE LESS THAN THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS AND IN ANY CASE SHALL NOT BE LESS THAN 12 FEET (3.6 M) WIDE.
4. THE LENGTH OF THE PAD SHALL BE AS REQUIRED, BUT NOT LESS THAN 50 FEET (15.2 M).
5. LOCATE CONSTRUCTION ENTRANCES AND EXITS TO LIMIT SEDIMENT LEAVING THE SITE AND TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES. AVOID ENTRANCES WHICH HAVE STEEP GRADES AND ENTRANCES AT CURVES IN PUBLIC ROADS.
6. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR MAINTENANCE OF ANY MEASURES USED TO TRAP SEDIMENT.
7. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY SHALL BE REMOVED IMMEDIATELY.
8. PROVIDE DRAINAGE TO CARRY WATER TO A SEDIMENT TRAP OR OTHER SUITABLE OUTLET.
9. WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. SEE SEDIMENT BASIN BMP.
10. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE THROUGH USE OF SAND BAGS, GRAVEL, STRAW BALES, OR OTHER APPROVED METHODS.

INSPECTION AND MAINTENANCE:

11. MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE.
12. REPLACE GRAVEL MATERIAL WHEN SURFACE VOIDS ARE VISIBLE.
13. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY.
14. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS. REMOVE ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS WITHIN 24 HOURS.

STABILIZED CONSTRUCTION ENTRANCE PART 2

NTS

SITE HOUSEKEEPING REQUIREMENTS

CONSTRUCTION MATERIALS

- ALL LOOSE STOCKPILED CONSTRUCTION MATERIALS THAT ARE NOT ACTIVELY BEING USED (i.e. SOIL, SPOILS, AGGREGATE, FLY-ASH, STUCCO, HYDRATED LIME, ETC.) SHALL BE COVERED AND BERMED.
- ALL CHEMICALS SHALL BE STORED IN WATERTIGHT CONTAINERS (WITH APPROPRIATE SECONDARY CONTAINMENT TO PREVENT ANY SPILLAGE OR LEAKAGE) OR IN A STORAGE SHED (COMPLETELY ENCLOSED).
- EXPOSURE OF CONSTRUCTION MATERIALS TO PRECIPITATION SHALL BE MINIMIZED. THIS DOES NOT INCLUDE MATERIALS AND EQUIPMENT THAT ARE DESIGNED TO BE OUTDOORS AND EXPOSED TO ENVIRONMENTAL CONDITIONS (i.e. POLES, EQUIPMENT PADS, CABINETS, CONDUCTORS, INSULATORS, BRICKS, ETC.).
- BEST MANAGEMENT PRACTICES TO PREVENT THE OFF-SITE TRACKING OF LOOSE CONSTRUCTION AND LANDSCAPE MATERIALS SHALL BE IMPLEMENTED.
- ALL HAZARDOUS MATERIALS DISPOSAL, USE, STORAGE, AND TRANSPORTATION SHALL COMPLY WITH APPLICABLE REGULATIONS.

WASTE MANAGEMENT

- SOLID WASTE DISPOSAL CONTAINERS SHALL BE PROVIDED ON-SITE DURING ALL PHASES OF CONSTRUCTION, REFUSE AND DEBRIS SHALL NOT BE ALLOWED TO ACCUMULATE TO CONSTITUTE AN UNSIGHTLY/UNSAFE PUBLIC NUISANCE TO SURROUNDING PROPERTIES, AND ALL SOLID WASTE GENERATED MUST BE HAULED FROM THE SITE BY THE CITY SOLID WASTE DIVISION PER THE CITY OF WATSONVILLE MUNICIPAL CODE.
- DISPOSAL OF ANY RINSE OR WASH WATERS OR MATERIALS ON IMPERVIOUS OR PERVIOUS SITE SURFACES OR INTO THE STORM DRAIN SYSTEM SHALL BE PREVENTED.
- SANITATION FACILITIES SHALL BE CONTAINED (e.g. PORTABLE TOILETS) TO PREVENT DISCHARGES OF POLLUTANTS TO THE STORM WATER DRAINAGE SYSTEM OR RECEIVING WATER, AND SHALL BE LOCATED A MINIMUM OF 20 FEET AWAY FROM AN INLET, STREET OR DRIVEWAY, STREAM, RIPARIAN AREA OR OTHER DRAINAGE FACILITY.
- SANITATION FACILITIES SHALL BE INSPECTED REGULARLY FOR LEAKS AND SPILLS AND CLEANED OR REPLACED AS NECESSARY.
- COVER WASTE DISPOSAL CONTAINERS AT THE END OF EVERY BUSINESS DAY AND DURING A RAIN EVENT.
- DISCHARGES FROM WASTE DISPOSAL CONTAINERS TO THE STORM WATER DRAINAGE SYSTEM OR RECEIVING WATER SHALL BE PREVENTED.
- STOCKPILED WASTE MATERIAL SHALL BE CONTAINED AND SECURELY PROTECTED FROM WIND AND AIN AT ALL TIMES UNLESS ACTIVELY BEING USED.
- PROCEDURES THAT EFFECTIVELY ADDRESS HAZARDOUS AND NON-HAZARDOUS SPILLS SHALL BE IMPLEMENTED.
- EQUIPMENT AND MATERIALS FOR CLEANUP OF SPILLS SHALL BE AVAILABLE ON SITE AND THAT SPILLS AND LEAKS SHALL BE CLEANED UP IMMEDIATELY AND DISPOSED OF PROPERLY; AND
- CONCRETE WASHOUT AREAS AND OTHER WASHOUT AREAS THAT MAY CONTAIN ADDITIONAL POLLUTANTS SHALL BE CONTAINED SO THERE IS NO DISCHARGE INTO THE UNDERLYING SOIL AND ONTO THE SURROUNDING AREAS.

VEHICLE STORAGE AND MAINTENANCE

- MEASURES SHALL BE TAKEN TO PREVENT OIL, GREASE, OR FUEL TO LEAK IN TO THE GROUND, STORM DRAINS OR SURFACE WATERS.
- ALL EQUIPMENT OR VEHICLES, WHICH ARE TO BE FUELED, MAINTAINED AND STORED ONSITE SHALL BE IN A DESIGNATED AREA FITTED WITH APPROPRIATE BMP's.

LANDSCAPE MATERIALS

- CONTAIN STOCKPILED MATERIALS SUCH AS MULCHES AND TOPSOIL WHEN THEY ARE NOT ACTIVELY BEING USED.
- CONTAIN FERTILIZERS AND OTHER LANDSCAPE MATERIALS WHEN THEY ARE NOT ACTIVELY BEING USED.
- DISCONTINUE THE APPLICATION OF ANY ERODIBLE LANDSCAPE MATERIAL WITHIN 2 DAYS BEFORE A FORECASTED RAIN EVEN OR DURING PERIODS OF PRECIPITATION.
- APPLY ERODIBLE LANDSCAPE MATERIAL AT QUANTITIES AND APPLICATION RATES ACCORDING TO MANUFACTURE RECOMMENDATIONS OR BASED ON WRITTEN SPECIFICATIONS BY KNOWLEDGEABLE AND EXPERIENCED FIELD PERSONNEL.
- STACK ERODIBLE LANDSCAPE MATERIAL ON PALLETS AND COVERING OR STORING SUCH MATERIALS WHEN NOT BEING USED OR APPLIED.

EROSION CONTROL NOTES

1. NO LAND CLEARING, GRADING OR EXCAVATION SHALL BE DONE BETWEEN OCTOBER 15TH AND APRIL 15TH. ANY DEVIATION FROM THIS CONDITION REQUIRES REVIEW AND APPROVAL OF A SEPARATE WINTER EROSION CONTROL PLAN BY THE CITY OF WATSONVILLE TO BEGINNING CONSTRUCTION. THE DEVELOPER SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING SITE EROSION CONTROL AT ALL TIMES.
2. ALL EROSION AND SEDIMENT CONTROL MATERIALS, INCLUDING FIBER ROLLS AND EROSION CONTROL BLANKETS, SHALL BE BIODEGRADABLE. AVOID FIBER ROLLS WITH PLASTIC NETTING DUE TO POTENTIAL IMPACTS ON WILDLIFE.
3. IT SHALL BE THE RESPONSIBILITY OF THE OWNER AND THE PERMITEE TO ENSURE THAT EROSION DOES NOT OCCUR FROM ANY ACTIVITY DURING OR AFTER PROJECT CONSTRUCTION. ADDITIONAL MEASURES, BEYOND THOSE SPECIFIED, MAY BE REQUIRED BY THE PROJECT QSP AND/OR THE CITY OF WATSONVILLE INSPECTOR, AS DEEMED NECESSARY TO CONTROL ACCELERATED EROSION.
4. PRIOR TO ANY FORECAST RAIN AND ANYTIME BETWEEN OCTOBER 15 AND APRIL 15, AT THE END OF EACH WORKDAY, AT THE END OF EACH WORKWEEK, THE DEVELOPER SHALL IMPLEMENT ALL TEMPORARY MEASURES NECESSARY TO PREVENT EROSION AND SILTATION, UNTIL THE PROJECT HAS BEEN FINALIZED. THESE MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, DIRECT SEEDING OF THE AFFECTED AREAS, STRAW MULCHING, AND/OR INSTALLATION OF STRAW BALES DAMS/SILT FENCES AT THE DISCRETION OF THE PROJECT QSP.
5. DURING CONSTRUCTION, NO TURBID WATER SHALL BE PERMITTED TO ENTER THE CHANNEL OR STORM DRAIN SYSTEM. USE OF SILT AND GREASE TRAPS, FILTER BERMS, HAY BALES OR SILT FENCES SHALL BE USED TO PREVENT SUCH DISCHARGE.
6. ALL AREAS ON- AND OFF-SITE EXPOSED DURING CONSTRUCTION ACTIVITIES, HAVING A MAXIMUM SLOPE OF 3:1 (H:V), IF NOT PERMANENTLY LANDSCAPED PER PLAN, SHALL BE SEEDED WITH ANNUAL WINTER BARLEY AT A MINIMUM RATE OF 5 LBS/1,000 SF AND COVERED WITH A UNIFORM LAYER OF STRAW DERIVED FROM RICE, BARLEY OR WHEAT (2-3 BALES/1,000 SF), INCORPORATING IT INTO SOIL WITH A STUDDED ROLLER OR ANCHORING IT WITH A TACKIFIER STABILIZING EMULSION.
7. ALL EXCAVATED MATERIAL SHALL BE REMOVED TO AN APPROVED DISPOSAL SITE OR DISPOSED OF ON-SITE IN A MANNER THAT WILL NOT CAUSE EROSION.
8. ANY MATERIAL STOCKPILED DURING CONSTRUCTION SHALL BE COVERED WITH PLASTIC, UNLESS BEIGN ACTIVELY USED.
9. EXPOSED SOIL ON SLOPES GREATER THAN 20% SHALL BE SEEDED, COVERED WITH 2 INCHES OF STRAW, AND AN EROSION CONTROL BLANKET. THE EROSION CONTROL BLANKET SHALL BE STAKED IN PLACE.
10. IT IS THE DEVELOPER'S RESPONSIBILITY TO SEE THAT ADDITIONAL MEASURES, NECESSARY TO CONTROL SITE EROSION AND PREVENT SEDIMENT TRANSPORT OFF-SITE ARE IMPLEMENTED.
11. THE PROJECT QSP HAD AUTHORITY TO CHANGE, MODIFY, REMOVE, OR ADD, EROSION CONTROL MEASURES, IN THE FIELD, AS THEY DEEM NECESSARY FOR ADEQUATE SITE PROTECTION. THESE MEASURES WILL BE CONSTANTLY CHANGING, BUT NOTED IN WEEKLY REPORTS FOR REFERENCE. THE BMP'S SHOWN HEREON, ARE THE STARTING POINT TO MAINTAINING A FUNCTIONING SITE, AND WILL BE FLUID THROUGHOUT THE CONSTRUCTION TIME FRAME.
12. BMP'S SHALL COMPLY WITH THE CITY OF WATSONVILLE (CoW) EROSION CONTROL STANDARDS AND THE LATEST EDITION OF THE CRWQCB'S EROSION AND SEDIMENT CONTROL FIELD MANUAL.

PREPARATION OF THIS EROSION CONTROL PLAN COMPLETED UNDER THE DIRECTION OF

DAVID RAMSEY, QSD #20758
RAMSEY CIVIL ENGINEERING, INC
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REGISTERED PROFESSIONAL ENGINEER
DAVID RAMSEY
NO. C73735
CIVIL
STATE OF CALIFORNIA

DAVID RAMSEY DATE
RCE# 73735

APN# 018-372-14

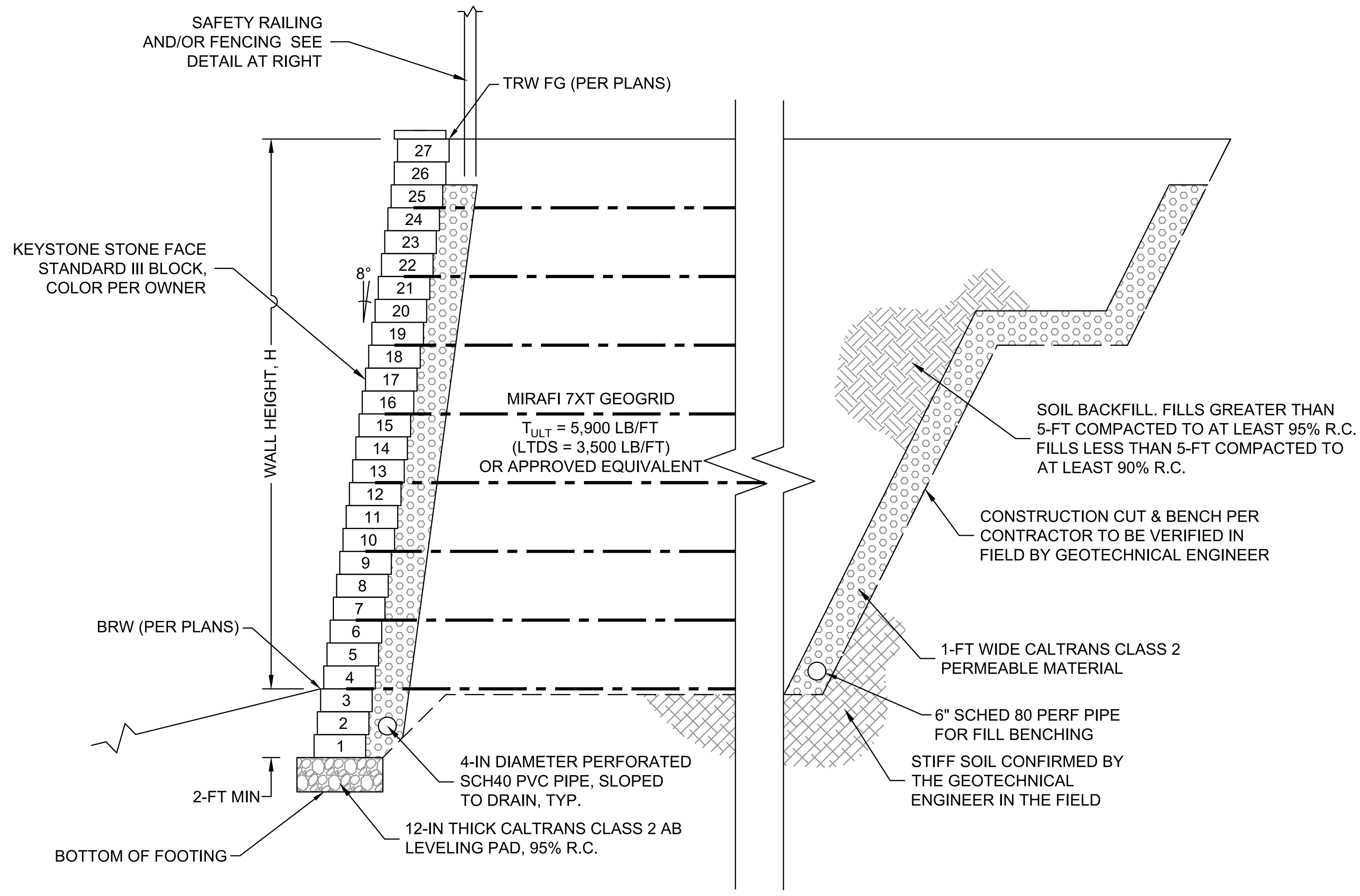
PLAN TYPE
RESIDENTIAL SUBDIVISION

EROSION CONTROL NOTES & DETAILS
HILLCREST SUBDIVISION
511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

NUMBER	BY	DESCRIPTION	DATE
A	GS/DMR	RESPONSE 1 - PLAN CHECK COMMENTS 09/21/2021	09/29/2021
B	GS/DMR	RESPONSE 2 - PLAN CHECK COMMENTS 10/08/2021	01/20/2022
C	GS/DMR	RESPONSE 3 - PLAN CHECK COMMENTS 03/11/2022	03/18/2022

REVISION BLOCK

DRAWN BY:	GS
DESIGNED BY:	DMR
DATE:	08/12/2021
SCALE:	AS NOTED
PROJECT NO:	20-021
SHEET:	C5.5



BLOCK #	3	6	9	12	15	18	21	24
WALL HEIGHT	GRID LENGTH							
16-FEET	12-FT	12-FT	12-FT	12-FT	12-FT	12-FT	14-FT	18-FT
14-FEET	12-FT	12-FT	12-FT	12-FT	12-FT	14-FT	16-FT	N/A
12-FEET	10-FT	10-FT	10-FT	10-FT	10-FT	14-FT	N/A	N/A
10-FEET	8-FT	8-FT	8-FT	10-FT	12-FT	N/A	N/A	N/A
8-FEET	6-FT	6-FT	8-FT	10-FT	N/A	N/A	N/A	N/A
6-FEET	6-FT	6-FT	10-FT	N/A	N/A	N/A	N/A	N/A
4-FEET	4-FT	8-FT	N/A	N/A	N/A	N/A	N/A	N/A

REMEDIATION PIT MSE WALL DETAIL
(NOT TO SCALE)

MSE WALL SOIL PROPERTIES

	DESCRIPTION	COHESION	FRICTION ANGLE	UNIT WEIGHT
REINFORCED SOIL	FILL SOIL	N/A	30°	120 PCF
RETAINED SOIL	NATIVE SOIL	N/A	30°	120 PCF
LEVELING PAD SOIL	CLASS 2 AB	N/A	30°	120 PCF
FOUNDATION SOIL	NATIVE SOIL	500 PSF	30°	120 PCF

GENERAL NOTES:

1. THE CONTRACTOR SHALL NOTIFY THE GEOTECHNICAL ENGINEER A MINIMUM OF 48 HOURS PRIOR TO COMMENCING ANY ASPECT OF THE WORK.

   ENGINEER: MILLER PACIFIC ENGINEERING GROUP
   504 REDWOOD BOULEVARD, SUITE 220
   NOVATO, CALIFORNIA 94947
   415-382-3444

2. THE GEOTECHNICAL ENGINEER, OR THEIR REPRESENTATIVE, SHOULD OBSERVE FOUNDATION EXCAVATIONS TO CONFIRM SUBSURFACE CONDITIONS ARE CONSISTENT WITH THE DESIGN CRITERIA AND TO MODIFY FOUNDATION (IF REQUIRED).
3. THE CONTRACTOR IS RESPONSIBLE FOR LAYOUT OF THE WALL. LOCATION TO BE CONFIRMED BY THE ENGINEER PRIOR TO COMMENCING EXCAVATION.
4. CONTRACTOR SHALL NOTIFY U.S.A. AND OWNER TO LOCATE UTILITIES.
5. ALL EXCAVATED DEBRIS MATERIAL, NOT USED AS FILL, SHALL BE HAULED FROM THE SITE AND LEGALLY DISPOSED OF BY THE CONTRACTOR.
6. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE ACI CODE, ASTM AND STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION (CALTRANS) STANDARD PLANS AND SPECIFICATIONS.
7. THE CONTRACTOR SHALL RESTORE ACCESS ROUTES TO THEIR ORIGINAL CONDITIONS. DAMAGE TO EXISTING IMPROVEMENTS, SUCH AS STRUCTURES OR PAVEMENTS SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR SITE SAFETY, INCLUDING PROVIDING TEMPORARY SHORING IF NECESSARY TO STABILIZE CUTS IN EXCESS OF 5 FEET IN HEIGHT.
9. ANY SHORING UTILIZED ON SITE SHOULD BE DESIGNED BY AN ENGINEER LICENSED IN THE STATE OF CALIFORNIA.
10. MPEG SHALL NOT SUPERVISE, DIRECT OR HAVE ANY CONTROL OVER THE CONTRACTOR'S WORK NOR HAVE ANY RESPONSIBILITY FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES SELECTED BY THE CONTRACTOR NOR FOR THE CONTRACTOR'S SAFETY PRECAUTIONS OR PROGRAMS IN CONNECTION WITH THE WORK. THESE RIGHTS AND RESPONSIBILITIES ARE SOLELY THOSE OF THE CONTRACTOR.

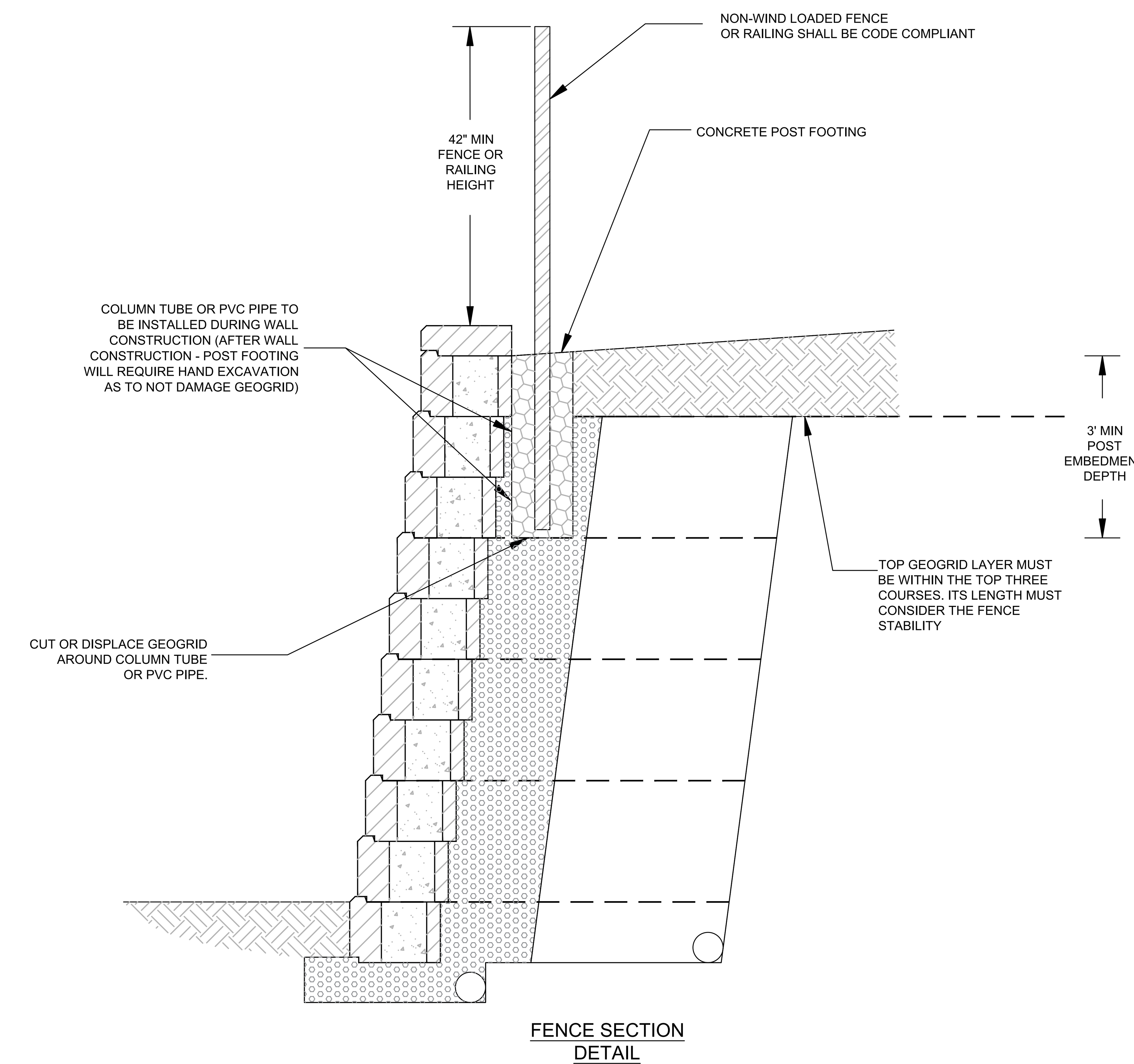
DRAINAGE

1. WALL DRAINAGE SHOULD CONSIST OF CLEAN, FREE DRAINING 3/4 INCH CRUSHED ROCK (CLASS 1B PERMEABLE MATERIAL) WRAPPED IN FILTER FABRIC (MIRAFI 140N OR EQUIVALENT) OR CALTRANS CLASS 2 PERMEABLE MATERIAL.
2. PERFORATED PIPE SHALL BE SCH 40 OR SDR 35 FOR DEPTHS LESS THAN 20 FEET. USE SCH 80 OR SDR 23.5 PERFORATED PIPE FOR DEPTHS GREATER THAN 20 FEET. PLACE PIPE PERFORATIONS DOWN AND SLOPE AT 1% TO A GRAVITY OUTLET.
3. CLEAN OUTS SHOULD BE INSTALLED AT THE UPSLOPE END AND AT SIGNIFICANT DIRECTION CHANGES OF THE PERFORATED PIPE. ADDITIONALLY, ALL ANGLED CONNECTORS SHALL BE LONG BEND SWEEP CONNECTIONS.
4. ALL WORK AND MATERIALS SHALL CONFORM WITH SECTION 68, OF THE LATEST EDITION OF THE CALTRANS STANDARD SPECIFICATIONS.

MSE WALL CONSTRUCTION

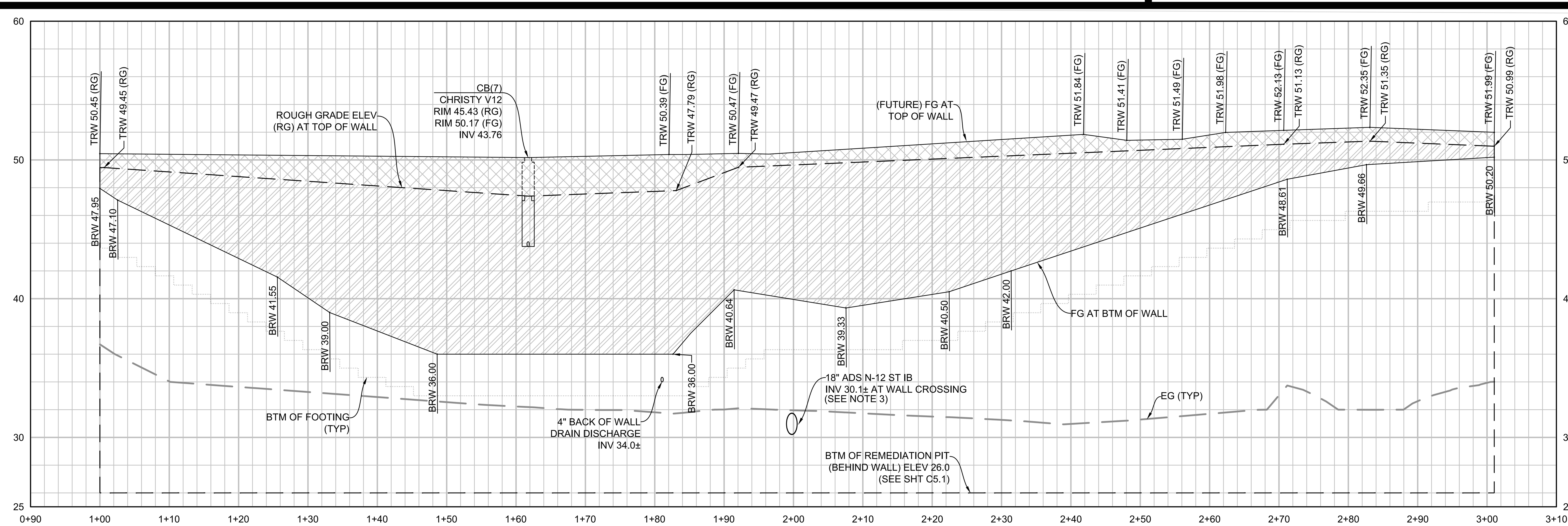
1. RETAINING WALL CONSTRUCTION SHOULD BEGIN AT THE "LOW-POINT".
2. ALL EARTHWORK SHALL FOLLOW THE PROJECT SPECIFICATIONS AND GEOTECHNICAL INVESTIGATION REPORT.
3. MSE FACING SHALL CONSIST OF PINNED KEYSTONE STANDARD III STONE FACE BLOCKS. COLOR TO BE DETERMINED BY OWNER.

REGISTERED PROFESSIONAL ENGINEER BENJAMIN S. PAPPAS No. 2786 Exp. 9/30/22 GEOTECHNICAL STATE OF CALIFORNIA



FENCE SECTION DETAIL

NOTES:
1. THIS DETAIL IS SHOWN FOR REFERENCE ONLY. THE FINAL DESIGN AND DETAILING FOR THE PROTECTION FENCE SHALL BE PROVIDED WITH THE STAGE 3 CONSTRUCTION DOCUMENTS.
2. CONTRACTOR SHALL PROVIDE A TEMPORARY PROTECTION RAILING FOR THE INTERIM BETWEEN THE COMPLETION OF PHASE 1 AND STAGE 3 CONSTRUCTION.
3. ALL RAILINGS/GUARDRAILS SHALL BE CODE COMPLIANT.



WALL - A PROFILE
H: 1"=10'
V: 1"=5'

NOTES:
1. TRW ELEVATIONS ARE SHOWN BASED ON THE FINISHED GRADE ELEVATIONS ADJACENT TO THE TOP OF THE WALL (NOT TOP OF WALL CAP).
2. BRW ELEVATIONS ARE SHOWN BASED ON THE FINISHED GRADE ELEVATIONS ADJACENT TO THE BOTTOM OF THE WALL (NOT THE WALL FOUNDATION).
3. (RG) ELEVATIONS REFER TO THE ROUGH GRADING ELEVATIONS.
4. (FG) ELEVATIONS REFER TO THE FINAL (FUTURE) GRADING ELEVATIONS.
5. ADS N-12 PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS. PROVIDE CLASS 2 95% COMPACTED FILL FOR FILL HEIGHTS 11'-18', PROVIDE CLASS 1 COMPACTED FILL MATERIAL FOR FILL HEIGHTS GREATER THAN 18'.
5. COORDINATE WALL GEO-GRID INSTALLATION WITH CATCH BASIN AND PIPE INSTALLATION.
6. CONTRACTOR TO COORDINATE ALLOWABLE CONSTRUCTION VEHICLE SETBACKS TO WALL 'A' FOR SAFE PASSAGE WITH STRUCTURAL ENGINEER.
7. FENCING & GUARDRAILS AT TOP OF PIT WALL SHALL BE DESIGNED TO MEET THE REQUIRED DESIGN CODES. DETAILING AND FINAL LAYOUT TO BE PROVIDED PRIOR TO CONSTRUCTION AND STAGE 3 DEVELOPMENT.

GRAPHIC SCALE: 1 INCH = 10 FEET

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REGISTERED PROFESSIONAL ENGINEER DAVID RAMSEY NO. C73735 CIVIL STATE OF CALIFORNIA

DAVID RAMSEY RCE# 73735 DATE

APN# 018-372-14

PLAN TYPE
RESIDENTIAL SUBDIVISION

WALL A (PIT WALL) PROFILE & DETAILS
HILLCREST SUBDIVISION
511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

NUMBER	BY	DESCRIPTION	DATE
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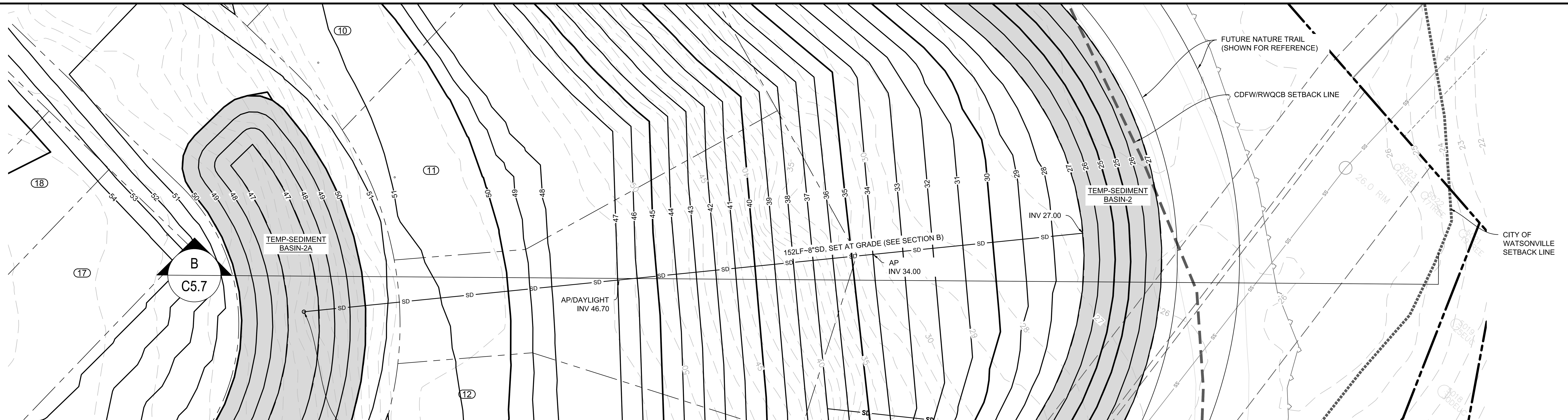
DESIGNED BY:	DMR
DATE:	08/12/2021
SCALE:	AS NOTED
PROJECT NO:	20-021
SHEET:	C5.6

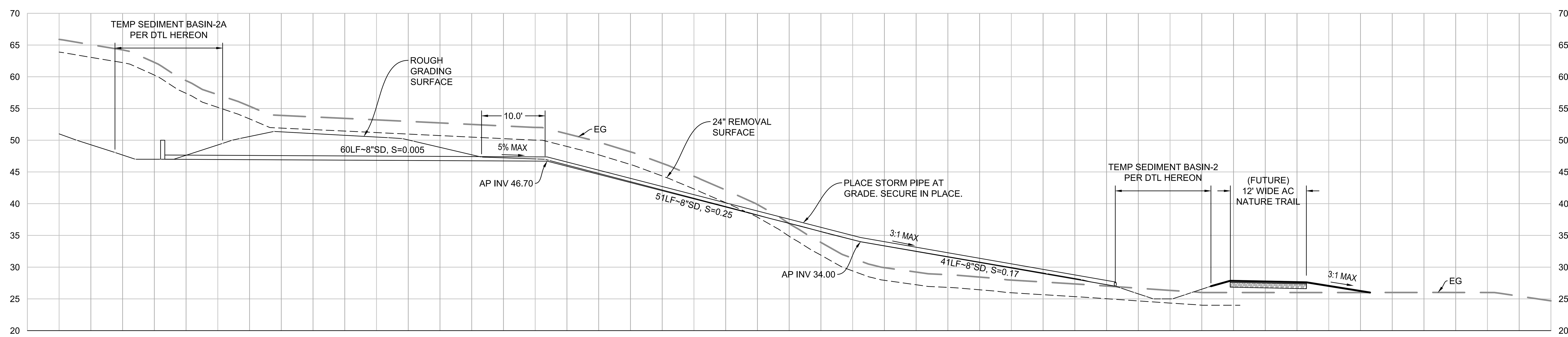


PLAN VIEW

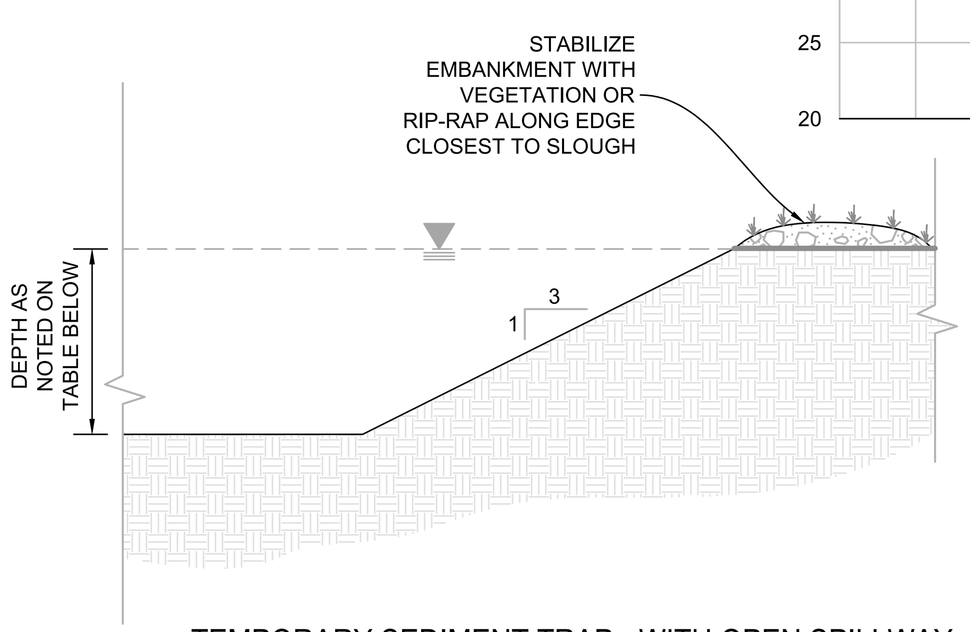
1"=10'

GRAPHIC SCALE: 1 INCH = 10 FEET

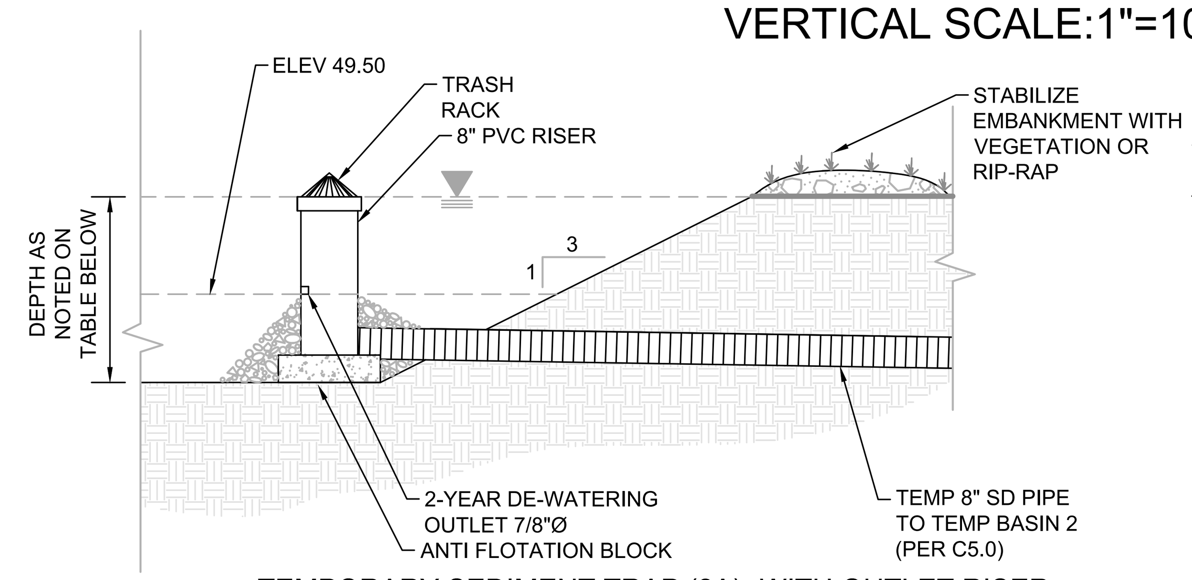
NOTES
1. FUTURE IMPROVEMENTS ARE TO BE CONSTRUCTED IN FUTURE DEVELOPMENT PHASES SHOWN FOR REFERENCE ONLY.



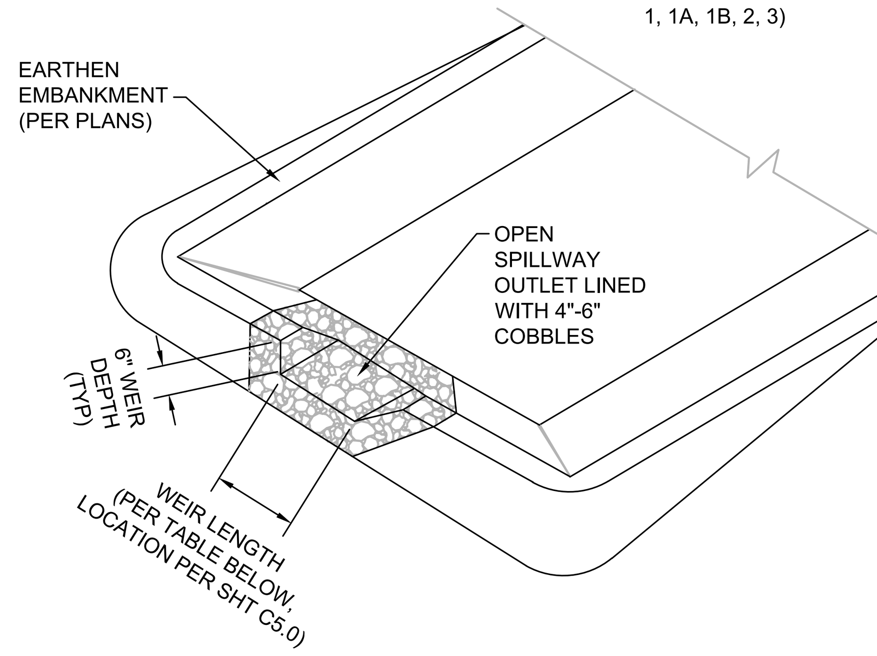
SECTION - B
HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE:1"=10'



TEMPORARY SEDIMENT TRAP - WITH OPEN SPILLWAY
(SECTION VIEW)
N.T.S.
(APPLICABLE FOR TEMPORARY BASIN: 1, 1A, 1B, 2, 3)



TEMPORARY SEDIMENT TRAP (2A)- WITH OUTLET RISER
(SECTION VIEW)
N.T.S.



OPEN SPILLWAY
(ISOMETRIC VIEW)
N.T.S.

SEDIMENT TRAP SUMMARY

NAME	TRIBUTARY AREA	REQUIRED STORAGE VOLUME	PROVIDED DEPTH (FT)	PROVIDED STORAGE VOLUME	2-YR PEAK FLOW (Q)	25-YR PEAK FLOW (Q)	WEIR LENGTH (FT)	WEIR HEIGHT (FT)	MAX ALLOWABLE FLOW (Q)
1	90,008 SF	5,579 CF	4.0 FT	8,506 CF	0.06 CFS	1.21 CFS	4	0.5	3.68 CFS
1A	23,249 SF	1,441 CF	3.0 FT	1,603 CF	0.02 CFS	0.31 CFS	2	0.5	1.84 CFS
1B	22,125 SF	1,371 CF	3.0 FT	1,686 CF	0.02 CFS	0.30 CFS	2	0.5	1.84 CFS
1+1A+1B	135,382 SF	-	-	-		1.82 CFS	Since Max Q > Peak Q, Weir is adeqaute		
2	76,688 SF	4,753 CF	2.0 FT	8,344 CF	0.05 CFS	1.03 CFS	4	0.5	3.68 CFS
2A	52,266 SF	3,240 CF	3.0 FT	3,328 CF	0.04 CFS	0.70 CFS	(see orifice calc)		
2+2A	128,954 SF	-	-	-		1.73 CFS	Since Max Q > Peak Q, Weir is adeqaute		
3	103,594 SF	6,421 CF	3.0 FT	6,465 CF	0.07 CFS	1.39 CFS	3	0.5	2.76 CFS

25-year, 15-min storm intensity = 1.95 in/hr
2-year, 15-min storm intensity =0.1 in/hr
C=0.3 (landscape)
Q=CIA

BROAD CRESTED WEIR: Q=CxLxH^(1.5) = MAX ALLOAWABLE FLOW
C=2.6 (Broad crested Weir constant)
L = Weir Length
H = Weir Height

TEMPORARY SEDIMENT BASIN NOTES:

CONSTRUCTION SPECIFICATIONS:
1. CONSTRUCT THE BASIN BY EXCAVATING OR BUILDING AN EMBANKMENT BEFORE ANY CLEARING OR GRADING WORK BEGINS OR AS SOON AS IT IS FEASIBLE TO CONSTRUCT.
2. AREAS UNDER THE EMBANKMENT AND ANY STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOTMAT.
3. FILL MATERIAL FOR THE EMBANKMENT SHOULD BE CLEAN MINERAL SOIL FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS OR OTHER OBJECTIONABLE MATERIAL.
4. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IT CAN BE FORMED BY HAND INTO A BALL WITHOUT CRUMBLING.
5. FILL MATERIAL SHALL BE PLACED IN 6 INCH LIFTS, CONTINUOUS LAYERS OVER THE ENTIRE LENGTH OF THE FILL. COMPACTING SHALL BE OBTAINED BY ROUTING THE HAULING EQUIPMENT OVER THE FILL SO THAT THE ENTIRE SURFACE OF EACH LAYER OF THE FILL IS TRAVERSED BY AT LEAST ONE WHEEL OR TREAD TRACK OF THE EQUIPMENT, OR BY THE USE OF A COMPACTOR.
6. THE EMBANKMENT SHOULD BE CONSTRUCTED TO AN ELEVATION OF 10 PERCENT HIGHER THAN THE DESIGN HEIGHT TO ALLOW FOR SETTLEMENT IF COMPACTING IS ACHIEVED WITH HAULING EQUIPMENT. IF COMPACTORS ARE USED FOR COMPACTING, THE OVERBUILD MAY BE REDUCED TO NOT LESS THAN 5 PERCENT.
8. THE PRINCIPLE SPILLWAY RISER SHALL BE SECURELY ATTACHED TO THE DISCHARGE PIPE. ALL CONNECTIONS SHALL BE WATERTIGHT.
9. THE PIPE AND RISER SHALL BE PLACED ON A FIRM, SMOOTH SOIL FOUNDATION. THE CONNECTION BETWEEN THE RISER AND THE RISER BASE SHALL BE WATERTIGHT. PERVIOUS MATERIALS SUCH AS SAND, GRAVEL OR CRUSHED STONE SHALL NOT BE USED AS BACKFILL AROUND THE PIPE OR ANTI-SEEP COLLARS.
10. THE FILL MATERIAL AROUND THE PIPE SPILLWAY SHALL BE PLACED IN 4-INCH LAYERS AND COMPACTED UNDER THE SHOULDERS AND AROUND THE PIPE TO AT LEAST THE SAME DENSITY AS THE ADJACENT EMBANKMENT. A MINIMUM OF 2 FEET OF COMPACTED BACKFILL SHALL BE PLACED OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT.
11. STEEL BASE PLATES SHALL HAVE AT LEAST 2 1/2 FEET (0.8 IN) OF COMPACTED EARTH, STONE OR GRAVEL OVER THEM TO PREVENT FLOTATION.
12. THE EMBANKMENT AND EMERGENCY SPILLWAY SHALL BE STABILIZED WITH VEGETATION IMMEDIATELY FOLLOWING CONSTRUCTION.
13. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION WILL BE MINIMIZED.

INSPECTION AND MAINTENANCE:
1. INSPECT BASINS BEFORE AND AFTER RAINFALL EVENTS AND WEEKLY DURING THE REST OF THE RAINY SEASON. DURING EXTENDED RAINFALL EVENTS, INSPECT AT LEAST EVERY 24 HOURS.
2. EXAMINE BASIN BANKS FOR SEEPAGE AND STRUCTURAL SOUNDNESS
3. REMOVE STANDING WATER FROM THE BASIN WITHIN 72 HOURS AFTER ACCUMULATION BY PUMPING, IF NECESSARY.
4. POND TO BE PUMPED WITH CONSTRUCTION GRADE GRINDER PUMP (2" MIN. HOSE CONNECTION) WHEN THE POND HAS REACHED 75% CAPACITY.
5. CHECK INLET AND OUTLET AREA FOR EROSION AND STABILIZE IF REQUIRED.
6. REMOVE ACCUMULATED SEDIMENT WHEN ITS VOLUME REACHES ONE-THIRD THE VOLUME OF THE SEDIMENT STORAGE. PROPERLY DISPOSE OF SEDIMENT AND DEBRIS REMOVED FROM THE BASIN.
7. ALL DAMAGES CAUSED BY SOIL EROSION OR CONSTRUCTION EQUIPMENT SHALL BE REPAIRED BEFORE THE END OF EACH WORKING DAY.
8. ANY REMOVED SEDIMENT SHALL BE PLACED IN SUCH A MANNER THAT IT WILL NOT ERODE FROM THE SITE. THE SEDIMENT SHALL NOT BE DEPOSITED DOWNSTREAM FROM THE EMBANKMENT OR IN OR ADJACENT TO A STREAM OR FLOODPLAIN.
9. WHEN TEMPORARY STRUCTURES HAVE SERVED THEIR INTENDED PURPOSE AND THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, THE EMBANKMENT AND RESULTING SEDIMENT DEPOSIT SHALL BE LEVELED OR OTHERWISE DISPOSED OF IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.

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REGISTERED PROFESSIONAL ENGINEER DAVID RAMSEY NO. C73735 CIVIL STATE OF CALIFORNIA
DAVID RAMSEY DATE
RCE# 73735

APN# 018-372-14
PLAN TYPE
RESIDENTIAL SUBDIVISION

SECTION B & TEMPORARY BASIN DETAIL
HILLCREST SUBDIVISION
511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

NUMBER	BY	DESCRIPTION	DATE
C	GS/DMR	RESPONSE 3 - PLAN CHECK COMMENTS 03/11/2022	03/18/2022
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REVISION BLOCK

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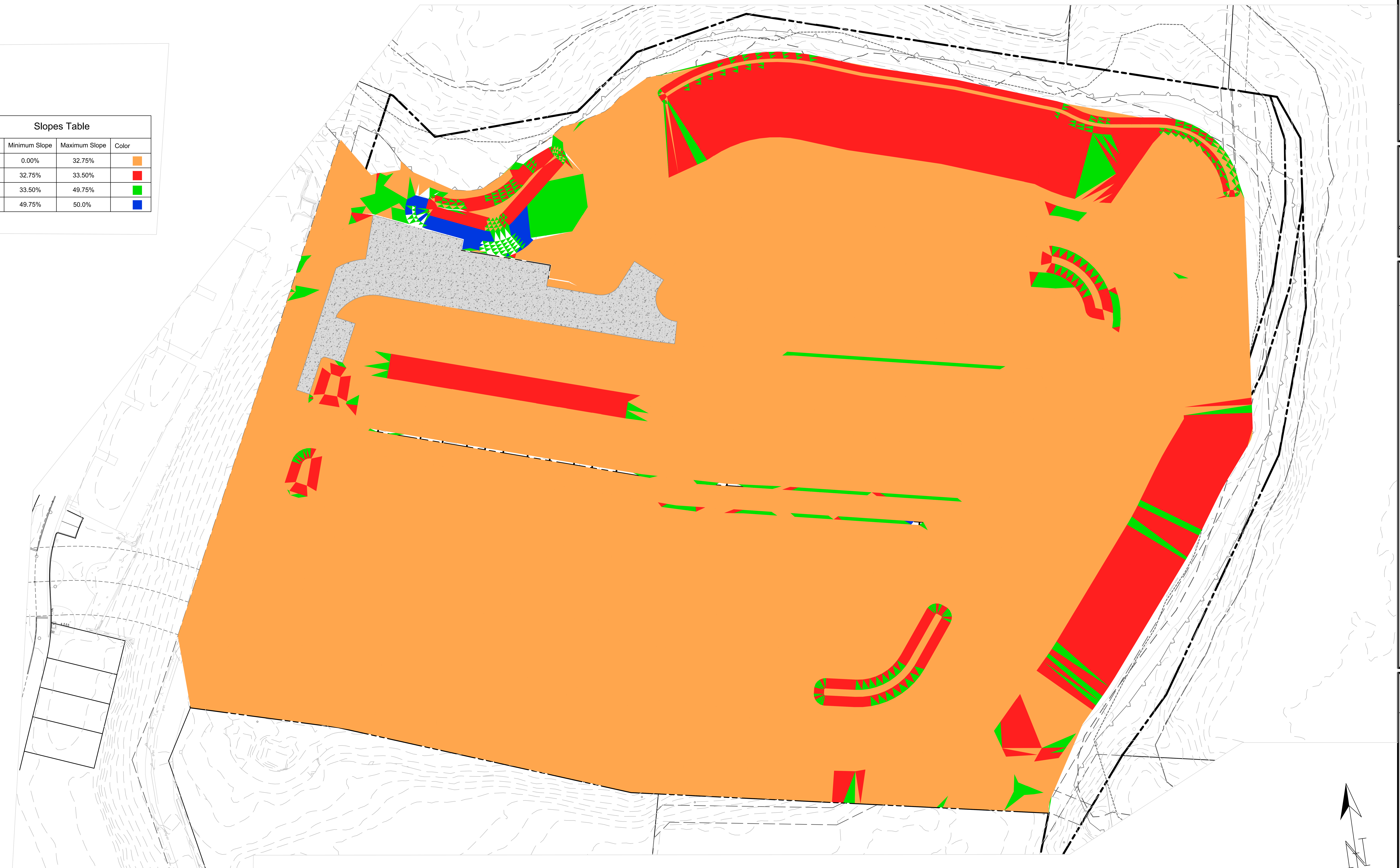
DESIGNED BY:	DMR
DATE:	08/12/2021
SCALE:	AS NOTED
PROJECT NO:	20-021
SHEET:	C5.7

Slopes Table

Number	Minimum Slope	Maximum Slope	Color
1	0.00%	32.75%	
2	32.75%	33.50%	
3	33.50%	49.75%	
4	49.75%	50.0%	



NOTES:

1. THE PURPOSE OF THIS PLAN IS SHOW THE THE GENERAL CONCEPTS FOR ROUGH GRADING DESIGN FOR REVIEW PURPOSES ONLY. THIS IS NOT INTENDED TO BE A CONSTRUCTION DESIGN TOOL.
2. SLOPE ANALYSIS IS ESTIMATED BASED ON SURFACE DESIGN TOOLS, IN AUTOCAD. DESIGN INTENT IS TO HAVE MINIMAL 2:1 SLOPES BEHIND UPPER TIERED WALL, WITH 3:1 SLOPES BEYOND. MOST OF THE SITE WILL BE DESIGNED AT LESS THAN 3:1 SLOPES.
3. THIS MAP DOES NOT PROVIDE CUT AND FILL LIMITS, NOR DOES IT SHOW 20'+ ELEVATION DIFFERENCES.
4. THERE ARE NO AREAS OF THE SITE THAT ARE IN JUST 20'+ ELEVATION FILL CONDITIONS NOR ARE THERE 20'+ ELEVATION DIFFERENCES SOLELY IN CUT CONDITIONS. THERE IS AN ELEVATION DIFFERENCE OF APPROXIMATELY 50 FEET FROM THE TOP OF THE SITE TO THE NORTH AND EAST PROPERTY LINES, BUT THERE IS A COMBINATION OF CUT AND FILL THROUGHOUT, TO MAKE UP THE PROPOSED DEVELOPMENT.

40' 0 20' 40' 80'

GRAPHIC SCALE: 1 INCH = 40 FEET

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REGISTERED PROFESSIONAL ENGINEER
DAVID RAMSEY
NO. C73735
CIVIL
STATE OF CALIFORNIA

DAVID RAMSEY DATE
RCE# 73735

APN# 018-372-14

PLAN TYPE
RESIDENTIAL SUBDIVISION

ESTIMATED SLOPE ANALYSIS
HILLCREST SUBDIVISION
511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

NUMBER	BY	DESCRIPTION	DATE
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SCALE:	AS NOTED
PROJECT NO:	20-021

SHEET:
C5.8

CUT & FILL TABLE			
Number	Minimum Elevation	Maximum Elevation	Color
1	-18.063	-1.000	(red)
2	-1.000	1.000	(green)
3	1.000	20.184	(blue)

NOTES:
1. ESTIMATED CUT AND FILL VALUES ARE BASED ON THE COMPARISON BETWEEN ROUGH GRADE AND EXISTING GRADE ELEVATIONS.

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DAVID RAMSEY
NO. C73735
CIVIL
STATE OF CALIFORNIA

DAVID RAMSEY — DATE
RCE# 73735

APN# 018-372-14

PLAN TYPE
RESIDENTIAL SUBDIVISION

ESTIMATED CUT / FILL ANALYSIS

HILLCREST SUBDIVISION

511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

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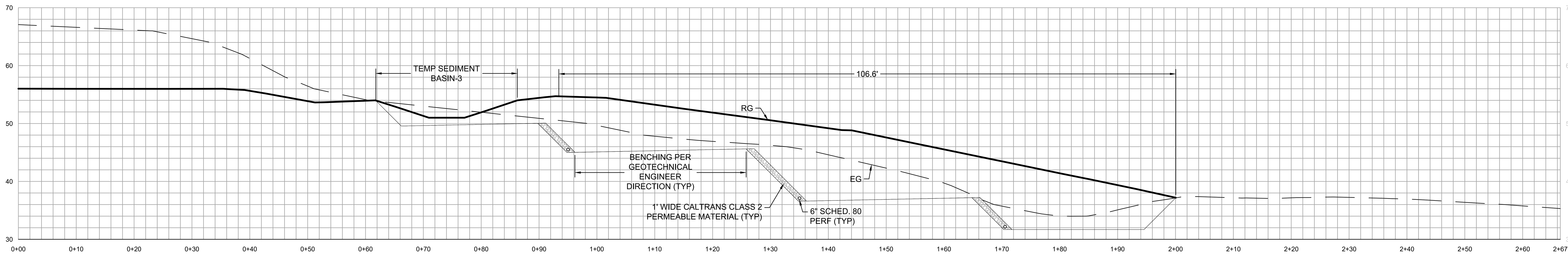
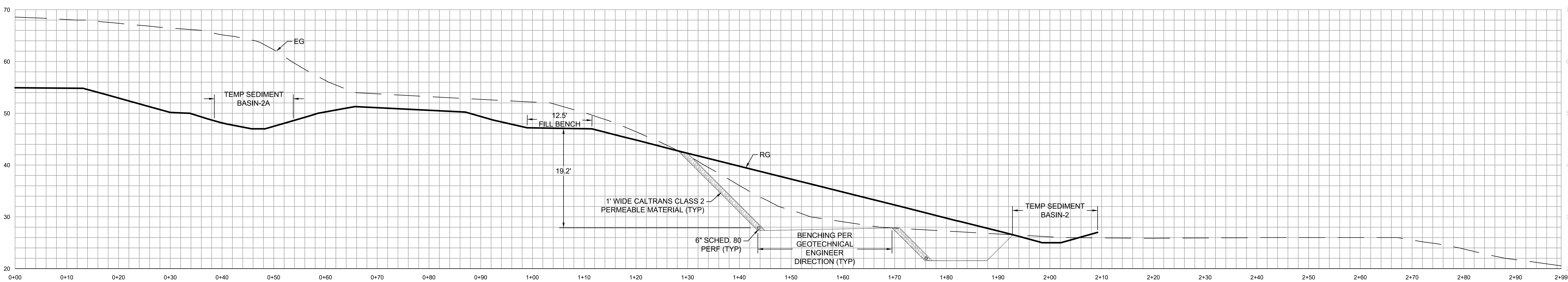
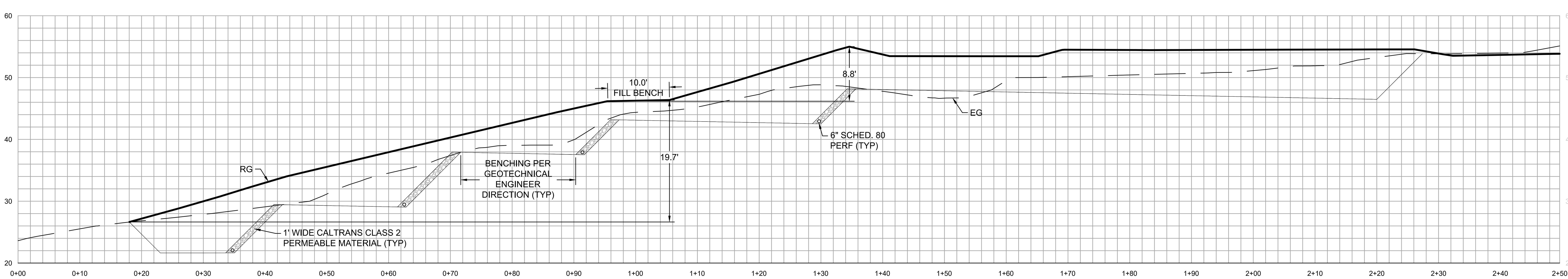


FILL ANALYSIS SECTON A-A



FILL ANALYSIS SECTION B-B



FILL ANALYSIS SECTION C-C

NOTES
1. SEE SHEET C5.9 FOR SECTION LINE LOCATIONS.
2. PROPOSED FILL BENCHING IS SHOWN FOR REFERENCE ONLY. GEOTECHNICAL ENGINEER WILL PROVIDE DIRECTION IN FIELD IF ADJUSTMENTS ARE REQUIRED.
3. PROVIDE 1% MINIMUM FALL ALONG ALL KEYWAYS, BENCHES, AND SUBDRAIN LINES.
4. ALL PERFORATED PIPES SHALL BE PLACED WITH PERFORATIONS FACING DOWN.
5. THE LOCATION OF THE BENCHING DRAINS MAY BE MODIFIED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER IN FIELD.

811 Know what's below. Call before you dig.

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DAVID RAMSEY DATE
RCE# 73735

APN# 018-372-14
PLAN TYPE
RESIDENTIAL
SUBDIVISION

CUT & FILL SECTIONS

HILLCREST SUBDIVISION

511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

REVISION BLOCK

NUMBER	BY	DESCRIPTION	DATE
C	GS/DMR	RESPONSE 3 - PLAN CHECK COMMENTS 03/11/2022	03/18/2022
B	GS/DMR	RESPONSE 2 - PLAN CHECK COMMENTS 10/08/2021	01/20/2022
A	GS/DMR	RESPONSE 1 - PLAN CHECK COMMENTS 09/21/2021	09/29/2021

DRAWN BY:	GS
DESIGNED BY:	DMR
DATE:	08/12/2021
SCALE:	AS NOTED
PROJECT NO:	20-021
SHEET:	C5.10

Development Project Description

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Source: Rincon Consultants, June 2021.
Addendum #2 to the Sunshine Vista Phased Development Project Environmental Impact Report

2 Project Description

The Modified Project would be located on the same project site as described and analyzed in the certified Final EIR for the Original Project. As described in the EIR, the project site is approximately 13 acres, consists of two assessor's parcels, and is located at 511 Ohlone Parkway in Watsonville, Santa Cruz County, California. Although the site address is Ohlone Parkway, the site is currently accessed from Errington Road. Figure 1 illustrates the location of the site within the region and Figure 2 shows the project site within the neighborhood context.

As described in Section 1, *Introduction*, the Modified Project consists of minor modifications to Original Project that was analyzed in the certified Final EIR and approved by the City of Watsonville City Council on August 28, 2018. As approved and analyzed in the certified Final EIR, the Original Project includes the clean-up of the project site, including removal of all junk vehicles, trash, debris, and structures from past uses; soil-remediation; export of approximately 49,552 cubic yards of soil. The export of soil includes removal of the approximately upper two feet of soil (approximately 33,195 cubic yards) due to contamination and the remaining due to grading to remove sloped terraces on the site. Removal of junk vehicles and debris from the site has since been completed, but export of soil has not been completed. The proposed minor modifications to the Original Project would include the use of more retaining walls to eliminate the need for extensive grading and soil export. The proposed modifications would also include export of shallow contaminated soils from the project site, but only a portion of the contaminated soils. Specifically, approximately 18,830 cubic yards of shallow contaminated soils would be kept on-site, and the rest would be exported off-site and disposed of a landfill certified to handle hazardous materials, in accordance with regulations, consistent with the Original Project. The shallow contaminated soils retained on-site would be buried in an "envelope" following the California Department of Toxic Substances Control's (DTSC) "Area of Containment" guidelines for remediation of metals in soils (DTSC 2008). Deeper soils without contaminant exceedances would be used to backfill and bury the envelope, creating a clean cap over the contaminated soils. Finally, a proposed new roadway and parking area for the project would be constructed over the burial area, creating an impervious cap over the area. The proposed soil burial area is shown on Figure 3 as roadway and surface parking with gray shading. The proposed Remediation Action Plan, consisting of a report prepared by Weber, Hayes & Associates in January 2021, is provided as Appendix A to this Addendum. The proposed Remediation Action Plan is pending approval from County of Santa Cruz Health Service Agency.

As approved and analyzed in the certified Final EIR, the primary and only vehicle access to the project site, excluding emergency access, would be from a new roadway entrance. This roadway would extend Loma Vista Drive east through a sloped area within the existing Sea View Ranch residential development west of the project site. The proposed minor modifications to the Original Project would provide a secondary vehicle access from existing Errington Road, which currently provides access to the project site, as well as several other parcels adjacent to and south of the project site. Turning movement onto Errington Road would be restricted to right-turns only from northbound Ohlone Parkway, thereby effectively making Errington a one-way street into the project site. Therefore, this scenario would also include modifying the existing road striping or median, or both, on Ohlone Parkway to reinforce prohibitions of left turns from Ohlone Parkway onto Errington Road. Existing road striping currently prohibits left turns onto Errington Road from Ohlone Parkway, but tire wear through the striping suggests that left turns do occur.

As approved and analyzed in the certified Final EIR, the project site would be developed with 150 housing units. The proposed minor modifications to the Original Project include reducing the density of the residential development to 144 units, which is six fewer units than approved in the Original Project and analyzed in the certified Final EIR. In addition to six fewer housing units, the Modified Project includes minor changes to the architectural design of the housing units. The reduction in density is accompanied by minor modifications to the design or layout of the development, such as the size and location of open space areas and stormwater management facilities on the site, alignment of on-site trails, alignment of internal circulation roads and utilities, and the use of more retaining walls to reduce extensive grading. However, the Modified Project design, including required grading, would be within the limits of disturbance for the Original Project analyzed in the certified Final EIR. In other words, while the Modified Project site plan is slightly different than the Original Project site plan, the Modified Project would not require disturbance in areas different from that of the Original Project. The conceptual site plan for the Modified Project is shown on Figure 4.

As approved and analyzed in the certified Final EIR, the project was called Sunshine Vista Phased Development Project. It should be stated to avoid confusion that the Modified Project also includes renaming the project to Hillcrest Subdivision. Renaming the project has no potential to cause or result in physical environmental impacts. Therefore, the renaming of the project is not discussed further in this Addendum.

Figure 1 Regional Location

Imagery provided by ESRI and its licensors © 2016.

EIR Fig 2 Regional Location

Figure 2 Project Site Location

Imagery provided by Esri and its licensors © 2018.

Figure 3 Soil Burial Plan

CONTAMINATED SOIL MITIGATION

NOTES:
1. LIMITS OF SOIL REMOVAL TAKEN FROM WEST AND SOUTH PROPERTY LINES TO SOUTHERLY & WESTERLY EDGES OF FUTURE NATURE TRAIL.
2. NATURE TRAIL SOIL MITIGATION WILL BE ADDRESSED WITH THE REMOVAL OF SOILS FOR THE STRUCTURAL SECTION OF NEW PATH (3" ASPHALT OVER 9" AGG BASE = TOTAL OF 12" REMOVAL)
3. CONTAMINATED SOIL BURIAL AREA TO OCCUR UNDER IMPERVIOUS SURFACES PER REPORTS BY WEBER HAYES AND ASSOCIATES
4. DEPTH FROM BOTTOM OF CONTAMINATED SOILS TO HIGH WATER MARK (ELEV 11) = 15' MIN. THEREFORE, BOTTOM ELEVATION OF BURIAL PIT = 26' MINIMUM.
5. TOP BURIAL TAKEN TO BOTTOM ROAD SUBBASE.
6. ASSUMES 15% COMPACTION FACTOR AT 12" LIFTS COMPACTED TO 90% MIN. OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
7. CUT MATERIAL (NON CONTAMINATED), NOTED BELOW, TO BE USED ELSEWHERE ONSITE.

SOIL REMOVAL:

8,803	CUBIC YARDS EXCAVATION (TOP 6" SOIL)
26,408	CUBIC YARDS EXCAVATION (18" BELOW 6" TOP SURFACE LAYER)
35,211	CUBIC YARDS (CONTAMINATED SOILS TO BE REMOVED OR BURIED)

BURIAL SITE:
AREA (FOOTPRINT) = 17,100 SQUARE FEET
BOTTOM DEPTH 26 FEET (15' ABOVE MSL ELEV. 11')

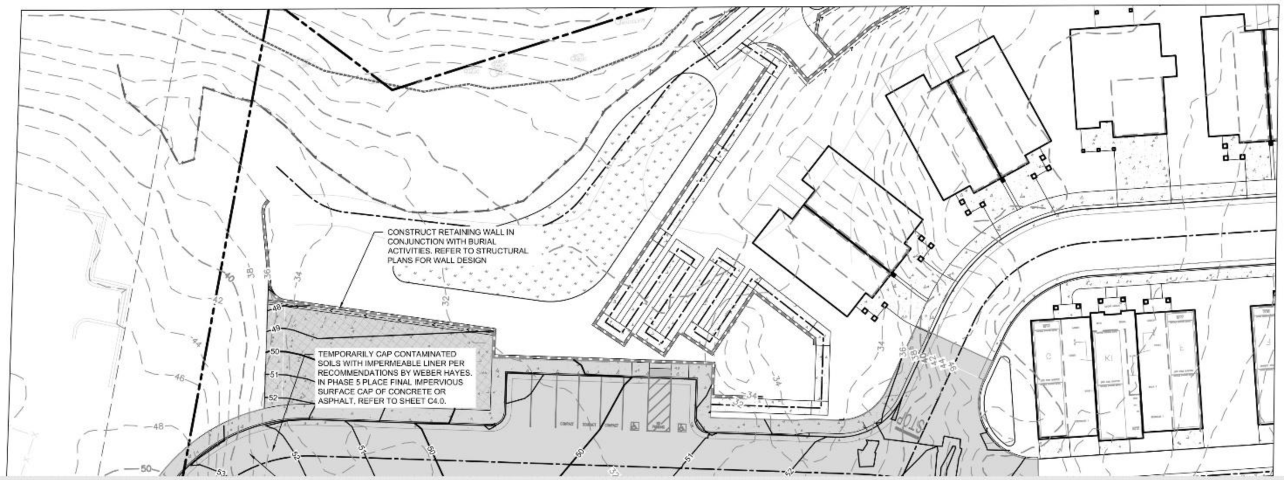
5,396	CUBIC YARDS EXCAVATION TO BOTTOM BURIAL (ELEV. 26) *NOTE CLEAN MATERIAL TO BE USED AS FILL ONSITE IF NEEDED
18,830	CUBIC YARDS OF BURIED MATERIAL
16,381	CUBIC YARDS TO BE OFF-HAULED TO HOLLISTER

NATURE TRAIL EXCAVATION:
AREA (FOOTPRINT OF TRAIL) = 12,865 SF
DEPTH OF REMOVAL (ASPHALT SECTION) = 12 INCHES
476 CUBIC YARDS OF OFF HAUL MATERIAL TO HOLLISTER

POST SOIL MITIGATION EARTHWORK QUANTITIES

46,340	CUBIC YARDS EXCAVATION
52,180	CUBIC YARDS EMBANKMENT
5,840	CUBIC YARDS (EMBANKMENT)

NOTES
1. ESTIMATE DOES NOT INCLUDE BUILDING FOOTINGS OR RETAINING WALL FOUNDATIONS, UTILITY TRENCH VOLUMES OR ANY OVEREXCAVATION, IF REQUIRED BY SITE CONDITIONS.
2. ESTIMATE ASSUMES A 15%



Source:
Reproduced as-is (with greyed-our lower half) from the City of Watsonville Project Webpage:
https://cityofwatsonville.org/DocumentCenter/View/16506/6-Hillcrest-Sub-EIR-Addendum-2

Figure 4 Project Site Plan

APPENDIX B

Summary of Subsurface Conditions Documented in Previously Completed Environmental Investigations

(Summary Figures & Tables)

Weber, Hayes & Associates	***Phase I/II Environmental Site Assessment*** **(February 2004)**
Lowney Associates	***Soil Quality Evaluation*** **(September 2004).**
Weber, Hayes & Associates	***Phase I/II Environmental Site Assessment*** **(July 2016)**
Trinity Source Group	***Additional Phase II Environmental Site Assessment Report*** **(December 2016)**

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Drive, Watsonville, CA 95076
(831) 722-3580 // www.weber-hayes.com

Summary of Subsurface Conditions and Previously Completed Environmental Investigations

511 Ohlone Parkway, Watsonville ("Site", Figure 1)
Assessor Parcel Number 018-372-14

The 11.2-acre subject Site has historically been used for car salvaging and repair businesses for the last 49 years. Recently, business operations have been shut down and the entire property has been cleared of all vehicles and all stored materials. Soils and groundwater beneath the site have been extensively tested as part of four (4) separate environmental assessment investigations, which have shown groundwater to be free of chemical impacts and soil impacts to be generally limited to shallow depths (i.e., less than 2 feet). The Sunshine Vista Development project proposes to remediate residual contamination at the site and construct a residential development in this location.

1.0 INFORMATION SOURCES

Information described in this summary of Site conditions was obtained from the following four (4) environmental testing reports that evaluated soil and groundwater conditions on the subject Site (511 Ohlone Parkway, which had a former address as 600 Errington Road).

1. (WHA[1], 2004), *Phase I/II Environmental Site Assessment,* 600 Errington Road, dated February 2004
2. (Lowney[2] 2004), *Soil Quality Evaluation,* Cluster Property, dated September 2004.
3. (WHA, 2016), *Phase I/II Environmental Site Assessment*, 511 Ohlone Parkway, dated July 2016.
4. (Trinity[3] 2016) *Additional Phase II Environmental Site Assessment Report*, dated December 2016.

2.0 GENERAL LAND USE INFORMATION (CURRENT/HISTORICAL)

2.1 Site Description and Background

The irregularly-shaped, 11.27-acre subject parcel is a small, terraced hilltop having approximately 120 feet of elevation change that extends from the Watsonville slough up to the upper terrace (elevations range from 10 to 140 feet above Mean Sea Level, see clip below). Aside from a few structures, the property is dirt covered and the tiers of flat-lying terraces are connected by dirt and gravel access roads. Remaining areas are vegetated, which include the steeper contoured hillsides and areas adjacent to the slough.

Up until recently, the open terraces were primarily occupied by various automotive wrecking/dismantling and vehicle storage businesses (i.e., junkyard salvaging of vehicles, sales of dismantled parts, and towing company storage). As shown on the terrain clip (below), the Site contained a few commercial structures that are scheduled for demolition. They are generally constructed as simple, steel-sided structures with slab on grade foundations and they were used to support the vehicle storage and salvaging operations. The Site also contained a long-term residence.

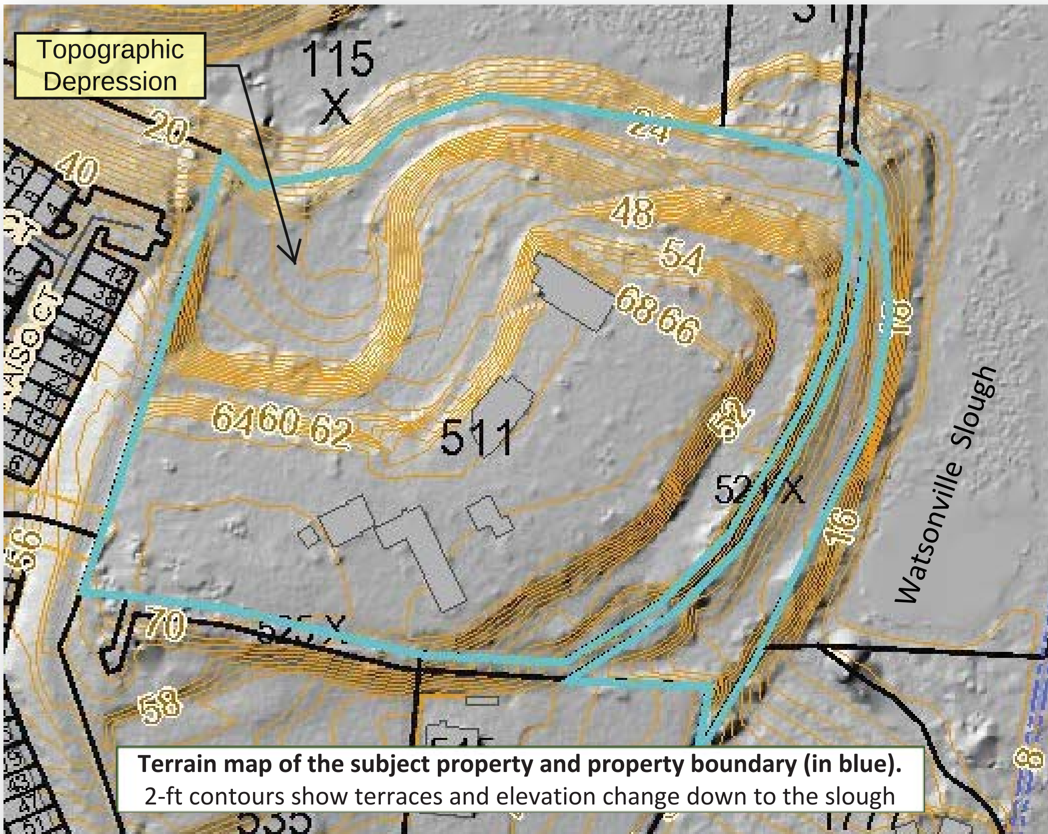
---

[1]: WHA: Weber, Hayes & Associates

[2]: Lowney: Lowney Associates

[3]: Trinity: Trinity Source Group

The Site is bordered to the north and east by Watsonville Slough, to the south by a trucking and hauling company, to the southeast by vacant land recently approved for residential development (i.e., Sunshine Gardens Residential Project), and to the west by an access road (former Errington Road) and residential developments.



Terrain map of the subject property and property boundary (in blue).
2-ft contours show terraces and elevation change down to the slough

The long history of junkyard operations included vehicle storage, dismantling, crushing, burning, repair, and bodywork and automotive waste fluids storage. Based on this commercial-industrial land use, four (4) separate environmental sampling and testing investigations were conducted to evaluate potential impacts to soil and groundwater. Drilling and trenching investigations included the analysis of 249 soil samples from 145 locations across the Site. A detailed description of the four investigations is presented in the following section, and summary figures and tables are attached to this Appendix. The sampling and testing investigations revealed that contaminant impacts are generally limited to shallow soils (i.e., less than 2 feet), and groundwater has not been impacted by the commercial operations conducted and the chemicals used at this Site.

2.2 Land-Use History

Historical aerial photographs taken between 1937 and 2012 indicate that the subject Site was undeveloped, possibly used as grazing lands, in the 1930s and remained so until sometime between 1958 and 1968. By 1968, the Site began automotive wrecking and salvage activities on the western and central portions of the Site. These activities appear to have peaked by the mid-1970s, when the most vehicles were present. Between 1993 and 2005, Site activities as auto wrecking and salvage appear to have decreased, as evidenced by the significant reduction in vehicles being stored at the Site. The Site appears in more or less its current configuration, with the same buildings and roadways as present day, beginning around 1981. Multiple automotive wrecking/dismantling and auto repair businesses have operated on the Site during the past sixty (60) years. More recently, several areas of the Site have ceased to be utilized for commercial businesses and have transitioned to private storage and work spaces. This includes areas in the northwest of the Site and in the south-central buildings.

2.3 Site Infrastructure (Utilities, Wells and Storage Tanks

The site is undergoing demolition for redevelopment which will include demolition of existing site infrastructure (septic tanks, water distribution system) and installation of new utility infrastructure that will tie into municipal utilities. Existing utilities are no longer active aside from an active water supply well that will continue to be used as a construction water source. This well will be destroyed under permit prior to the end of redevelopment activities.

2.4 Local Geologic and Hydrogeologic Conditions

The Site is a topographic knob, flanked to the north and east by the Watsonville Slough, with three distinct terraces, including the upper terrace which has an elevation of ~70 feet MSL, the middle terrace at ~50 feet MSL, and the lowest terrace at ~25 feet MSL. Historic grading at the Site included cutting (lowering) and filling. Fill areas reportedly include soils from onsite graded materials and debris (abundant tires, vehicle parts, and concrete rubble).

Numerous exploratory borings were cored over the years which generally encountered clay in the surface and shallow soils to depths of approximately 4 to 8 feet bgs, underlain with silty sand. These shallow soil conditions are relatively consistent across the site, regardless of elevation. Non-native surficial fill material was encountered in the majority of borings ranging in thickness of about 0.5 to 2 feet. First groundwater was encountered at depths ranging from 19.7 to 33.7 feet bgs (not necessarily stabilized water table conditions).

3.0 SUMMARY OF PREVIOUS SOIL & GROUNDWATER INVESTIGATIONS

3.1 Initial Investigation (2004): *Phase I/II Environmental Site Assessment (ESA)* [4]

A *Phase I land use evaluation* identified the following potential liabilities associated with Site use:

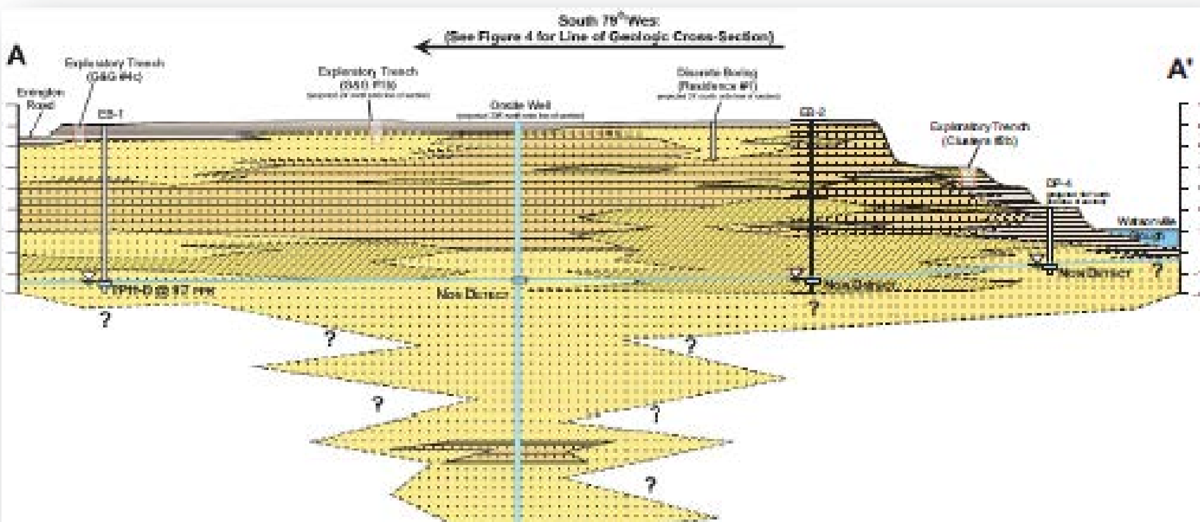
- Long term storage and dismantling of vehicles on native soils.
- Long term handling, containerization, and disposal of hazardous material waste streams generated from dismantling, crushing operations. On-site storage included non-secondarily contained wastes including used oils, used transmission fluid, used antifreeze, used fuels (diesel and gasoline), used batteries, degreasers, cleaning fluids, thinners, paints, tires, fixtures (mercury), and scrap metals.
- A number of fill wedges containing tires, debris and non-native fill soils.

Based on these potential liabilities, a *Phase II soil and groundwater testing program* was implemented that included the collection and laboratory analysis of soil collected at sixty-five (65) locations across the Site. Samples were selectively composited and analyzed for:

[4]: WHA report: *Phase I /II Environmental Site Assessment*, dated February 13, 2004.

- *Fuels and Oils*: Total Petroleum Hydrocarbons (TPH) as diesel, motor oil, and gasoline (TPH-d and TPH-mo, TPH-g)
- Volatiles: Volatile solvent compounds (halogenated volatile organic compounds, HVOCs) and volatile constituent fuel compounds (benzene, toluene, ethylbenzene, xylenes and methyl-tertbutyl ether, BTEX-MTBE)
- Metals: Leaking underground fuel tank metals suite (LUFT 5: cadmium, chromium, lead, nickel, zinc), and mercury.
- Antifreeze: Ethylene glycol.

Tabulated results and figures of this assessment are attached to this Appendix. The 2004 Phase II sampling and testing results indicated:



WHA (2004), Site Cross-Section

Shallow Soils: Isolated areas of shallow soil contamination were identified, but generally limited to relatively low-level, motor oil-range petroleum hydrocarbons. The results did not indicate evidence of any significant chemical release at the site. In addition, isolated pockets of elevated lead contamination were identified on the western portion of the Site.

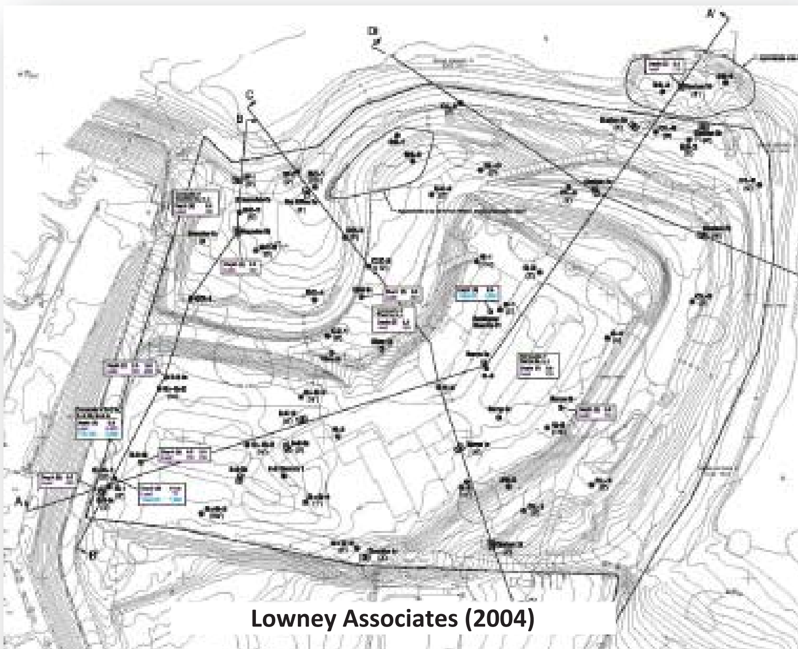
Groundwater: *Trace* concentrations of TPH Diesel and 1,1,1-Trichloroethane (1,1,1-TCA) were detected in groundwater, however at concentrations well below their respective MCL threshold limits. The trace detections did not warrant agency-required investigative actions by the Central Coast Regional Water Quality Control Board.

Results of this earlier assessment indicated that relatively minor, localized shallow soil contamination was present at the Site as TPH and Lead, and that groundwater was not significantly impacted.

3.2 Follow-up *Soil Quality Evaluation* (2004)[5]:

A follow-up, *Soil Quality Evaluation* was completed to further evaluate the Lead and Total Petroleum Hydrocarbon impacts detected in the initial property transaction screening of soils and groundwater described in Section 3.1, above. Specifically, Lowney sampled thirty-three (33) soil boring throughout the Site ranging in depth from 4 to 16 feet bgs. Tabulated results and figures of this assessment are attached to this Appendix.

The Lowney report found only one (1) of seventy-six (76) total samples had an exceedance of Lead (110 mg/Kg) above conservative health risk screening levels with no exceedances of TPH-diesel or motor oil (by current 2016 standards). The report concluded that the Lead contamination was not widespread.



Lowney Associates (2004)

3.3 Subsequent Phase I/II ESA (2016)[6]

Twelve years after the initial soil and groundwater testing described above, WHA conducted a second *Phase I/II ESA* to evaluate whether there were apparent changes since the earlier assessment was completed. The Phase I land use evaluation identified the same potential liabilities identified in the earlier 2004 *Phase I ESA*. And similarly, a *Phase II soil and groundwater testing program* was implemented that included the collection and laboratory analysis of soil collected at twenty-three (23) locations across the Site, and grab-groundwater samples collected from 6 borings positioned around the perimeter of the Site.

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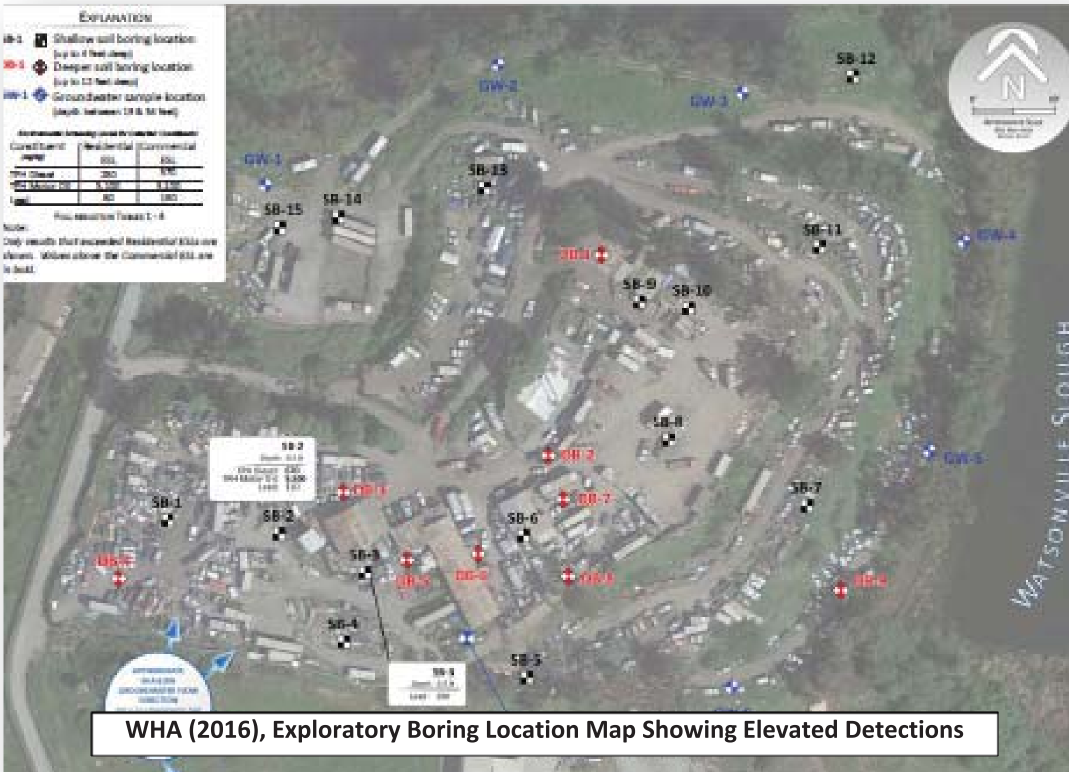
[5]: Lowney Associates report, *Soil Quality Evaluation*, Cluster Property September 2004.

[6]: WHA report: *Phase I/II Environmental Site Assessment*, 511 Ohlone Parkway, dated July 2016



WHA (2016), Exploratory Boring Location Map Showing Elevated Detections

Specifically, samples were collected from fill and native soils and analyzed for TPH-g, TPH-d and TPH-mo, CAM 17 metals, and selected samples were analyzed for volatile organic compounds. Tabulated results and figures of this assessment are attached to this Appendix. Exploratory borings targeted:

- Shallow Soil Inspection and Sampling: Fifteen (15) shallow soil borings (SB-1 through SB-15) were continuously-cored throughout the Site and collected samples at depths 0.5, 2 and 4 feet below the ground surface (bgs). These shallow soil borings were intended to provide cost-effective, broad coverage that would be representative of near surface soils at vehicle storage / dismantling areas and other heavy land use areas adjacent to established Site structures/workshops. Initially, all shallow soil samples collected at 0.5 feet bgs were analyzed by a State-certified laboratory for the potential contaminates of potential concern. Deeper soil samples were subsequently tested if shallow soil contamination was detected.
- Deeper Soil Inspection and Sampling: In addition, eight (8) deeper soil borings were cored to depths of 8 to 12 feet bgs. Soil cores were collected using a pneumatically driven, direct push drill rig (i.e., samples DB-1 through DB-9; note: DB-3 not installed to drill rig access limitations). The borings targeted industrial/commercial land use areas adjacent to established Site structures/ workshops, with a few of the borings targeting vehicle dismantling areas, a reported potential UST/AST location, and a reported vehicle burn area. Soil samples collected from a depth of 2 feet bgs from each boring were initially analyzed by a State-certified laboratory for potential contaminates of potential concern.
- Grab Groundwater Sampling: Grab groundwater samples at six (6) boring locations that were positioned around the perimeter of the Site, in the apparent downgradient direction from the

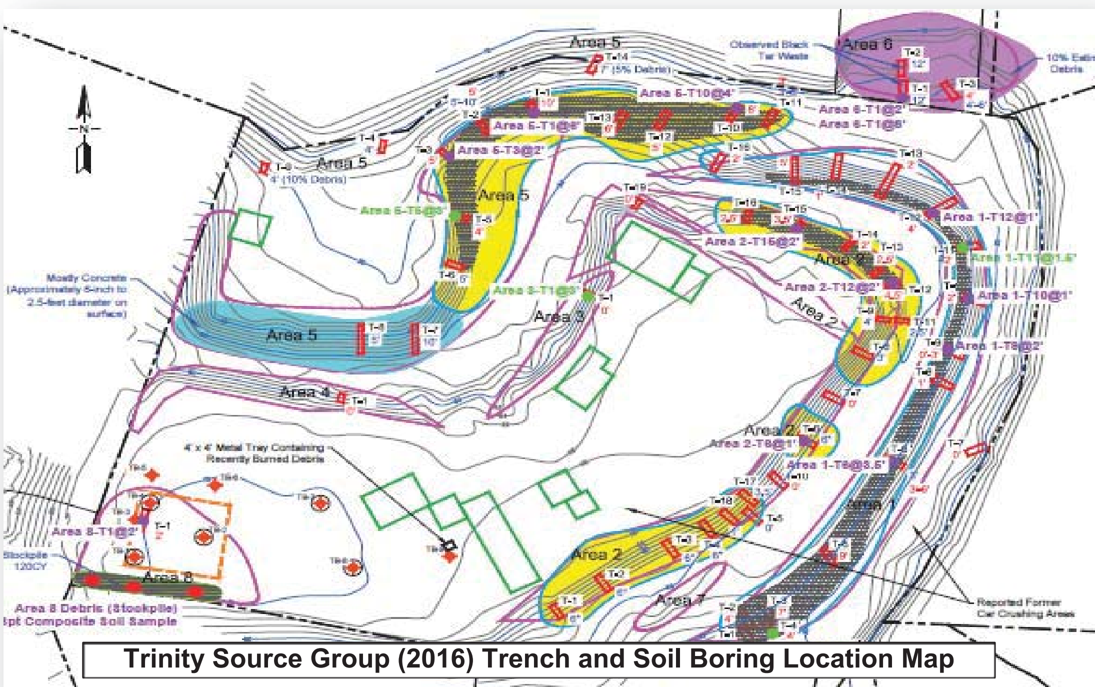
automotive salvage facilities (GW-1 through GW-6). Depth to groundwater in these borings ranged from 19.7 to 33.7 feet bgs. A water quality sample was also obtained from the onsite production well (PW-1).

The Phase I/II ESA concluded that based on field observations and laboratory results (which were designed to provide a representative indication of the environmental quality of shallow soil conditions), the long-term automotive maintenance, salvaging/wrecking activities have not caused significant negative impacts to Site soils, and that impacted soils are likely limited to the top one to two feet bgs. In addition, laboratory testing again confirmed that groundwater was not impacted by current/historical land use site activities.

3.4 Additional Phase II Sampling Report (2016)[7]

Trinity Source Group completed additional exploratory trenching and soil testing activities to address perceived data gaps that included:

- Debris fill slopes along the edges of the cut-and-fill terraces;
- Additional chemicals of potential concern targeting agricultural land use (i.e., organochlorine pesticides. OCPs), additional junkyard wastes (i.e., polychlorinated biphenyls, PCBs and polynuclear aromatic hydrocarbons, PNAs), and vehicle burn areas (dioxins).



Trinity Source Group (2016) Trench and Soil Boring Location Map

Tabulated results and figures of this assessment are attached to this Appendix. The assessment identified the following:

[7]: Trinity Source Group: *Additional Phase II Environmental Site Assessment Report*, dated December 2016.

- Debris Fill Areas: Backhoe trenching was used to assess subsurface debris areas containing tires, vehicle parts, and concrete. The assessment concluded that debris fill areas are typically located on steep slopes separating the terraces and that Site redevelopment grading plans already address the removal of this debris prior to construction.
- No Pesticides, PCBs or Dioxins: Testing showed that native soils did not contain organochlorine (persistent) pesticides or PCBs above screening levels. In addition, testing for Dioxins adjacent to worst case fire pit location showed that concentrations did not the exceed residential screening threshold established by the Department of Toxic Substances Control (DTSC).
- Shallow Soil Contamination: As expected, stained surface soils at some locations contained concentrations of PNAs, TPH-mo, VOCs, and hexavalent chromium above agency screening levels. Development grading plans show these soils to be part of surplus soils that will be off-hauled (and property disposed of) as part of the new development plans.
    - ***Chemicals of Potential Concern* (COPC) for the Site based on researched land use, were detected at concentrations exceeding Tier 1 agency threshold limits but the detections are typically localized and appear to be limited to shallow soil in the top 2 feet below ground surface.**
    - Site-wide, Lead is the most widespread COPC. Hexavalent chromium and arsenic are present in presumed native soils, and may represent background conditions.
- Adjoining Parcel: An adjoining parcel assessed as part of the Phase II evaluation is located outside of the residential development footprint (identified as "Area 6). This area was documented to contain debris fill and soil impacts that exceed agency screening thresholds. This adjoining parcel is located within a sensitive habitat area and will need to be further delineated for future remedial planning.

3.5 Upcoming Tasks

Site redevelopment will involve extensive grading to lower the upper elevations at the Site so there is a net surplus of soils. Therefore, a *Remedial Action Plan* will evaluate and identify cost-effective earthwork options that will abate known shallow contaminated areas.

4.0 REFERENCES

California Department of Toxic Substances Control (DTSC). Human and Ecological Risk Office, Human Health Risk Assessment

- (DTSC, 2016) *Note Number 3*, June 2016.

Central Coast Regional Water Quality Control Board (CC-RWQCB)

- Water Quality Control Plan for the Central Coastal Basin, June 2011.

Lowney Associates, report on the 511 Ohlone Parkway property (formerly 600 Errington Road):

- (Lowney 2004), *Soil Quality Evaluation,* Cluster Property, dated September 2004.

Trinity Source Group, report on the 511 Ohlone Parkway property:

- (Trinity 2016), Additional Phase II Environmental Site Assessment Report, dated December 2016.

Weber, Hayes & Associates reports on the 511 Ohlone Parkway property (formerly 600 Errington Road):

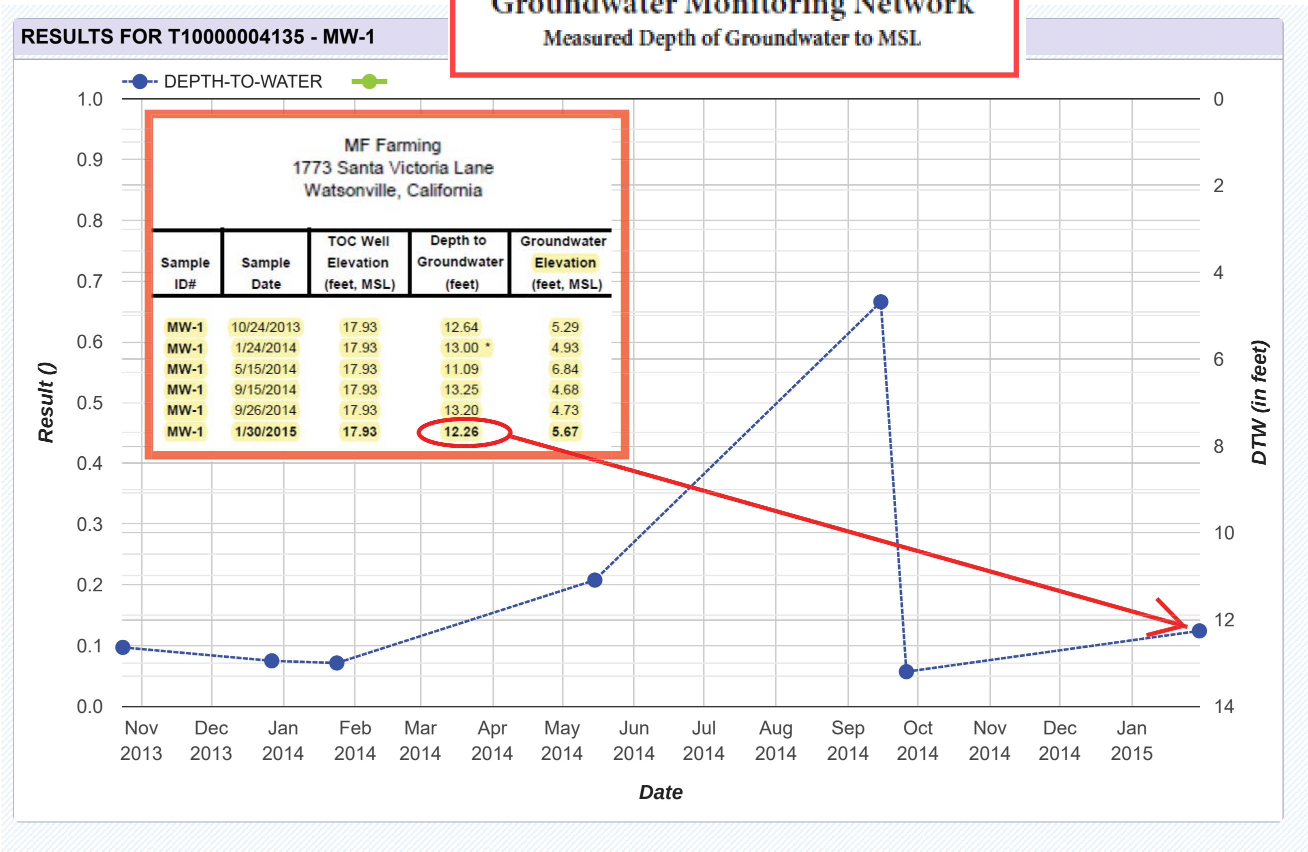
- (WHA, 2004), *Phase I/II Environmental Site Assessment,* 600 Errington Road, dated February 2004.

- (WHA, 2016), *Phase I/II Environmental Site Assessment*, 511 Ohlone Parkway, dated July 2016.

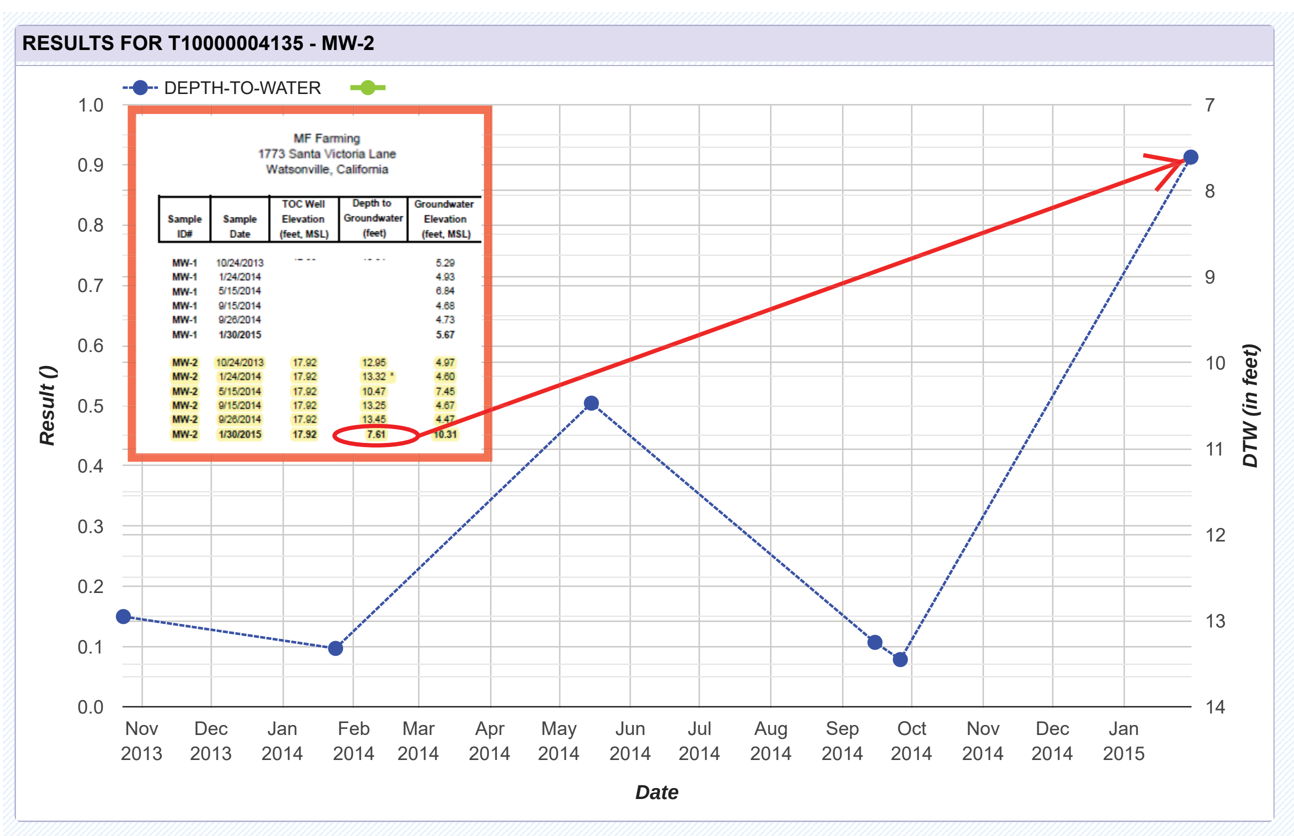
United States Environmental Protection Agency (US-EPA)

- *Regional Screening Levels for Chemical Contaminants at Superfund Sites, Users Guide* https://www.epa.gov/risk/regional-screening-levels-rsls-users-guide-may-2016 ,

Adjacent Site
Groundwater Monitoring Network
Measured Depth of Groundwater to MSL

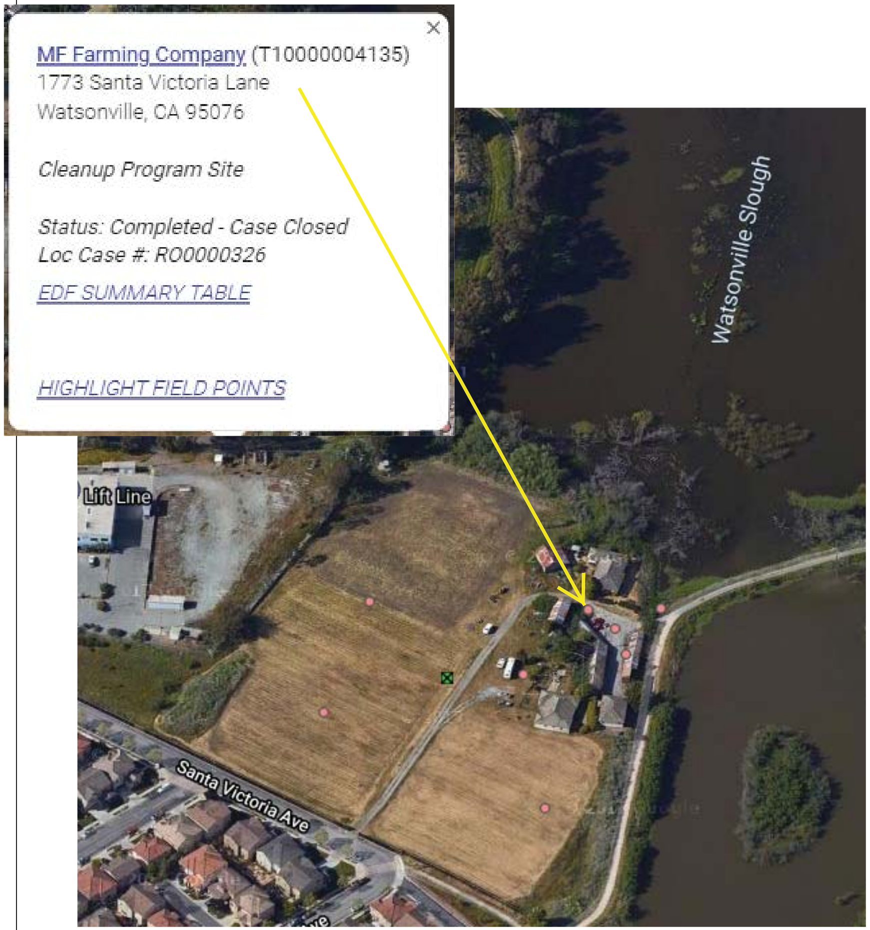


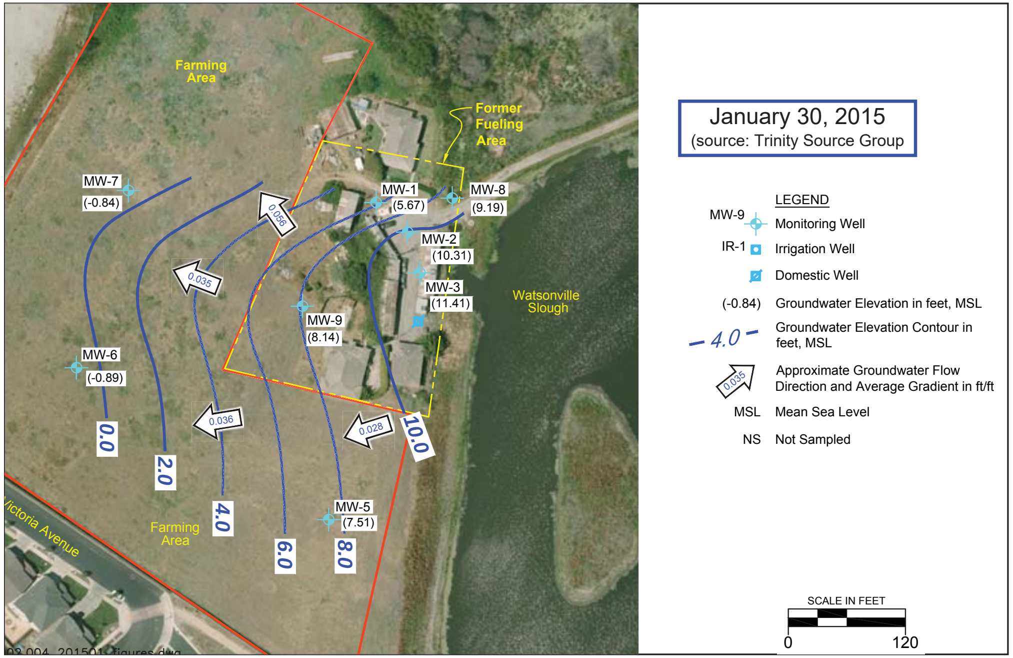
Sample ID#	Sample Date	TOC Well Elevation (feet, MSL)	Depth to Groundwater (feet)	Groundwater Elevation (feet, MSL)
MW-1	10/24/2013	17.93	12.64	5.29
MW-1	1/24/2014	17.93	13.00 *	4.93
MW-1	5/15/2014	17.93	11.09	6.84
MW-1	9/15/2014	17.93	13.25	4.68
MW-1	9/26/2014	17.93	13.20	4.73
MW-1	**1/30/2015**	**17.93**	**12.26**	**5.67**



Sample ID#	Sample Date	TOC Well Elevation (feet, MSL)	Depth to Groundwater (feet)	Groundwater Elevation (feet, MSL)
MW-1	10/24/2013			5.29
MW-1	1/24/2014			4.93
MW-1	5/15/2014			6.84
MW-1	9/15/2014			4.68
MW-1	9/26/2014			4.73
MW-1	1/30/2015			5.67
MW-2	10/24/2013	17.92	12.95	4.97
MW-2	1/24/2014	17.92	13.32 *	4.60
MW-2	5/15/2014	17.92	10.47	7.45
MW-2	9/15/2014	17.92	13.25	4.67
MW-2	9/26/2014	17.92	13.45	4.47
MW-2	**1/30/2015**	**17.92**	**7.61**	**10.31**

Adjacent Site
Groundwater Monitoring Network
Measured Depth of Groundwater to MSL





December 2016:

Additional Phase II Environmental Site Assessment Report

Trinity Source Group

Weber Hayes and Associates

Table 1
Trench Soil Sample Polynuclear Aromatic Hydrocarbons and Volatile Organic Compound Analytical Data
Clusters Junkyard
511 Ohlone Parkway
Watsonville, California

Sample ID	Sample Date	Sample Depth (ft bgs)	EPA Method												
			8270C-SIM												8260B
			Anthracene (mg/kg)	Benzo(a) anthracene (mg/kg)	Benzo(b) fluoranthene (mg/kg)	Benzo(k) fluoranthene (mg/kg)	Benzo(a) pyrene (mg/kg)	Benzo (g,h,i) perylene (mg/kg)	Chrysene (mg/kg)	Fluoranthene (mg/kg)	Indeno (1,2,3-cd) pyrene (mg/kg)	Naphthalene (mg/kg)	Phenanthrene (mg/kg)	Pyrene (mg/kg)	VOCs (mg/kg)
Area 1-T6	10/12/2016	3.5	<0.0050	**0.014[a]**	<0.0050	<0.0050	<0.0050	<0.0050	**0.0082[a]**	**0.0097[a]**	<0.0050	**0.016[a]**	<0.0050	**0.021**	A
Area 1-T9	10/12/2016	2	**0.015[a]**	**0.017**	<0.0050	<0.0050	<0.0050	**0.013[a]**	**0.0077[a]**	**0.014[a]**	<0.0050	**0.017**	**0.014[a]**	**0.038**	ND
Area 1-T10	10/13/2016	1	**0.0037**	**0.0023**	**0.0042**	**0.0011**	<0.0010	<0.0010	<0.0010	**0.0012**	<0.0010	<0.0010	**0.0016**	**0.0025**	ND
Area 1-T12	10/13/2016	1	<0.0010	**0.0034**	**0.0079**	**0.0019**	**0.0038**	**0.0045**	**0.0034**	**0.0064**	**0.0030**	<0.0010	**0.0042**	**0.0064**	ND
Area 2-T6	10/12/2016	1	**0.0030**	**0.0020**	**0.0026**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0011	<0.0010	<0.0010	<0.0010	<0.0016	ND
Area 2-T12	10/12/2016	2	<0.0010	<0.0013	**0.0078**	<0.0010	**0.0021**	**0.0032**	**0.0021**	**0.0021**	**0.0032**	<0.0010	<0.0010	**0.0021**	ND
Area 2-T15	10/12/2016	2	**0.013**	**0.017**	<0.0050	<0.0050	<0.0050	**0.019**	**0.0072**	**0.012**	<0.0050	**0.020**	**0.011**	**0.032**	ND
Area 5-T1	10/13/2016	6	**0.015[a]**	**0.022**	<0.0050	<0.0050	<0.0050	**0.014[a]**	**0.0081[a]**	**0.018**	**0.012[a]**	**0.018**	**0.016**	**0.039**	ND
Area 5-T3	10/13/2016	2	<0.0098	**0.046**	**0.051**	<0.0098	<0.0098	**0.030**	**0.034**	**0.029**	<0.0098	**0.043**	**0.026**	**0.079**	ND
Area 5-T10	10/13/2016	4	**0.0030[a]**	**0.0024[a]**	**0.0033[a]**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0011	<0.0010	<0.0010	<0.0010	<0.0016	ND
Area 6-T1	10/13/2016	2	<0.010[b]	<0.013[b]	<0.010[b]	<0.010[b]	<0.010[b]	**0.022[a,b]**	<0.010[b]	<0.011[b]	<0.010[b]	**0.018[a,b]**	<0.010[b]	**0.025[a,b]**	ND
Area 6-T1*	10/13/2016	8	<0.16[b]	<0.21[b]	<0.16[b]	<0.16[b]	<0.16[b]	<0.16[b]	<0.16[b]	<0.17[b]	<0.16[b]	**0.28[a,b]**	<0.16[b]	<0.25[b]	ND
Area 8-Debris**	10/11/2016	--	<0.010[b]	<0.013[b]	<0.010[b]	<0.010[b]	<0.010[b]	<0.010[b]	<0.010[b]	<0.011[b]	<0.010[b]	**0.067[b]**	<0.010[b]	<0.016[b]	ND
Area 8-T1	10/11/2016	2	**0.0049[a]**	**0.0055[a]**	**0.011**	**0.0032[a]**	<0.0019	**0.0060[a]**	<0.0019	<0.0021	<0.0019	<0.0019	<0.0019	**0.0069[a]**	ND
SFBRWQCB Tier 1 ESLs for Soils			2.8	0.16	0.16	1.6	0.016	2.5	3.8	60	0.16	0.03	11	85	NLE
SFBRWQCB Shallow Soil ESLs - Direct Exposure Residential Land Use			18,000	0.16	0.16	1.60	0.016	NLE	15	2,400	0.16	3.3	NLE	1,800	NLE
SFBRWQCB Construction Worker ESLs - Any Land Use/Any Depth Soil Exposure			50,000	16	16	150	1.6	NLE	1,500	6,700	16	350	NLE	5,000	NLE

Notes:

EPA = Environmental Protection Agency
ID = Identification
ft bgs = Feet below ground surface
< = Less than indicated detection limit
mg/kg = Milligrams per kilogram
VOCs = Volatile organic compounds
ND = Not detected at or above laboratory detection limit
NLE = No limit established; not applicable
NA = Not analyzed
A = Trichlorofluoromethane detected at 0.0019 mg/kg concentration; estimated value (CLP Flag)

a = Estimated value (CLP Flag)
b = Detection and quantitation limits are raised due to sample dilution
SFBRWQCB = San Francisco Bay Regional Water Quality Control Board
ESLs = Environmental Screening Levels;
http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.shtml (Feb.2016, Rev. 3)
Bold = Analyte detected at or above laboratory detection limit
* = Sample collected from solid black tar waste observed within soil, not representative of soil in Area 6
** = 3-point composite soil sample collected from stockpile
Highlighted Value = Exceeds at least one ESL
All concentrations are in dry weight

Table 2
Trench Soil Sample Polychlorinated Biphenyls, Organochlorine Pesticide and Petroleum Hydrocarbon Analytical Data
Clusters Junkyard
511 Ohlone Parkway
Watsonville, California

Sample ID	Sample Date	Sample Depth (ft bgs)	EPA Method 8082 PCB-1016 (mg/kg)	EPA Method 8082 PCB-1254 (mg/kg)	EPA Method 8082 PCB-1260 (mg/kg)	EPA Method 8082 Total PCBs (mg/kg)	EPA Method 8081A 4,4'-DDE (mg/kg)	EPA Method 8081A Other Organochlorine Pesticides (mg/kg)	Luft/FFP TPHd (mg/kg)	Luft/FFP TPHmo (mg/kg)
Area 1-T6	10/12/2016	3.5	**0.015**	<0.0032	**0.021**	**0.021**	NA	NA	<1.2	**85**[b]
Area 1-T9	10/12/2016	2	<0.0039	<0.0032	<0.0029	<0.0050	NA	NA	**94**[c]	**240**[b]
Area 1-T4	10/12/2016	4	NA	NA	NA	NA	<0.000083	ND	NA	NA
Area 1-T10	10/13/2016	1	<0.0039	<0.0032	<0.0029	<0.0050	NA	NA	<1.2	**32**
Area 1-T11	10/13/2016	1.5	NA	NA	NA	NA	<0.000083	ND	NA	NA
Area 1-T12	10/13/2016	1	<0.0039	<0.0032	<0.0029	<0.0050	NA	NA	<1.2	**250**[b]
Area 2-T6	10/12/2016	1	<0.0039	<0.0032	<0.0029	<0.0050	NA	NA	<1.2	<6.5
Area 2-T12	10/12/2016	2	<0.0039	<0.0032	<0.0029	<0.0050	NA	NA	<2.4	**400**
Area 2-T15	10/12/2016	2	<0.0039	<0.0032	**0.029**	**0.029**	NA	NA	<2.4	**510**
Area 3-T1	10/12/2016	3	NA	NA	NA	NA	<0.000083	ND	NA	NA
Area 5-T1	10/13/2016	6	<0.0039	<0.0032	<0.0029	<0.0050	NA	NA	<6.0[d]	**680**[d]
Area 5-T3	10/13/2016	2	<0.0076	<0.0063	<0.0057	<0.0098	NA	NA	<6.8	**800**
Area 5-T5	10/13/2016	3	NA	NA	NA	NA	**0.00055**	ND	NA	NA
Area 5-T10	10/13/2016	4	<0.0039	<0.0032	<0.0029	<0.0050	NA	NA	<1.2	**18**[ab]
Area 6-T1	10/13/2016	2	<0.0039	<0.0032	<0.0029	<0.0050	NA	NA	<24[d]	**2,000**[d]
Area 6-T1*	10/13/2016	8	<0.0065	<0.0053	<0.0048	<0.0083	NA	NA	<950[d]	**97,000**[d]
Area 8-Debris**	10/11/2016	--	<0.0039	**0.0077**[a]	**0.0055**[a]	**0.013**	NA	NA	<24[d]	**1,600**[d]
Area 8-T1	10/11/2016	2	<0.0078	<0.0064	**0.0083**[a]	<0.010	NA	NA	<2.3	**51**[a,b]
SFBRWQCB Tier 1 ESLs for Soils			NLE	NLE	NLE	0.25	1.9	NLE	230	5,100
SFBRWQCB Shallow Soil ESLs - Direct Exposure Residential Land Use			NLE	NLE	NLE	0.25	1.9	NLE	230	11,000
SFBRWQCB Construction Worker ESLs - Any Land Use/Any Depth Soil Exposure			NLE	NLE	NLE	5.6	57	NLE	880	32,000

Notes:

EPA = Environmental Protection Agency
ID = Identification
ft bgs = Feet below ground surface
< = Less than indicated detection limit
mg/kg = Milligrams per kilogram
ND = Not detected at or above laboratory detection limit
NLE = No limit established; not applicable
NA = Not analyzed
-- = Not applicable
DDE = Dichlorodiphenyldichloroethylene
PCB(s) = Polychlorinated Biphenyl(s)
TPHd = Total Petroleum Hydrocarbons - Diesel
TPHmo = Total Petroleum Hydrocarbons - Motor Oil

a = Estimated value (CLP Flag)
b = Chromatogram not typical of motor oil
c = Chromatogram not typical of diesel
d = Detection and quantitation limits are raised due to sample dilution
ESLs = Environmental Screening Levels; http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.shtml (Feb. 2016, Rev 3)
SFBRWQCB = San Francisco Bay Regional Water Quality Control Board
Bold = Analyte detected at or above laboratory detection limit
* = Sample collected from solid black tar waste observed within soil, not representative of soil in Area 6
** = 3-point composite soil sample collected from stockpile
Highlighted Value = Exceeds at least one ESL
All concentrations are in dry weight
Luft/FFP = Leaking Underground Fuel Tank/Fuel Fingerprint

Table 3
Trench Soil Sample Metals Analytical Data
Clusters Junkyard
511 Ohlone Parkway
Watsonville, California

Sample ID	Sample Date	Sample Depth (ft bgs)	EPA Method 6020: Antimony (mg/kg)	6020: Arsenic (mg/kg)	6020: Barium (mg/kg)	6020: Beryllium (mg/kg)	6020: Cadmium (mg/kg)	6020: Cobalt (mg/kg)	6020: Copper (mg/kg)	6020: Lead (mg/kg)	6020: Molybdenum (mg/kg)	6020: Nickel (mg/kg)	6020: Selenium (mg/kg)	6020: Silver (mg/kg)	6020: Thallium (mg/kg)	6020: Vanadium (mg/kg)	6020: Zinc (mg/kg)	6020: Total Chromium (mg/kg)	7199: Hexavalent Chromium (mg/kg)	7471A: Mercury (mg/kg)
Area 1-T6	10/12/2016	3.5	<0.40[b]	**4.4[b]**	**170[b]**	**0.30[a,b]**	**0.74[a,b]**	**5.9[b]**	**15[b]**	**20[b]**	**0.91[a,b]**	**18[b]**	<0.55[b]	<0.26[b]	<0.24[b]	**25[b]**	**68[b]**	**21[b]**	NA	**0.39**
Area 1-T9	10/12/2016	2	<0.40[b]	**9.2[b]**	**110[b]**	**0.32[a,b]**	**1.4[b]**	**9.6[b]**	**69[b]**	**29[b]**	**1.5[b]**	**37[b]**	<0.55[b]	<0.26[b]	<0.24[b]	**44[b]**	**150[b]**	**33[b]**	NA	**0.28**
Area 1-T4	10/12/2016	4	NA	**5.9[d]**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.1**	NA
Area 1-T10	10/13/2016	1	<0.40[b]	**3.3[b]**	**120[b]**	**0.50[a,b]**	**0.35[a,b]**	**12[b]**	**10[b]**	**6.8[b]**	**0.48[a,b]**	**23[b]**	<0.55[b]	<0.26[b]	<0.24[b]	**43[b]**	**39[b]**	**31[b]**	NA	**0.047[a]**
Area 1-T11	10/13/2016	1.5	NA	**5.5[b]**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.6**	NA
Area 1-T12	10/13/2016	1	<0.40[b]	**5.6[b]**	**170[b]**	**0.42[a,b]**	**0.68[a,b]**	**13[b]**	**25[b]**	**76[b]**	**0.60[a,b]**	**57[b]**	<0.55[b]	<0.26[b]	<0.24[b]	**49[b]**	**110[b]**	**53[b]**	NA	**0.14[a]**
Area 2-T6	10/12/2016	1	<0.40[b]	**5.8[b]**	**210[b]**	**0.50[a,b]**	**0.38[a,b]**	**16[b]**	**36[b]**	**8.6[b]**	**0.27[a,b]**	**100[b]**	<0.55[b]	<0.26[b]	<0.24[b]	**42[b]**	**76[b]**	**62[b]**	NA	**0.17[a]**
Area 2-T12	10/12/2016	2	<0.40[b]	**5.0[b]**	**140[b]**	**0.30[a,b]**	**0.95[a,b]**	**13[b]**	**31[b]**	**22[b]**	**0.63[a,b]**	**93[b]**	<0.55[b]	<0.26[b]	<0.24[b]	**43[b]**	**110[b]**	**77[b]**	NA	**0.15[a]**
Area 2-T15	10/12/2016	2	<0.40[b]	**3.5[b]**	**83[b]**	**0.26[a,b]**	**0.53[a,b]**	**11[b]**	**63[b]**	**55[b]**	**0.72[a,b]**	**52**	<0.55[b]	<0.26[b]	<0.24[b]	**52**	**88[b]**	**47[b]**	NA	**0.16[a]**
Area 3-T1	10/12/2016	3	NA	**8.6[d]**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.5**	NA
Area 5-T1	10/13/2016	6	**1.5[b]**	**11[b]**	**2,100[b]**	**0.48[a,b]**	**9.3[b]**	**16[b]**	**86[b]**	**3,200[b]**	**5.5[b]**	**140[b]**	<0.55[b]	<0.26[b]	<0.24[b]	**42[b]**	**1,400[b]**	**100[b]**	NA	**0.14[a]**
Area 5-T3	10/13/2016	2	**6.1[b]**	**9.4[b]**	**250[b]**	**0.45[a,b]**	**4.3[b]**	**19[b]**	**100[b]**	**1,100[b]**	**2.8[b]**	**84[b]**	<0.55[b]	<0.26[b]	<0.24[b]	**50[b]**	**380[b]**	**57[b]**	NA	**0.18[a]**
Area 5-T5	10/13/2016	3	NA	**5.8[b]**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.9**	NA
Area 5-T10	10/13/2016	4	<0.40[b]	**7.4[b]**	**260[b]**	**0.64[a,b]**	**0.44[a,b]**	**18[b]**	**35[b]**	**16[b]**	**0.57[b]**	**110[b]**	<0.55[b]	<0.26[b]	<0.24[b]	**48[b]**	**69[b]**	**70[b]**	NA	**0.090[a]**
Area 6-T1	10/13/2016	2	**0.62[a,b]**	**5.4[b]**	**130[b]**	**0.42[a,b]**	**1.2[a,b]**	**12[b]**	**73[b]**	**130[b]**	**1.5[b]**	**59[b]**	<0.55[b]	<0.26[b]	<0.24[b]	**49[b]**	**160[b]**	**45[b]**	**2.3**	**0.11[a]**
Area 6-T1*	10/13/2016	8	**1.6[a,b]**	**11[b]**	**120[b]**	**0.22[a,b]**	**2.6[b]**	**8.1[b]**	**160[b]**	**310[b]**	**13[b]**	**74[b]**	<0.55[b]	<0.26[b]	<0.24[b]	**62[b]**	**380[b]**	**35[b]**	NA	**0.18[a]**
Area 8-Debris**	10/11/2016	--	**0.56[a,b]**	**4.5[b]**	**120[b]**	**0.37[a,b]**	**3.0[a,b]**	**9.7[b]**	**94[b]**	**120[b]**	**2.6[b]**	**42[b]**	<0.55	**0.77[a,b]**	<0.24[b]	**59[b]**	**360[b]**	**35[b]**	NA	**0.099[a]**
Area 8-T1	10/11/2016	2	<0.40[b]	**14[b]**	**330[b]**	**0.92[a,b]**	**1.6[b]**	**28[b]**	**53[b]**	**50[b]**	**0.83[b]**	**150[b]**	<0.55[b]	<0.26[b]	<0.24[b]	**61[b]**	**150[b]**	**110[b]**	NA	**0.17[a]**
SFBRWQCB ESLs Soil-Tier 1			31	0.067	3,000	42	39	23	3,100	80	390	86	390	390	0.78	390	23,000	NLE	0.3	13
SFBRWQCB Shallow Soil ESLs - Direct Exposure Residential Land Use			31	0.067	15,000	150	39	23	3,100	80	390	820	390	390	0.78	390	23,000	NLE	0.3	13
SFBRWQCB Any Land Use / Any Depth Soil Exposure - Construction Worker ESLs			140	0.98	3,000	42	43	28	14,000	160	1,800	86	1,700	1,800	3.5	470	110,000	NLE	2.8	44

Notes:

EPA = Environmental Protection Agency
ID = Identification
ft bgs = Feet below ground surface
< = less than indicated detection limit
mg/kg = Milligrams per kilogram
NA = Not analyzed
NLE = No limit established
-- = Not applicable
All concentrations are in dry weight

a = Estimated value (CLP Flag)
b = Detection and quantitation limits are raised due to sample dilution caused by high analyte concentration or matrix interference
ESLs = Environmental Screening Levels;
Taken from *Screening for Environmental Concerns at Sites with Contaminated Groundwater and Soils* (Feb. 2016, Rev 3)
http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.shtml
SFBRWQCB = San Francisco Bay Regional Water Quality Control Board
Bold = Analyte detected at or above laboratory detection limit
* = Sample collected from solid black tar waste observed within soil, not representative of soil in Area 6
** = 3-point composite soil sample collected from stockpile
Highlighted Value = Value exceeds at least one ESL

Table 4
Soil Boring Volatile Organic Compounds Analytical Data
Clusters Junkyard
511 Ohlone Parkway
Watsonville, California

Sample ID	Sample Date	Sample Depth (ft bgs)	n-Butyl benzene (mg/kg)	sec-Butyl benzene (mg/kg)	Ethylbenzene (mg/kg)	Isopropyl benzene (mg/kg)	p-Isopropyl toluene (mg/kg)	Methylene chloride (mg/kg)	Naphthalene (mg/kg)	n-Propyl benzene (mg/kg)	Toluene (mg/kg)	1,2,4-Trimethyl benzene (mg/kg)	1,3,5-Trimethyl benzene (mg/kg)	o-Xylene (mg/kg)	p-& m-Xylenes (mg/kg)	Total Xylenes (mg/kg)
			EPA Method 8260B													
TB-3	10/16/2016	0.5	<0.0015	<0.0012	<0.0015	<0.0013	<0.0013	<0.0024	<0.0014	<0.0013	<0.0012	<0.0013	<0.0015	<0.0012	<0.0022	<0.0034
TB-3	10/16/2016	1.5	**0.0088**	**0.0038**[a]	**0.038**	**0.0079**	**0.0024**	**0.011**	**0.036**	**0.039**	<0.0012	**0.33**	**0.12**	**0.061**	**0.16**	**0.22**
TB-8	10/16/2016	0.5	<0.0015	<0.0012	**0.0015**[a]	<0.0013	<0.0013	<0.0024	**0.013**	**0.0013**[a]	**0.044**	**0.031**	**0.0088**	**0.012**	**0.021**	**0.033**
SFBRWQCB ESLs Soil - Tier 1			NLE	NLE	1.4	NLE	NLE	0.077	0.033	NLE	2.9	NLE	NLE	NLE	NLE	2.3
SFBRWQCB Shallow Soil ESLs - Direct Exposure Residential Land Use			NLE	NLE	5.1	NLE	NLE	1.9	3.3	NLE	970	NLE	NLE	NLE	NLE	560
SFBRWQCB Any Land Use/Any Depth Soil - Construction Worker Exposure ESLs			NLE	NLE	480	NLE	NLE	500	350	NLE	4,100	NLE	NLE	NLE	NLE	2,400

Notes:

EPA = Environmental Protection Agency
ID = Identification
ft bgs = Feet below ground surface
< = Less than indicated detection limit
mg/kg = Milligrams per kilogram
NLE = No limit established; not applicable
All concentrations are in dry weight

a = Estimated value (CLP Flag)
ESLs = Environmental Screening Levels; http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.shtml (Feb. 2016, Rev 3)
SFBRWQCB = San Francisco Bay Regional Water Quality Control Board
Bold = Analyte detected at or above laboratory detection limit
Highlighted Value = Value exceeds at least one screening level

Table 5
Soil Boring Polynuclear Aromatic Hydrocarbons, Polychlorinated Biphenyls, and Petroleum Hydrocarbon Analytical Data
Clusters Junkyard
511 Ohlone Parkway
Watsonville, California

Sample ID	Sample Date	Sample Depth (ft bgs)	EPA Method																Luft/FFP		
			8270C															8082			
			Anthracene (mg/kg)	Benzo(a) anthracene (mg/kg)	Benzo(b) fluoranthene (mg/kg)	Benzo(k) fluoranthene (mg/kg)	Benzo(a) pyrene (mg/kg)	Benzo(g,h,i) perylene (mg/kg)	Chrysene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno (1,2,3-c,d) pyrene (mg/kg)	Naphthalene (mg/kg)	Phenanthrene (mg/kg)	Pyrene (mg/kg)	Total PCBs (mg/kg)	TPHd (mg/kg)	TPHg (mg/kg)	TPHmo (mg/kg)
TB-3	10/16/2016	0.5	<0.093[b]	<0.12[b]	<0.093[b]	<0.093[b]	<0.093[b]	**0.14[a,b]**	<0.093[b]	<0.10[b]	<0.093[b]	**0.21[a,b]**	**0.31[b]**	<0.093[b]	**0.15[b]**	<0.025[c]	<30	<120	**3,500**
TB-3	10/16/2016	1.5	<0.010[b]	<0.013[b]	<0.010[b]	<0.010[b]	<0.010[b]	**0.022[a,b]**	<0.010[b]	**0.024[a,b]**	**0.028[a,b]**	<0.010[b]	**1.5[b]**	**0.066[b]**	**0.048[b]**	<0.025[c]	<12[b]	**220[b]**	**1,800[b]**
TB-8	10/16/2016	0.5	<0.010[b]	<0.013[b]	<0.010[b]	<0.010[b]	<0.010[b]	**0.029[a,b]**	<0.010[b]	**0.028[a,b]**	<0.010[b]	<0.010[b]	**0.22[b]**	**0.058[b]**	**0.056[b]**	<0.025[c]	<120[b]	<500[b]	**32,000[b]**
TB-9	10/13/2016	0.5	<0.010[b]	**0.39[b]**	<0.010[b]	<0.010[b]	**0.12[b]**	**0.18[b]**	**0.093[b]**	**0.095[b]**	<0.010[b]	**0.093[b]**	**0.067[b]**	<0.010[b]	**0.41[b]**	<0.025[c]	NA	NA	NA
SFBRWQCB Tier 1 ESLs for Soils			2.80	0.16	0.16	1.6	0.016	2.5	3.8	60	8.9	0.16	0.033	11	85	0.25	230	100	5,100
SFBRWQCB Shallow Soil ESLs - Direct Exposure Residential Land Use			18,000	0.16	0.16	1.6	0.016	NLE	15	2,400	2,400	0.16	3.3	NLE	1,800	0.25	230	740	11,000
SFBRWQCB Any Land Use/Any Depth Soil - Construction Worker Exposure ESLs			50,000	16	16	150	1.60	NLE	1,500	6,700	6,700	16	350	NLE	5,000	5.6	880	2,800	32,000

Notes:

ID = Identification
ft bgs = Feet below ground surface
< = Analyte not detected above laboratory detection limit
mg/kg = Milligrams per kilogram
NLE = No limit established; not applicable
NA = Not analyzed
TPHd = Total Petroleum Hydrocarbons - Diesel
TPHg = Total Petroleum Hydrocarbons - Gasoline
TPHmo = Total Petroleum Hydrocarbons - Motor Oil
PCBs = Polychlorinated Biphenyl(s)

a = Estimated value (CLP Flag)
b = Detection and quantitation limits are raised due to sample dilution
c = Detection and quantitation limits were raised due to matrix interference
Bold = Analyte detected at or above laboratory detection limit
EPA = Environmental Protection Agency;
ESLs = Environmental Screening Levels
http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.shtml (Feb. 2016, Rev 3)
SFBRWQCB = San Francisco Bay Regional Water Quality Control Board, California EPA
Highlighted Value = Value exceeds at least one ESL
Luft/FFP = Leaking undergound fuel tank/Fuel Fingerprint
All concentrations are in dry weight

Table 6
Soil Boring Metals Analytical Data
Clusters Junkyard
511 Ohlone Parkway
Watsonville, California

Sample ID	Sample Date	Sample Depth (ft bgs)	EPA Method																	
			6020																7199	7471A
			Antimony (mg/kg)	Arsenic (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Molybdenum (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Thallium (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)	Total Chromium (mg/kg)	Hexavalent Chromium (mg/kg)	Mercury (mg/kg)
TB-1	10/13/2016	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.4**	NA
TB-2	10/13/2016	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.5**	NA
TB-3	10/16/2016	0.5	<0.080	**1.0**	**95**	**0.12[a]**	**0.37**	**6.5**	**27**	**12**	**1.0**	**15**	<0.11	**0.10[a]**	**0.12[a]**	**51**	**71**	**13**	**0.78[a]**	**0.044[a]**
TB-3	10/16/2016	1.5	**0.89**	**1.7**	**140**	**0.24[a]**	**2.4**	**8.7**	**85**	**140**	**1.2**	**26**	<0.11	**0.18[a]**	<0.049	**53**	**410**	**23**	**1.1**	**0.073[a]**
TB-3	10/16/2016	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.6**	NA
TB-3	10/16/2016	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.6**	NA
TB-4	10/14/2016	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.0**	NA
TB-5	10/13/2016	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.1**	NA
TB-6	10/16/2016	0.75	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.8**	NA
TB-7	10/16/2016	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.6**	NA
TB-8	10/16/2016	0.5	**0.75**	**0.77**	**54**	**0.14[a]**	**0.71**	**6.6**	**54**	**23**	**2.4**	**9.9**	<0.11	<0.051	<0.049	**51**	**75**	**9.9**	**1.0**	**0.053[a]**
TB-8	10/16/2016	1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.3**	NA
TB-8	10/16/2016	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.9**	NA
TB-8	10/16/2016	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.61**	NA
TB-9	10/13/2016	0.5	**0.14[a]**	**2.2**	**93**	**0.17[a]**	**1.3**	**7.4**	**82**	**40**	**2.6**	**31**	<0.11	**0.12[a]**	<0.049	**46**	**97**	**29**	**1.1[a]**	**0.11[a]**
TB-9	10/13/2016	1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.0[a]**	NA
TB-9	10/13/2016	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.7**	NA
TB-9	10/13/2016	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.85[a]**	NA

SFBRWQCB ESLs Tier 1 ESLs for Soils

31	0.067	3,000	42	39	23	3,100	80	390	86	390	390	0.78	390	23,000	NLE	0.3	13

SFBRWQCB Shallow Soil ESLs - Direct Exposure Residential Land Use

31	0.067	15,000	150	39	23	3,100	80	390	820	390	390	0.78	390	23,000	NLE	0.3	13

SFBRWQCB Any Land Use / Any Depth Soil Exposure - Construction Worker ESLs

140	0.98	3,000	42	43	28	4,000	160	1,800	86	1,700	1,800	3.5	470	110,000	NLE	2.8	44

Notes:

EPA = Environmental Protection Agency
ID = Identification
ft bgs = Feet below ground surface
< = Less than indicated detection limit
mg/kg = Milligrams per kilogram
NLE = No limit established; not applicable
NA = Not analyzed

a = Estimated value (CLP Flag)
ESLs = Environmental Screening Levels;
Taken from *Screening for Environmental Concerns at Sites with Contaminated Groundwater and Soils* (Feb. 2016, Rev 3)
http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.shtml
SFBRWQCB = San Francisco Bay Regional Water Quality Control Board
Bold = Analyte detected above laboratory detection limit
Highlighted Value = Value exceeds at least one ESL
All concentrations are in dry weight

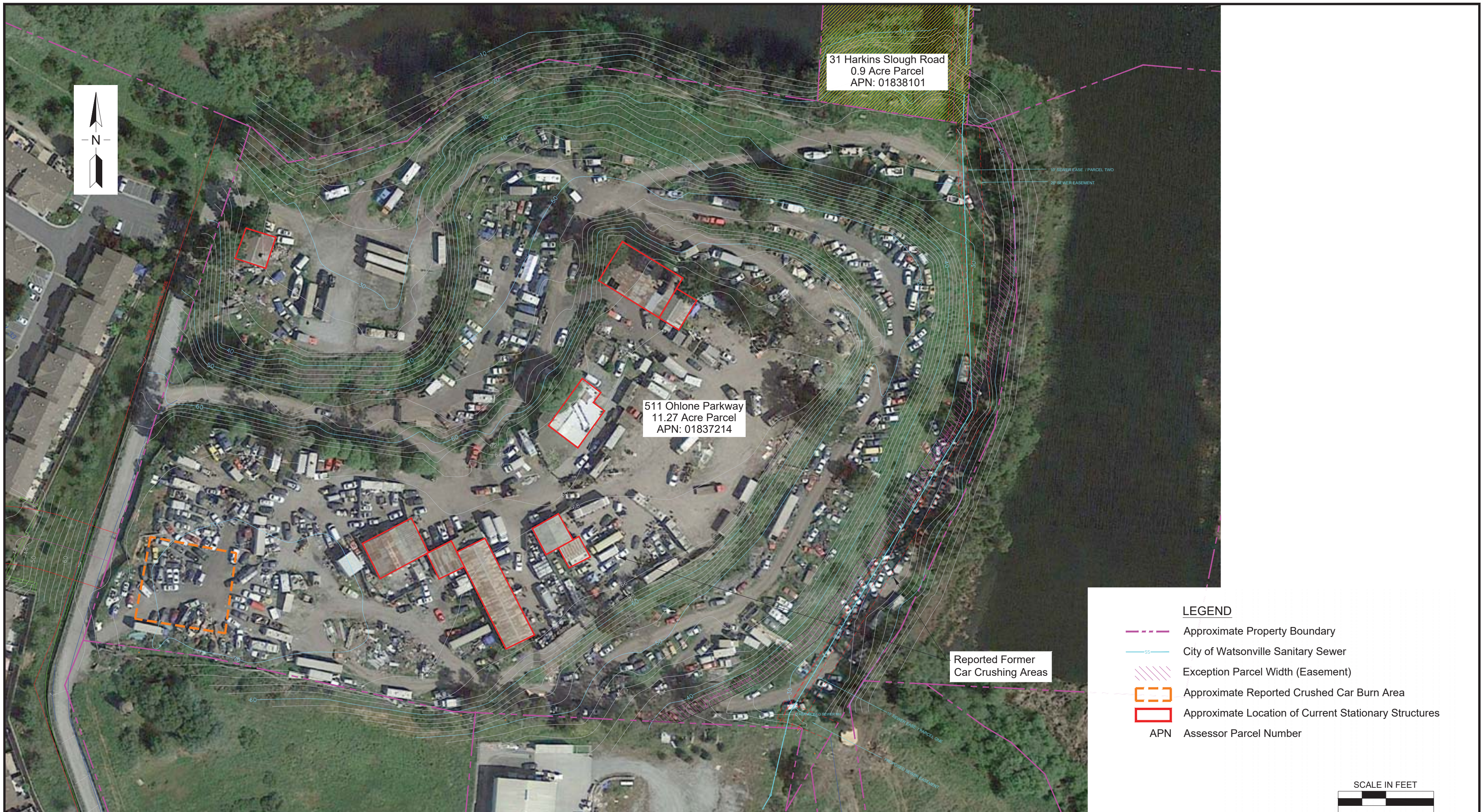
Table 7
TCLP, STLC, and TTLC Soil Analytical Data
Clusters Junkyard
511 Ohlone Parkway
Watsonville, California

Sample ID	Sample Date	Sample Depth (ft bgs)	Metals	TCLP (mg/L)	STLC (mg/L)	TTLC (mg/kg)
Area 1-T12	10/13/2016	1	Lead	NA	3.4	67[a]
Area 2-T6	10/12/2016	1	Chromium	NA	0.047[b]	54[a]
Area 2-T12	10/12/2016	2	Chromium	NA	0.13	70[a]
Area 2-T15	10/12/2016	2	Lead	NA	2.2	52[a]
Area 5-T1	10/13/2016	6	Lead	2.4	NA	2,700[a]
			Chromium	NA	0.22	89[a]
Area 5-T3	10/13/2016	2	Lead	0.096	8.2	780[a]
Area 5-T10	10/13/2016	4	Chromium	NA	0.14	58[a]
Area 6-T1	10/13/2016	2	Lead	0.037	16	110[a]
Area 6-T1*	10/13/2016	8	Lead	0.52	11	280[a]
Area 8-T1	10/11/2016	2	Chromium	NA	0.30	79[a]
Area 8-Debris**	10/11/2016	--	Lead	0.2	5.5	110[a]
TB-3	10/13/2016	1.5	Lead	0.71	31	140[a]

Federal and State (Title 22) Hazardous Waste Criteria

Metals	TCLP (mg/L)	STLC (mg/L)	TTLC (mg/kg)
Lead	5	5	1,000
Chromium	5	5	1,000

Notes
ID = Identification number
ft bgs = Feet below ground surface
mg/L = Milligrams per liter
mg/kg = Milligrams per kilogram
TCLP = Toxicity Characteristic Leaching Procedure (Resource Conservation and Recovery Act Federal Waste Criteria)
STLC = Soluble Threshold Limit Concentration (State Hazardous Waste Criteria)
TTLC = Total Threshold Limit Concentration (State Hazardous Waste Criteria)
a = Detection and quantitation limits are raised due to sample dilution
b = Estimated Value (CLP Flag)
NA = Not analyzed
-- = Not applicable
* = Sample collected from solid black tar waste observed within soil, not representative of soil in Area 6
** = 3-point composite soil sample collected from stockpile
Highlighted Value = Value exceeds at least one hazardous screening level
Note TTLC concentrations are reported in wet weight



REF. 549_001\549.002.005 figures.dwg — 12/16/2016 11:39 AM
Base Map from MCE, Inc., June 2016

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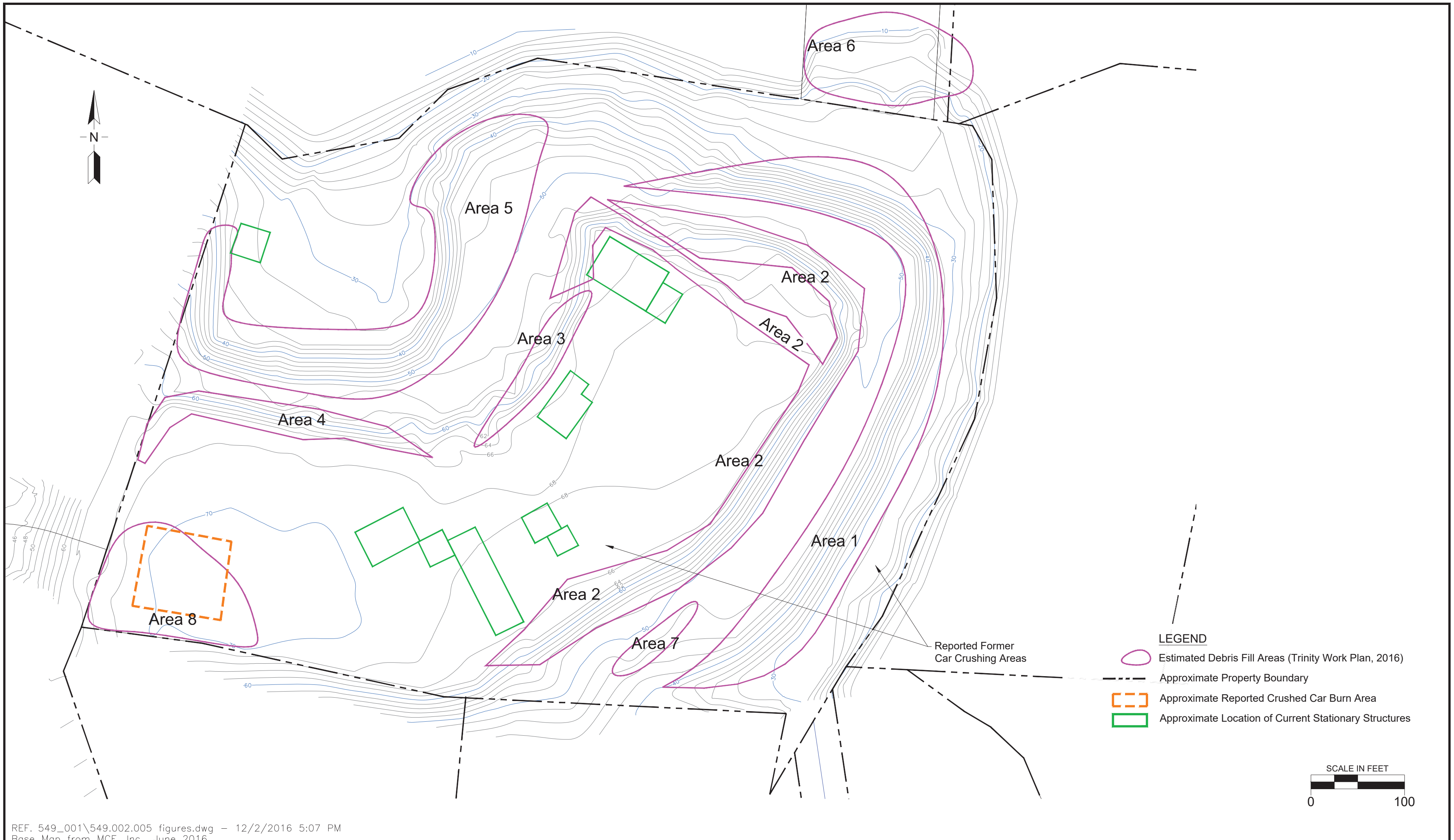
TRINITY
source group, inc.
Environmental Consultants
119 Encinal Street
Santa Cruz, California 95060
v: 831.426.5600
f: 831.426.5602

SITE LAYOUT MAP

Clusters Junkyard
511 Ohlone Parkway
Watsonville, California

PROJECT: 549.002.005

FIGURE: 2



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Environmental Consultants
119 Encinal Street
Santa Cruz, California 95060
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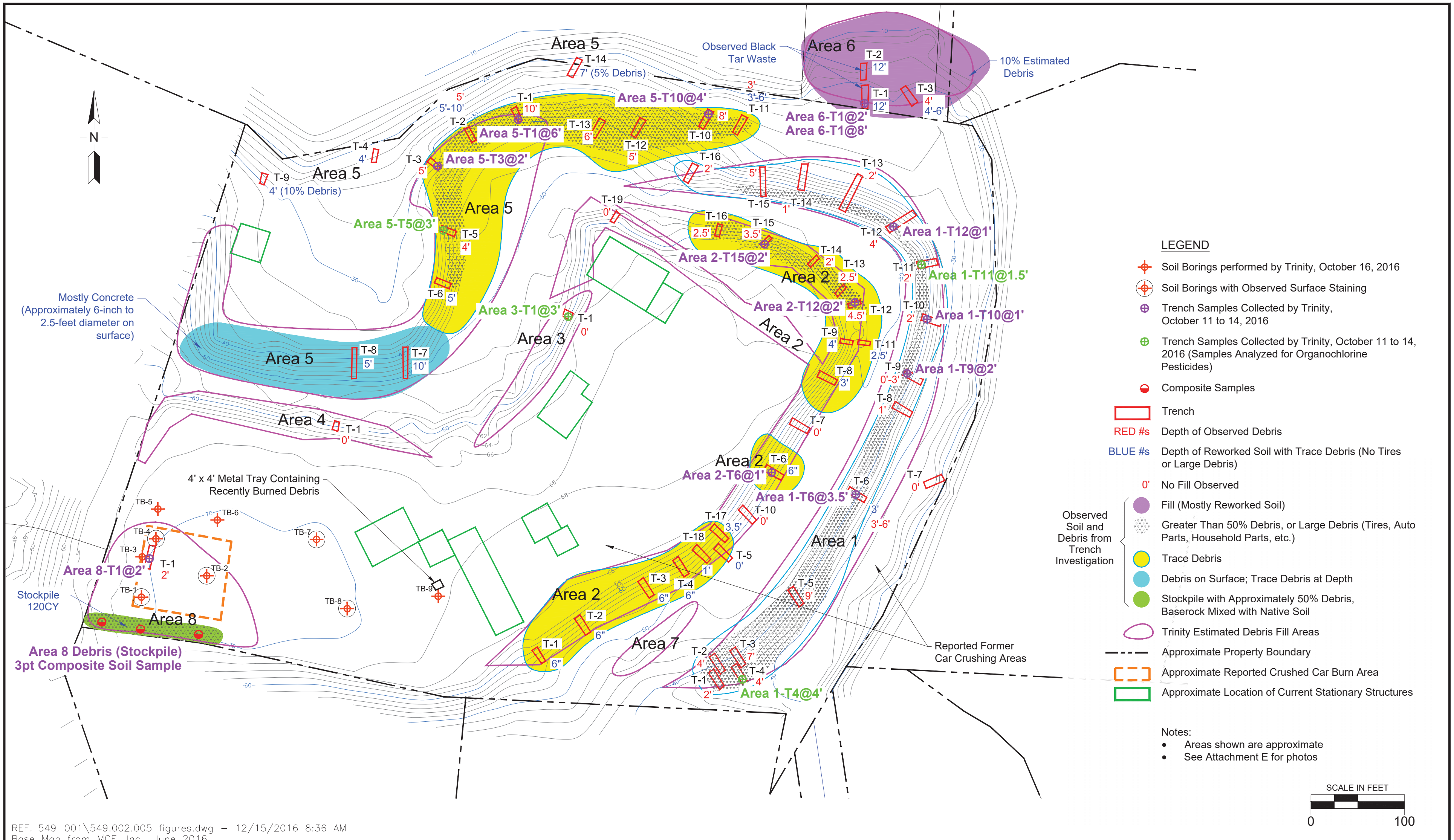
SUSPECTED DEBRIS FILL AREA MAP

Clusters Junkyard
511 Ohlone Parkway
Watsonville, California

PROJECT:
549.002.005

FIGURE:
3



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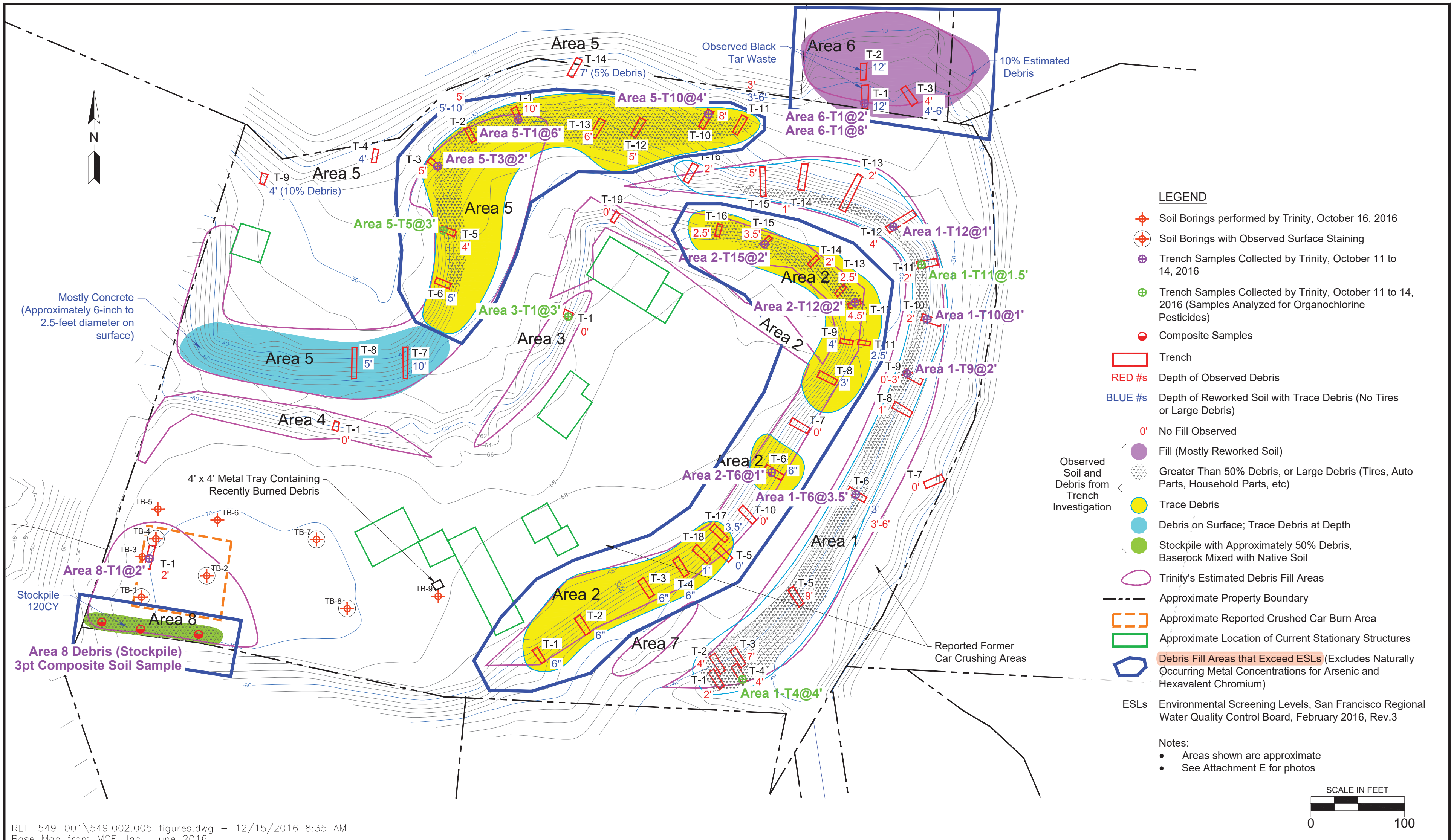
DEBRIS FILL TRENCH SOIL SAMPLE AND SOIL BORING LOCATION MAP

Clusters Junkyard
511 Ohlone Parkway
Watsonville, California

PROJECT: 549.002.005

FIGURE: 4



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DEBRIS FILL AREAS THAT EXCEED ENVIRONMENTAL SCREENING LEVELS

Clusters Junkyard
511 Ohlone Parkway
Watsonville, California

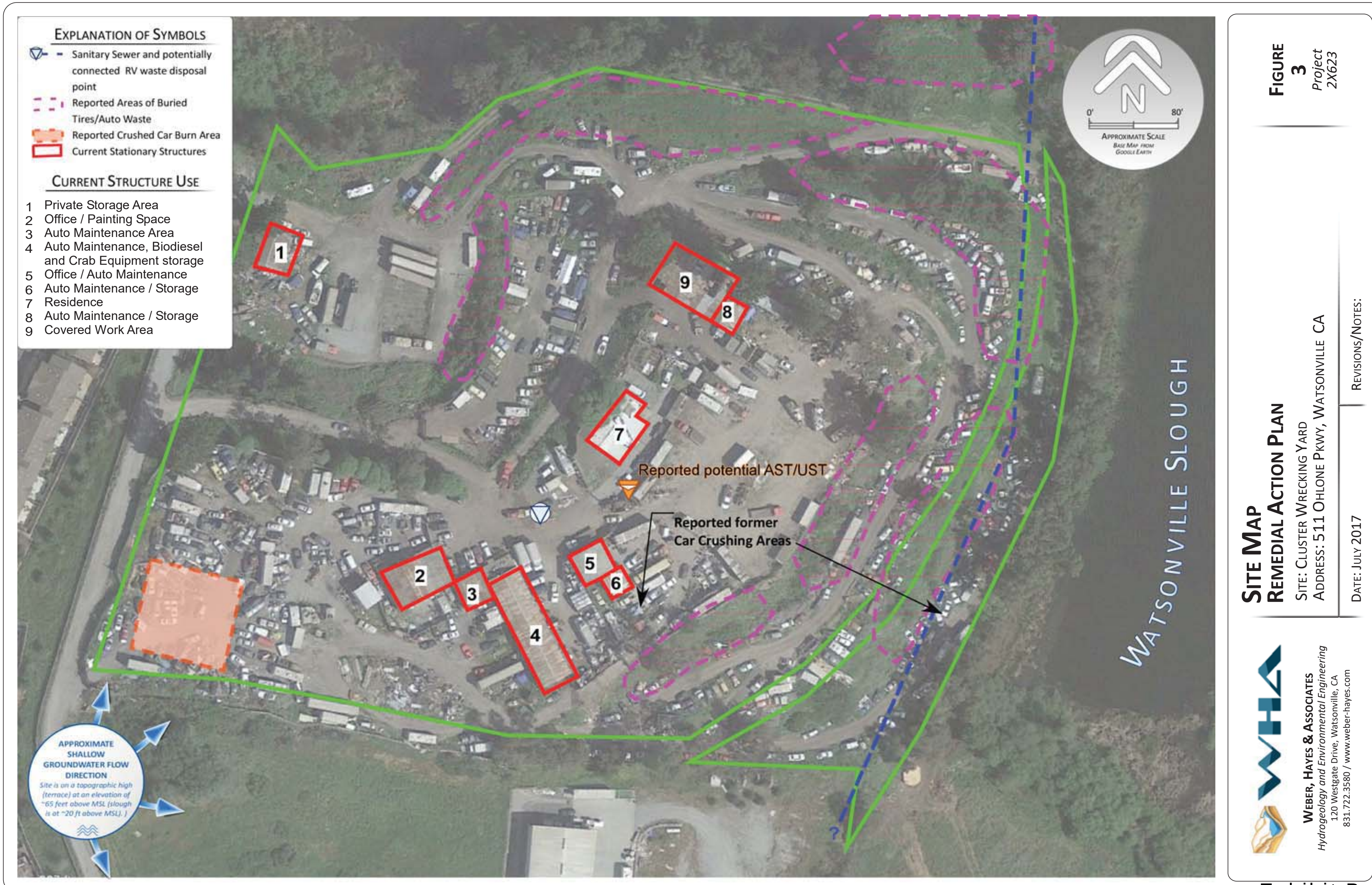
PROJECT: 549.002.005

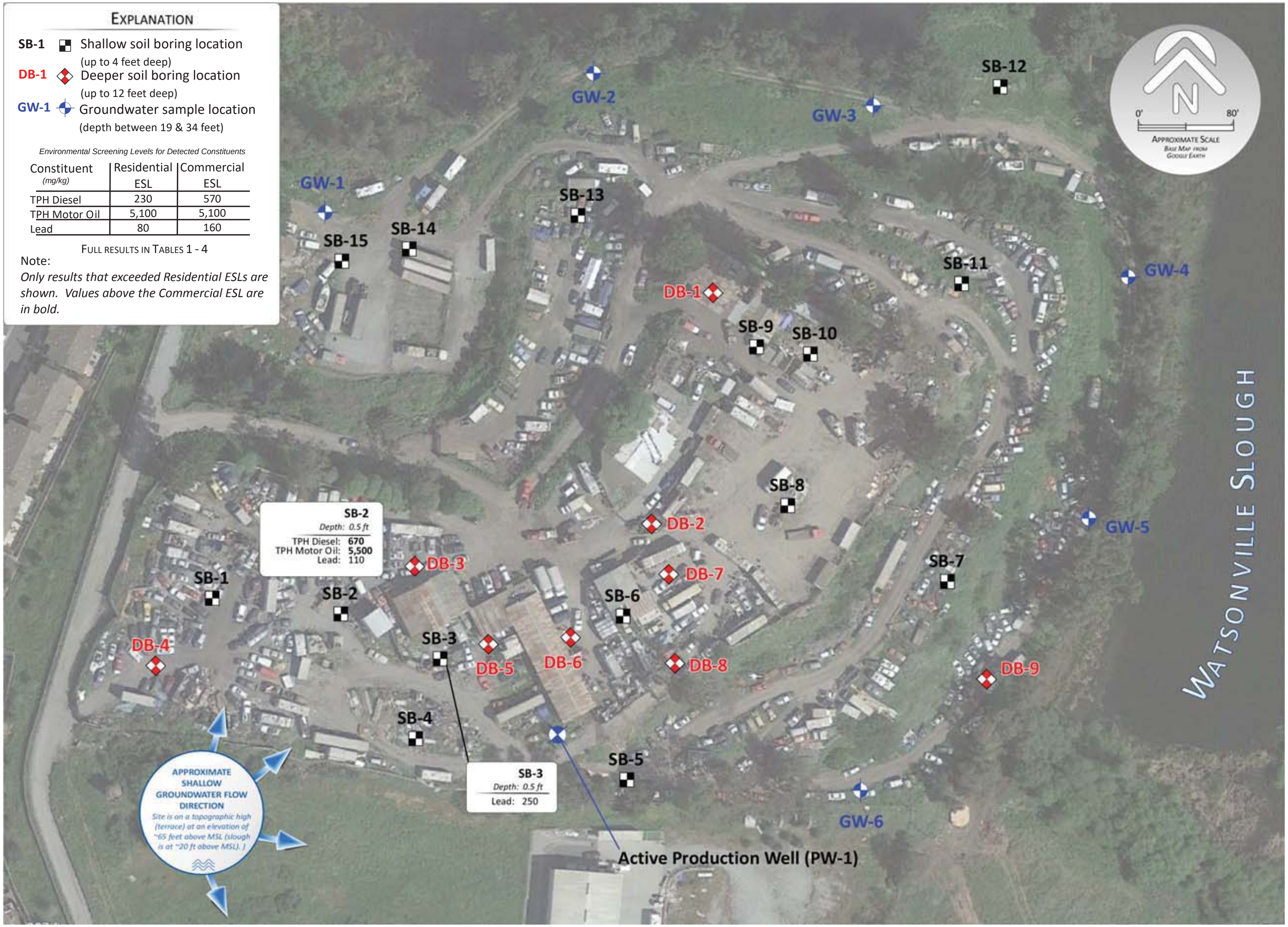
FIGURE: 5

July 2016:

***Phase I/II Environmental Site Assessment*, **

Weber, Hayes & Associates


Explanation of Symbols
Sanitary Sewer and potentially connected RV waste disposal point
Reported Areas of Buried Tires/Auto Waste
Reported Crushed Car Burn Area
Current Stationary Structures
Current Structure Use
1 Private Storage Area
2 Office / Painting Space
3 Auto Maintenance Area
4 Auto Maintenance, Biodiesel and Crab Equipment storage
5 Office / Auto Maintenance
6 Auto Maintenance / Storage
7 Residence
8 Auto Maintenance / Storage
9 Covered Work Area
Reported potential AST/UST
Reported former Car Crushing Areas
Watsonville Slough
N
0'
80'
Approximate Scale
Base Map from Google Earth
Approximate Shallow Groundwater Flow Direction
Site is on a topographic high (terrace) at an elevation of ~65 feet above MSL (slough is at ~20 ft above MSL).
Figure 3
Project 2X623
Site Map
Remedial Action Plan
Site: Cluster Wrecking Yard
Address: 511 Ohlone Pkwy, Watsonville CA
Date: July 2017
Revisions/Notes:
Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Drive, Watsonville, CA
831.722.3580 / www.weber-hayes.com



EXPLANATION

- **SB-1** Shallow soil boring location (up to 4 feet deep)
- **DB-1** Deeper soil boring location (up to 12 feet deep)
- **GW-1** Groundwater sample location (depth between 19 & 34 feet)

Environmental Screening Levels for Detected Constituents

Constituent (mg/kg)	Residential ESL	Commercial ESL
TPH Diesel	230	570
TPH Motor Oil	5,100	5,100
Lead	80	160

FULL RESULTS IN TABLES 1 - 4

Note:
Only results that exceeded Residential ESLs are shown. Values above the Commercial ESL are in bold.

FIGURE 5
Project 2X623

SITE MAP WITH BORING LOCATIONS & SOIL SAMPLE ANALYTICAL RESULTS EXCEEDING SCREENING THRESHOLDS

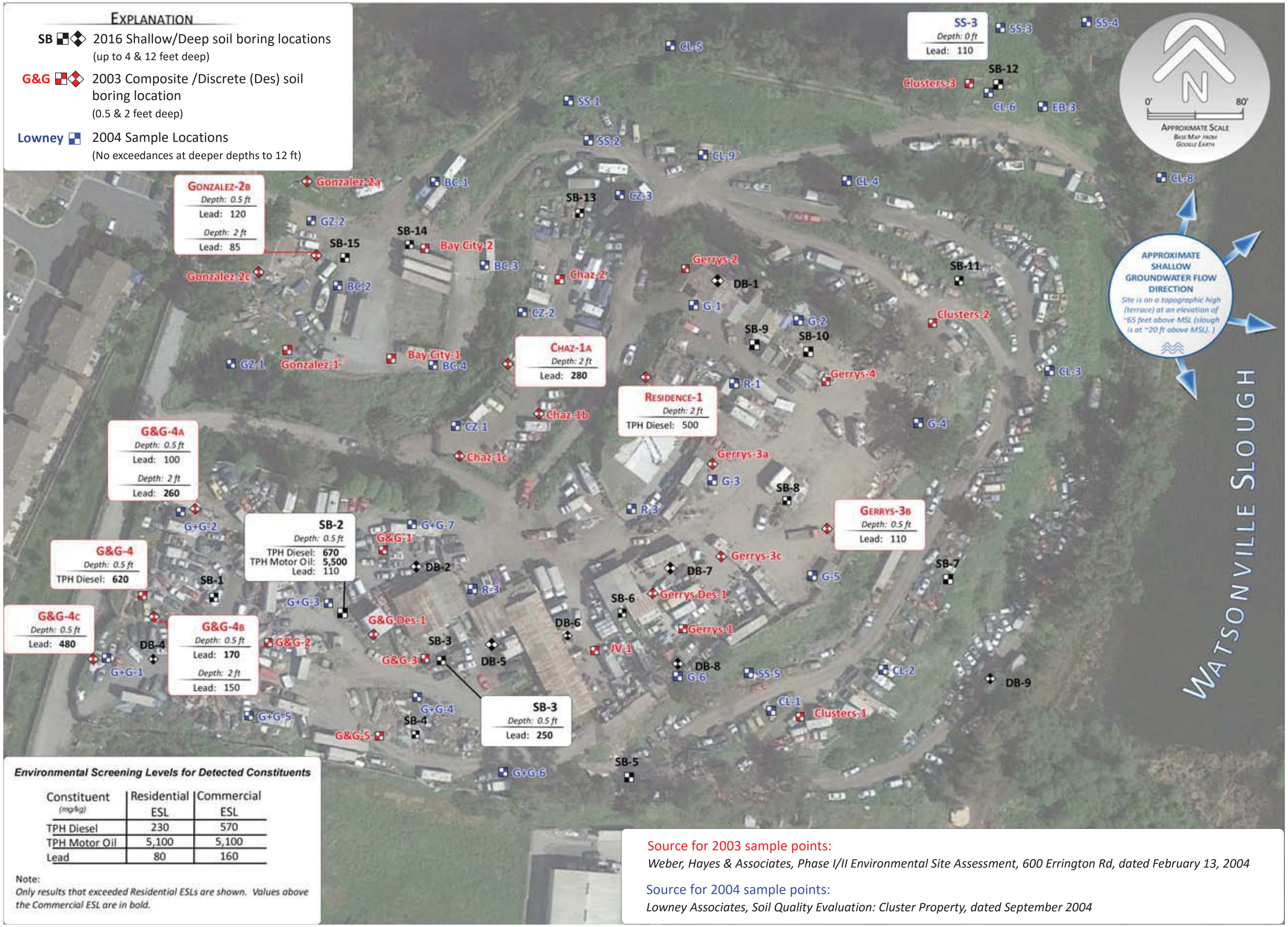
PHASE I/II ENVIRONMENTAL SITE ASSESSMENT
SITE: CLUSTER WRECKING YARD
ADDRESS: 511 OHLONE PKWY, WATSONVILLE CA

REVISIONS/NOTES:

DATE: JUNE 2016

WEBER, HAYES & ASSOCIATES
Hydrogeology and Environmental Engineering
120 Westgate Drive, Watsonville, CA
831.722.3580 / www.weber-hayes.com

Exhibit B



Environmental Screening Levels for Detected Constituents

Constituent (mg/kg)	Residential ESL	Commercial ESL
TPH Diesel	230	570
TPH Motor Oil	5,100	5,100
Lead	80	160

Note:
Only results that exceeded Residential ESLs are shown. Values above the Commercial ESL are in bold.

Source for 2003 sample points:
Weber, Hayes & Associates, Phase I/II Environmental Site Assessment, 600 Errington Rd, dated February 13, 2004

Source for 2004 sample points:
Lowney Associates, Soil Quality Evaluation: Cluster Property, dated September 2004

FIGURE 6
Project 2X623

SITE MAP WITH CURRENT & PREVIOUS BORING LOCATIONS & SOIL SAMPLE ANALYTICAL RESULTS EXCEEDING SCREENING THRESHOLDS

PHASE I/II ENVIRONMENTAL SITE ASSESSMENT
SITE: CLUSTER WRECKING YARD
ADDRESS: 511 OHLONE PKWY, WATSONVILLE CA

REVISIONS/NOTES:

DATE: JULY 2016

WEBER, HAYES & ASSOCIATES
Hydrogeology and Environmental Engineering
120 Westgate Drive, Watsonville, CA
831.722.3580 / www.weber-hayes.com

Table 1 - Soil Sample Analytical Results

Volatile Organic Compounds & Fuel Fingerprint

511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Information		***Laboratory Analytical results***				
		Fuel Fingerprint *by EPA Method 6010B*			***Volatile Organic Compounds (VOCs)*** *by EPA Method 8260B*	
Sample ID	***Depth*** ***(feet below ground surface)***	*Total Petroleum Hydrocarbons as* ***DIESEL***	*Total Petroleum Hydrocarbons as* ***MOTOR OIL***	***All other TPH***	***Napthalene***	***All other VOCs***
SB-1	0.5	180*^{J}	2,400	All Others ND	--	--
	2	ND	22	All Others ND	--	--
SB-2	0.5	**670***	**5,500**	All Others ND	--	--
	2	4.8*^{J}	39	All Others ND	ND	All others ND
SB-3	0.5	8.3*^{J}	80	All Others ND	--	--
	2	ND	29	All Others ND	--	--
SB-4	0.5	3.5*^{J}	45	All Others ND	--	--
	2	6.2*^{J}	38	All Others ND	--	--
SB-5	0.5	60*^	820^	All Others ND	--	--
	2	8.9*^{J}	63	All Others ND	--	--
SB-6	0.5	15*	170	All Others ND	--	--
	2	ND	ND	All Others ND	--	--
SB-7	0.5	6.5*^{J}	63	All Others ND	--	--
	2	ND	ND	All Others ND	--	--
SB-8	0.5	53*^	750^	All Others ND	--	--
	2	4.9*^{J}	51	All Others ND	--	--
Laboratory's *Practical Quantitation Limit (PQL)*		10	20	Varies		Varies
Environmental Screening Levels (1) **Residential / Industrial** (Shallow Soils = < 10 ft)		**230 / 1,100**	**5,100 / 5,100**	**Varies**	**0.033 / 0.033**	sec-Butylbenzene = NE n-Propylbenzene = NE 1,2,4-Trimethylbenzene = NE 1,3,5-Trimethylbenzene = NE
Regional Screening Levels (1) **Residential / Industrial**		**NE**	**NE**	**Varies**	**3.8/ 17**	sec-Butylbenzene = 7,800 / 120,000 n-Propylbenzene = NE 1,2,4-Trimethylbenzene = 58 / 240 1,3,5-Trimethylbenzene = 780 / 12,000

- Fifteen (15) shallow soil borings (SB-1 through SB-15) were sampled from throughout the Site via hand auger and power auger equipment. And,

- Eight (8) deeper, driven probe soil borings (DP-1 through DP-9) were cored at locations throughout the Site via a direct push drill rig (note: DB-3 not installed to drill rig access limitations).

Table 1 - Soil Sample Analytical Results

Volatile Organic Compounds & Fuel Fingerprint

511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Information		***Laboratory Analytical results***				
		Fuel Fingerprint *by EPA Method 6010B*			***Volatile Organic Compounds (VOCs)*** *by EPA Method 8260B*	
Sample ID	***Depth*** ***(feet below ground surface)***	*Total Petroleum Hydrocarbons as* ***DIESEL***	*Total Petroleum Hydrocarbons as* ***MOTOR OIL***	***All other TPH***	***Napthalene***	***All other VOCs***
SB-9	0.5	110*[J]	1,300	All Others ND	--	--
	2	10*	98	All Others ND	--	--
SB-10	0.5	7.1*[J]	48	All Others ND	--	--
	2	ND	ND	All Others ND	--	--
SB-11	0.5	12*	150	All Others ND	--	--
	2	ND	21	All Others ND	--	--
SB-12	0.5	33^[J]	380^	All Others ND	--	--
	2	18*	78	All Others ND	--	--
SB-13	0.5	7.1*[J]	64	All Others ND	--	--
	2	ND	19*[J]	All Others ND	--	--
SB-14	0.5	150*[J]	1,600	All Others ND	--	--
	2	ND	ND	All Others ND	--	--
SB-15	0.5	10*	140	All Others ND	--	--
	2	ND	28	All Others ND	--	--
Laboratory's *Practical Quantitation Limit (PQL)*		10	20	Varies		Varies
Environmental Screening Levels [(1)] **Residential / Industrial** (Shallow Soils = < 10 ft)		**230 / 1,100**	**5,100 / 5,100**	**Varies**	**0.033 / 0.033**	sec-Butylbenzene = NE n-Propylbenzene = NE 1,2,4-Trimethylbenzene = NE 1,3,5-Trimethylbenzene = NE
Regional Screening Levels [(1)] **Residential / Industrial**		**NE**	**NE**	**Varies**	**3.8/ 17**	sec-Butylbenzene = 7,800 / 120,000 n-Propylbenzene = NE 1,2,4-Trimethylbenzene = 58 / 240 1,3,5-Trimethylbenzene = 780 / 12,000

Exhibit B

Table 1 - Soil Sample Analytical Results

Volatile Organic Compounds & Fuel Fingerprint

511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Information		***Laboratory Analytical results***				
		Fuel Fingerprint *by EPA Method 6010B*			***Volatile Organic Compounds (VOCs)*** *by EPA Method 8260B*	
Sample ID	***Depth** (feet below ground surface)*	*Total Petroleum Hydrocarbons as* ***DIESEL***	*Total Petroleum Hydrocarbons as* ***MOTOR OIL***	***All other TPH***	***Napthalene***	***All other VOCs***
DP-1	2	ND	ND	All Others ND	--	--
DP-2	2	ND	ND	All Others ND	--	--
DP-3	Note: DP-3 was not sampled due to access limitations					
DP-4	2	5.2^[J]	14^[J]	All others ND	0.023	sec-Butylbenzene = 0.0017[J] n-Propylbenzene = 0.0038[J] 1,2,4-Trimethylbenzene = 0.025 1,3,5-Trimethylbenzene = 0.065
	4	--	--	--	ND	All others ND
DP-5	2	ND	ND	All others ND	--	--
DP-6	2	5.6^[J]	23^	All others ND	ND	All others ND
DP-7	2	7.3^[J]	42^	All others ND	--	--
DP-8	2	5.8^[J]	33^	All others ND	--	--
DP-9	2	43^	180^	All others ND	--	--
Laboratory's *Practical Quantitation Limit (PQL)*		10	20	Varies		Varies
Environmental Screening Levels [(1)] **Residential** / **Industrial** (Shallow Soils = < 10 ft)		**230** / **1,100**	**5,100** / **5,100**	**Varies**	**0.033** / **0.033**	sec-Butylbenzene = NE n-Propylbenzene = NE 1,2,4-Trimethylbenzene = NE 1,3,5-Trimethylbenzene = NE
Regional Screening Levels [(2)] **Residential** / **Industrial**		**NE**	**NE**	**Varies**	**3.8**/ **17**	sec-Butylbenzene = 7,800 / 120,000 n-Propylbenzene = NE 1,2,4-Trimethylbenzene = 58 / 240 1,3,5-Trimethylbenzene = 780 / 12,000

Notes

1 = **Environmental Screening Levels (ESLs):** Regional Water Quality Control Board (San Francisco Bay Region) guideline document: *Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater* (Final version, 2016). The ESLs are intended to provide quantitative risk-based guidance on whether further assessment or remediation of contamination is warranted < http://www.swrcb.ca.gov/rwqcb2/water_issues/programs/ESL/ESL%20Users%20Guide_22Feb16.pdf >

2 = **US EPA Region 9 Regional Screening Levels (RSLs):** guideline tables presented at < http://www.epa.gov/region9/superfund/prg/ >). USPA Region 9 RSLs are based on Carcinogenic Target Risk (TR) =1E-6, Noncancer Hazard Index (HI) =1.0] November 2015.

ND = Analyte not detected above the laboratory Method Detection Limit (MDL).

- = Sample was not analyzed for this constituent

J = Laboratory reports that the detection value is between MDL and PQL, and should be considered an estimate.

^ = Detection and Quantitation Limits are raised due to sample dilution

* = Chromatograph is not typical of Diesel/Motor Oil

BOLD = Analytical result above Residential ESL.

BOLD = Analytical result above Commercial ESL.

Table 2 - Soil Sample Analytical Results

Metals

511 Ohlone Parkway, Watsonville, CA

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Information		***Laboratory Results***																
		Metals (TTLC) *by EPA Method 6010B*																***Total Mercury*** *by EPA 7471A*
Sample ID	***Depth*** ***(feet below ground surface)***	**Aluminum**	**Arsenic** [3]	**Barium**	**Beryllium**	**Cadmium**	**Chromium***	**Cobalt**	**Copper**	**Lead**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**	**Mercury**
SB-1	0.5	15,000	3.3	65	0.12^{J}	1.7	24	12	140	63	2.3^{J}	22	< 2.0	0.41^{J}	< 1.3	54	110	0.060^{J}
	2	15,000	6.7	170	0.5	0.29^{J}	52	13	31	13	ND	98	ND	0.31^{J}	ND	33	66	0.056^{J}
SB-2	0.5	18,000	2.3	78	0.13^{J}	1.8	28	9.7	690	**110**	2.6	150	< 2.0	0.45^{J}	< 1.3	58	5,500	0.063^{J}
	2	17,000	11	120	0.49^{J}	0.092^{J}	62	14	41	9.9	ND	89	< 4.9	0.44^{J}	< 3.2	41	71	0.083^{J}
SB-3	0.5	17,000	4.1	100	0.19^{J}	0.8	39	11	170	**250**	1.0^{J}	43	< 2.0	1	< 1.3	61	82	0.076^{J}
	2	22,000	1	130	0.48^{J}	0.15^{J}	75	11	35	17	ND	83	< 2.0	0.21^{J}	ND	23	71	0.21
SB-4	0.5	18000^	5.9	180	0.49^{J}	0.62	51	12	35	52	ND	67	6.2	0.24^{J}	ND	43	61	0.044^{J}
	2	21000^	6.2	160	0.51	0.13^{J}	57	15	34	14	ND	80	7.7	0.33^{J}	ND	43	59	ND
SB-5	0.5	17,000^	5.3	110	0.29^{J}	0.34^{J}	48	8.8	51	23	1.3^{J}	54	7	1.1	ND	48	71	0.052^{J}
	2	19,000^	6.1	210	0.47^{J}	ND	53	7.5	22	6.9	ND	64	ND	0.23^{J}	ND	40	30	0.047^{J}
SB-6	0.5	17,000^	3.1	100	0.25^{J}	0.29^{J}	30	9.8	210	32	0.21^{J}	33	7.1	0.33^{J}	ND	47	77	0.070^{J}
	2	15,000^	5.3	200	0.5	ND	46	11	20	7.5	ND	55	ND	0.18^{J}	ND	36	26	0.045^{J}
SB-7	0.5	12,000^	4	76	0.20^{J}	0.15^{J}	46	7.5	50	13	0.34^{J}	43	< 0.98	0.22^{J}	0.50^{J}	40	51	0.077^{J}
	2	16,000^	6.3	170	0.43^{J}	0.085^{J}	53	9.6	25	11	ND	69	< 2.0	0.23^{J}	ND	41	40	0.045^{J}
SB-8	0.5	15,000^	2.2	72	0.14^{J}	0.25^{J}	16	5.4	39	17	0.30^{J}	18	< 2.0	0.26^{J}	ND	38	48	0.053^{J}
	2	16,000^	5.8	130	0.46^{J}	ND	57	10	33	9.5	ND	79	< 2.0	0.24^{J}	ND	33	58	0.11^{J}
Laboratory's *Practical Quantitation Limit (PQL)*		5.0	1	0.5	0.5	0.5	0.5	2.5	1	2.5	2.5	0.5	1	0.5	5	0.5	2.5	0.16
Environmental Screening Levels [1] **Residential / Industrial** (Shallow Soils = < 10 ft)		***NE***	***0.067 / 0.31***	***150,000 / 2,200,000 *****	***150 / 2,200 *****	***39 / 580***	***120,000 / 1,800,000***	***23 / 350***	***3,100 / 47,000***	***80 / 320***	***390 / 5,800***	***820 / 11,000 *****	***390 / 5,800***	***390 / 5,800***	***0.78 / 12***	***390 / 5,800***	***23,000 / 350,000***	***13 / 190***
Regional Screening Levels [1] **Residential / Industrial**		***77,000 / 1,100,000***	***0.68 / 3.0***	***15,000 / 220,000***	***160 / 2,300***	***71 / 980***	***120,000 / 1,800,000***	***23 / 350***	***3,100 / 47,000***	***400 / 800***	***390 / 5,800***	***NE***	***390 / 5,800***	***390 / 5,800***	***0.78 / 12***	***390 / 5,800***	***23,000 / 350,000***	***11 / 46***

- Fifteen (15) shallow soil borings (SB-1 through SB-15) were sampled from throughout the Site via hand auger and power auger equipment. And,
- Eight (8) deeper, driven probe soil borings (DP-1 through DP-9) were cored at locations throughout the Site via a direct push drill rig (note: DB-3 not installed to drill rig access limitations).

Table 2 - Soil Sample Analytical Results

Metals

511 Ohlone Parkway, Watsonville, CA

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Information		***Laboratory Results***																
		Metals (TTLC) *by EPA Method 6010B*																***Total Mercury*** *by EPA 7471A*
Sample ID	***Depth*** *(feet below ground surface)*	**Aluminum**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium***	**Cobalt**	**Copper**	**Lead**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**	**Mercury**
SB-9	0.5	22,000^	2.8	71	0.19^J	0.78	19	9.4	87	38	0.36^J	28	< 2.0	0.28^J	ND	58	58	0.12^J
	2	16,000^	5.4	170	0.52	ND	51	13	25	8	ND	69	< 2.0	0.20^J	ND	34	35	0.078^J
SB-10	0.5	19,000^	6.4	180	0.48^J	0.16^J	76	13	37	15	0.067^J	86	< 2.0	0.21^J	ND	36	98^	0.15^J
	2	19,000^	8	66	0.47^J	ND	71	10	35	8.6	ND	91	< 2.0	0.16^J	ND	42	74^	0.15^J
SB-11	0.5	25,000^	3.4	78	0.19^J	0.78	27	11	72	24	0.41^J	31	ND	0.27^J	ND	66	130^	0.059^J
	2	19,000^	8.4	190	0.49^J	0.16^J	68	14	34	12	0.088^J	93	< 2.0	0.17^J	ND	51	73^	0.23
SB-12	0.5	17,000^	4.8	85	0.23^J	0.22^J	50	11	59	25	0.18^J	53	< 2.0	0.29^J	0.68^J	58	88^	0.12^J
	2	15,000^	4.7	89	0.26^J	0.11^J	54	10	59	15	1.7^J	63	< 2.0	0.30^J	ND	48	60^	0.089^J
SB-13	0.5	18,000^	7.2	180	0.48^J	0.087^J	61	14	32	17	0.14^J	88	< 2.0	0.20^J	ND	47	64^	0.079^J
	2	21,000^	7.8	180	0.5	0.34^J	81	14	35	8.3	ND	95	< 2.0	0.26^J	ND	46	70^	0.16
SB-14	0.5	14,000^	6.7	120	0.26^J	0.077^J	20	6.7	12	12	1.0^J	13	< 2.0	0.11^J	1.3^J	45	63^	0.044^J
	2	16,000^	6.3	130	0.48^J	ND	55	11	23	13	ND	67	< 2.0	0.13^J	ND	37	43^	0.069^J
SB-15	0.5	17,000^	0.60^J	3.7	0.052	0.64	ND	6.2	18	8.1	0.48^J	0.76	< 2.0	ND	ND	20	100^	0.15^J
	2	15,000^	6.2	100	0.42^J	ND	51	26	21	9.6	ND	64	2.4	0.27^J	ND	34	49^	0.044^J
Laboratory's *Practical Quantitation Limit (PQL)*		5.0	1	0.5	0.5	0.5	0.5	2.5	1	2.5	2.5	0.5	1	0.5	5	0.5	2.5	0.16
Environmental Screening Levels [1] **Residential / Industrial** (Shallow Soils = < 10 ft)		***NE***	***0.067 / 0.31***	***150,000 / 2,200,000 *****	***150 / 2,200 *****	***39 / 580***	***120,000 / 1,800,000***	***23 / 350***	***3,100 / 47,000***	***80 / 320***	***390 / 5,800***	***820 / 11,000 *****	***390 / 5,800***	***390 / 5,800***	***0.78 / 12***	***390 / 5,800***	***23,000 / 350,000***	***13 / 190***
Regional Screening Levels [1] **Residential / Industrial**		***77,000 / 1,100,000***	***0.68 / 3.0***	***15,000 / 220,000***	***160 / 2,300***	***71 / 980***	***120,000 / 1,800,000***	***23 / 350***	***3,100 / 47,000***	***400 / 800***	***390 / 5,800***	***NE***	***390 / 5,800***	***390 / 5,800***	***0.78 / 12***	***390 / 5,800***	***23,000 / 350,000***	***11 / 46***

Exhibit B

Table 2 - Soil Sample Analytical Results

Metals

511 Ohlone Parkway, Watsonville, CA

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Information		***Laboratory Results***																
		Metals (TTLC) *by EPA Method 6010B*																***Total Mercury*** *by EPA 7471A*
Sample ID	***Depth*** *(feet below ground surface)*	**Aluminum**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium***	**Cobalt**	**Copper**	**Lead**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**	**Mercury**
DP-1	2	--	7.2	260	0.55	0.35[J]	61	17	26	9.1	ND	77	ND	0.25[J]	ND	48	40	ND
DP-2	2	--	6.6	190	0.61	0.083[J]	65	13	31	9.4	ND	92	ND	0.21[J]	ND	46	49	ND
DP-3	Note: DP-3 was not sampled due to access limitations																	
DP-4	2	--	6.4	220	0.50	0.056[J]	59	13	29	9	ND	86	ND	0.24[J]	ND	41	48	ND
DP-5	2	--	4.1	11	0.35[J]	ND	51	11	26	5.9	ND	70	ND	ND	ND	29	47	0.066[J]
DP-6	2	--	5.6	210	0.52	ND	57	15	25	7.5	ND	87	ND	0.18[J]	ND	37	40	0.063[J]
DP-7	2	--	6.1	210	0.58	0.067[J]	58	16	26	8.8	ND	82	ND	0.15[J]	ND	44	37	ND
DP-8	2	--	11	160	0.48[J]	0.24[J]	70	16	40	23	0.14[J]	100	ND	0.31[J]	ND	42	72	0.078[J]
DP-9	2	--	5.6	160	0.44[J]	0.090[J]	60	12	31	14	0.55[J]	83	ND	0.21[J]	ND	41	52	0.059[J]
Laboratory's *Practical Quantitation Limit (PQL)*		5.0	1	0.5	0.5	0.5	0.5	2.5	1	2.5	2.5	0.5	1	0.5	5	0.5	2.5	0.16
Environmental Screening Levels [1] **Residential / Industrial** (Shallow Soils = < 10 ft)		***NE***	***0.067 / 0.31***	***150,000 / 2,200,000 *****	***150 / 2,200 *****	***39 / 580***	***120,000 / 1,800,000***	***23 / 350***	***3,100 / 47,000***	***80 / 320***	***390 / 5,800***	***820 / 11,000 *****	***390 / 5,800***	***390 / 5,800***	***0.78 / 12***	***390 / 5,800***	***23,000 / 350,000***	***13 / 190***
Regional Screening Levels [1] **Residential / Industrial**		***77,000 / 1,100,000***	***0.68 / 3.0***	***15,000 / 220,000***	***160 / 2,300***	***71 / 980***	***120,000 / 1,800,000***	***23 / 350***	***3,100 / 47,000***	***400 / 800***	***390 / 5,800***	***NE***	***390 / 5,800***	***390 / 5,800***	***0.78 / 12***	***390 / 5,800***	***23,000 / 350,000***	***11 / 46***

Notes

1 = **Environmental Screening Levels (ESLs):** Regional Water Quality Control Board (San Francisco Bay Region) guideline document: *Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater* (Final version, 2016). The ESLs are intended to provide quantitative risk-based guidance on whether further assessment or remediation of contamination is warranted < http://www.swrcb.ca.gov/rwqcb2/water_issues/programs/ESL/ESL%20Users%20Guide_22Feb16.pdf >

2 = **US EPA Region 9 Regional Screening Levels (RSLs):** guideline tables presented at < http://www.epa.gov/region9/superfund/prg/ >). USPA Region 9 RSLs are based on Carcinogenic Target Risk (TR) =1E-6, Noncancer Hazard Index (HI) =1.0] November 2015.

3 = A 2003 background assessment for metals in shallow soil was completed for the Watsonville area by Uribe & Associates: *Remedial Investigation Report, Watsonville 2 Former Manufactured Gas Plant Site, Pacific Gas and Electric Company, GC Yard 11, Walker Street, Watsonville, California* , September 4, 2003. Analysis of the 95% Upper Confidence Limit for arsenic in 14 shallow soil samples that were collected to establish background concentrations for metals in the Watsonville area yields a concentration of 7.48 mg/kg.

ND = Analyte not detected above the laboratory Method Detection Limit (MDL).

\- = Sample was not analyzed for this constituent

J = Laboratory reports that the detection value is between MDL and PQL, and should be considered to be an estimate.

^ = Detection and Quantitation Limits are raised due to sample dilution

* = Screening Limit for Chromium III is used, as there is no established screening limit for Total Chromium. Chromium IV screening level is 0.3 / 6.2

** = Note: Tier 1 Screening Threshold values for Barium, Beryllium, & Nickel are set at x,x and x, respectively, which are protective of Construction Worker healther and safety and are driven by inhalation risk, rather than direct exposure.

BOLD = Analytical result above Residential ESL.

BOLD = Analytical result above Commercial ESL.

Table 3: Grab Groundwater Analytical Results
Volatile Organic Compounds (VOC)
511 Ohlone Parkway, Watsonville, CA

All groundwater analytical results presented in micrograms per liter (ug/L)

Sample Information			*Volatile Organic Compounds (VOCs by EPA 8260)*		
Sample Identification	***Screened Sampling Interval (feet, bgs)***	****Depth to Groundwater (feet bgs)***	***Benzene***	***Toluene***	***All other VOCs***
GW-1	32-36	22.6	0.16[J]	ND	All others = ND
GW-2	28-32	27.4	0.21[J]	0.15[J]	All others = ND
GW-3	28-32	21.2	0.10[J]	ND	All others = ND
GW-4	28-32	26.3	ND	ND	All others = ND
GW-5	28-32	19.7	0.19[J]	0.17[J]	All others = ND
GW-6	32-36	33.7	0.19[J]	0.15[J]	Styrene = 0.080[J] All others = ND
PW-1 (drinking water well)	228-268	not measured	ND	ND	All others = ND
Laboratory Practical Quantitation Limit:			*0.50*	*0.50*	*Varies*
Maximum Contaminant Levels (MCLs)[1]			**1**	**150**	***Styrene = 100***

Notes:

1 = **Maximum Contaminant Levels (MCLs)**: the groundwater cleanup goals based on the Water Quality Control Plan (Basin Plan) established by the Central Coast Regional Water Quality Control Board (CCRWQCB).

bgs = below ground surface.

ND = Not detected at or above the laboratory's practical quantitation limit

*** =** Groundwater depth not necessarily stabilized.

J = Estimated Value

NE = Not Established

-- = Not analyzed for in this sample

WHA

TABLE 4

On-Site Production Well (PW-1) - Water Quality Monitoring Analytical Results

(General Mineral, Physical, Inorgainic, and Bacteriological Parameters)

511 Ohlone Pkwy, Watsonville, CA

Analysis	Units	Results 7/1/2016	Maximum Contaminant Level (MCL)[1]
pH	pH Units	7.6	Best between 6.5-8.5
Specific Conductance (EC)	uS/cm	840	1,600
Hydroxide (as OH)	mg/L	ND	Not Established
Carbonate Alk. (as CO_3)	mg/L	ND	Not Established
Bicarbonate Alk. (as HCO_3)	mg/L	280	Not Established
Total Alkalinity (as $CaCO_3$)	mg/L	230	Not Established
Hardness	mg/L	330	Not Established
Total Dissolved Solids	mg/L	470	1,000
Nitrate (as N)	mg/L	2	45
Chloride (Cl)	mg/L	93	500
Sulfate (SO_4)	mg/L	63	500
Fluoride (F)	mg/L	0.11	2
Calcium (Ca)	mg/L	74	Not Established
Magnesium (Mg)	mg/L	34	Not Established
Potassium (K)	mg/L	2.6	Not Established
Sodium (Na)	mg/L	26	Not Established
Total Iron (Fe)	ug/L	ND	300*
Manganese (Mn)	ug/L	ND	50*
Arsenic (As)	ug/L	ND	10
Barium (Ba)	ug/L	ND	1000
Boron (B)	ug/L	ND	Not Established
Cadmium (Cd)	ug/L	ND	5
Total Chromium (Cr)	ug/L	4.4	50
Copper (Cu)	ug/L	ND	1,000
Cyanide (CN)	ug/L	ND	200
Lead (Pb)	ug/L	ND	15
Mercury (Hg)	ug/L	ND	2
Selenium (Se)	ug/L	ND	50
Silver (Ag)	ug/L	ND	100*
Zinc (Zn)	ug/L	ND	5,000*
MBAS (Surfactants)	mg/L	ND	0.5
Aluminum (Al)	ug/L	ND	1,000
Antimony (Sb)	ug/L	ND	6
Beryllium (Be)	ug/L	ND	4
Nickel (Ni)	ug/L	ND	100
Thallium (Tl)	ug/L	ND	2
Nitrate + Nitrite (as N)	mg/L	2	10
Nitrite (as N)	mg/L	ND	1
Color	Color Units	ND	Not Established
Odor	T.O.N.	ND	Not Established
Turbidity	NTU	0.19	Not Established
Total Coliform		Absent	Not Established
E. coli		Absent	Not Established

NOTES:

1 = Title 22 Standards - California Administrative Code, Title 22, Chapter 15, Article 4, Primary Standards – Inorganic Chemicals/Maximum Contaminant Level (MCL) - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards. Last Updated September 23, 2015.

Bold FONT = **indicates concentration above the Standard for which this sample is compared against.**

* = Indicates a secondary MCL. Secondary MCLs are not health related, but are based on aesthetics (i.e, taste, odor, color).

ND= Not Detected at or above the laboratory PQL.

September 2004:

Soil Quality Evaluation

Lowney Associates, and

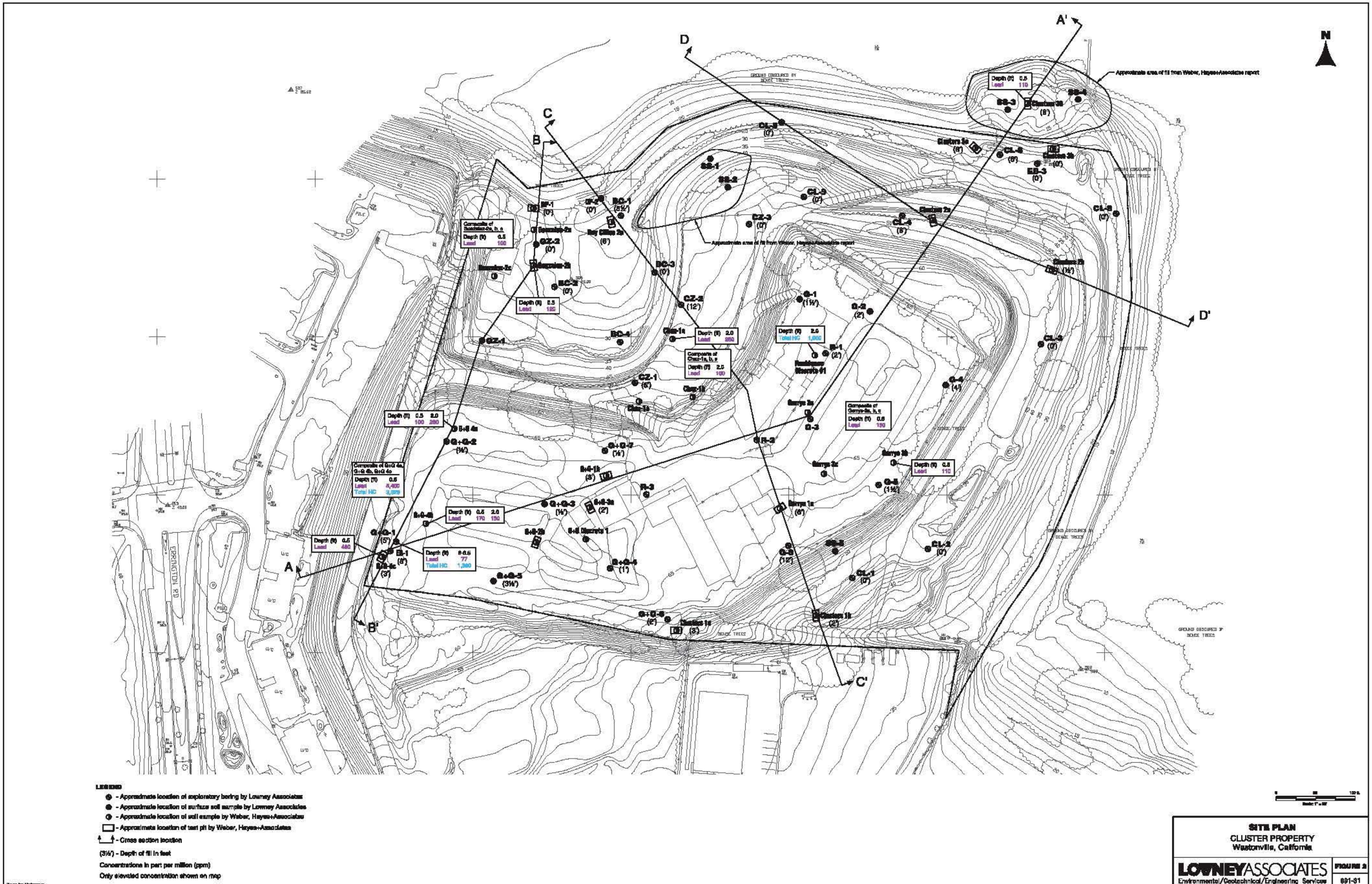

SITE PLAN
CLUSTER PROPERTY
Watsonville, California
LOWNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services
FIGURE 2
LEGEND
- Approximate location of exploratory boring by Lowney Associates
- Approximate location of surface soil sample by Lowney Associates
- Approximate location of soil sample by Weber, Hayes+Associates
- Approximate location of test pit by Weber, Hayes+Associates
- Cross section location
(3½') - Depth of fill in feet
Concentrations in part per million (ppm)
Only elevated concentration shown on map
Approximate area of fill from Weber, Hayes+Associates report

Table 1. Boring and Sampling Results
(concentrations in parts per million)

Boring	Total Depth (feet)	Fill Depth (feet)	Sampling Depth (feet)	Total Lead (mg/Kg)
CL-1	4	2	1-1 ½	9.9
CL-1			3-3 ½	6.2
CL-2	4	-	2-2 ½	9.8
CL-2			3 ½-4	7.7
CL-3	4	-	2-2 ½	5.7
CL-3			3 ½-4	5.9
CL-4	12	8	4-4 ½	7.1
CL-5	4	-	1-1 ½	9.1
CL-5			3-3 ½	7.0
CL-6	12	6	1-1 ½	8.6
CL-6			3-3 ½	7.1
CL-6			5-5 ½	12
CL-6			7-7 ½	14
CL-8	12	-	5-5 ½	15
R-1	4	2	½-1	8.6
R-1			2-2 ½	7.8
R-2	4	3	½-1	6.9
R-2			2-2 ½	5.5
R-2			3 ½-4	5.2
R-3	4	-	1-1 ½	5.4
R-3			3-3 ½	5.9
GZ-1	4	-	2-2 ½	9.4
GZ-1			3 ½-4	5.1
GZ-2	4	-	1-1 ½	44
GZ-2			3-3 ½	9.8
BC-1	12	5 ½	3-3 ½	13
BC-1			5-5 ½	9.0
BC-1			7-7 ½	33
BC-2	12	-	3-3 ½	21
BC-2			5-5 ½	25
BC-2			7-7 ½	8.9
BC-3	8	-	3-3 ½	11
BC-3			5-5 ½	9.3
BC-3			7-7 ½	17
BC-4	12	-	3-3 ½	17
BC-4			5-5 ½	6.5
BC-4			7-7 ½	7.6
CZ-1	12	5	2-2 ½	1.0
CZ-1			4-4 ½	10
CZ-2	16	12	1-1 ½	6.9
CZ-2			3-3 ½	6.8
CZ-2			7-7 ½	7.7
CZ-2			11 ½-12	7.9
CZ-3	8	-	2-2 ½	8.2
PRGs - residential use*				~~150~~ 80

< Indicates that the constituent was not detected at or above stated laboratory detection limits

* PRGs – USEPA Region 9 - "CAL-Modified" Preliminary Remedition Goals for residential soil

Table 1. Boring and Sampling Results

(Continued)
(concentrations in parts per million)

Boring	Total Depth (feet)	Fill Depth (feet)	Sampling Depth (feet)	Total Lead (mg/Kg)	Soluble Lead (mg/L)	TPHd (mg/Kg)	TPHmo (mg/Kg)
G+G-1	12	5	2-2 ½	8.0	-	<1.0	<50
G+G-1			4-4 ½	10	-	<1.0	<50
G+G-1			6-6 ½	**77**	7.0	160	1200
G+G-2	12	1 ½	2-2 ½	6.8	-	-	-
G+G-2			4-4 ½	6.5	-	-	-
G+G-2			6-6 ½	3.9	-	-	-
G+G-3	4	½	½-1	7.0	-	-	-
G+G-3			2-2 ½	6.4	-	-	-
G+G-4	4	1	½-1	24	-	-	-
G+G-4			2-2 ½	6.0	-	1.7	<50
G+G-4			3 ½-4	9.1	-	<1.0	<50
G+G-5	8	3 ½	2-2 ½	5.1		-	-
G+G-5			4-4 ½	5.1	-	-	-
G+G-6	8	3	2-2 ½	7.2	-	-	-
G+G-6			4-4 ½	5.3	-	-	-
G+G-7	4	4	2-2 ½	8.2	-	-	-
G+G-7			3 ½-4	11	-	-	-
G-1	4	1 ½	2-2 ½	42	-	-	-
G-1			3 ½-4	5.2	-	-	-
G-2	4	2	2-2 ½	14	-	-	-
G-2			3 ½-4	14	-	-	-
G-3	4	4	½-1	11	-	-	-
G-3			2-2 ½	11	-	-	-
G-3			3 ½-4	13	-	-	-
G-4	4	4	2-2 ½	9.0	-	-	-
G-4			3 ½-4	7.4	-	-	-
G-5	8	1 ½	2-2 ½	16	-	-	-
G-5			4-4 ½	15	-	-	-
G-5			6-6 ½	6.2	-	-	-
G-6	16	12	2-2 ½	6.1	-	-	-
G-6			4-4 ½	24	-	-	-
G-6			6-6 ½	10	-	-	-
SS-1	-	-	-	14	-	-	-
SS-2	-	-	-	28	-	-	-
SS-3	-	-	-	**110**	7.7	-	-
SS-4	-	-	-	15	-	-	-
SS-5	-	-	-	11	-	-	-
PRGs – residential use*				~~150~~ 80		-	

< Indicates that the constituent was not detected at or above stated laboratory detection limits

* PRGs – USEPA Region 9 - "CAL-Modified" Preliminary Remediation Goals for residential soil

BOLD – Indicates sample tested for Soluble Lead (STLC) and exceeds hazardous waste threshold of 5 mg/L

February 2004:

Phase I/II Environmental Site Assessment

Weber, Hayes & Associates

FIGURE
Job # 23022

Site Map
Current Land Uses
Phase I/II Environmental Site Assessment
600 Errington Road
Watsonville, California

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Drive, Watsonville, Ca. 95076
(831) 722 - 3580 (831) 662 - 3100

Exhibit B

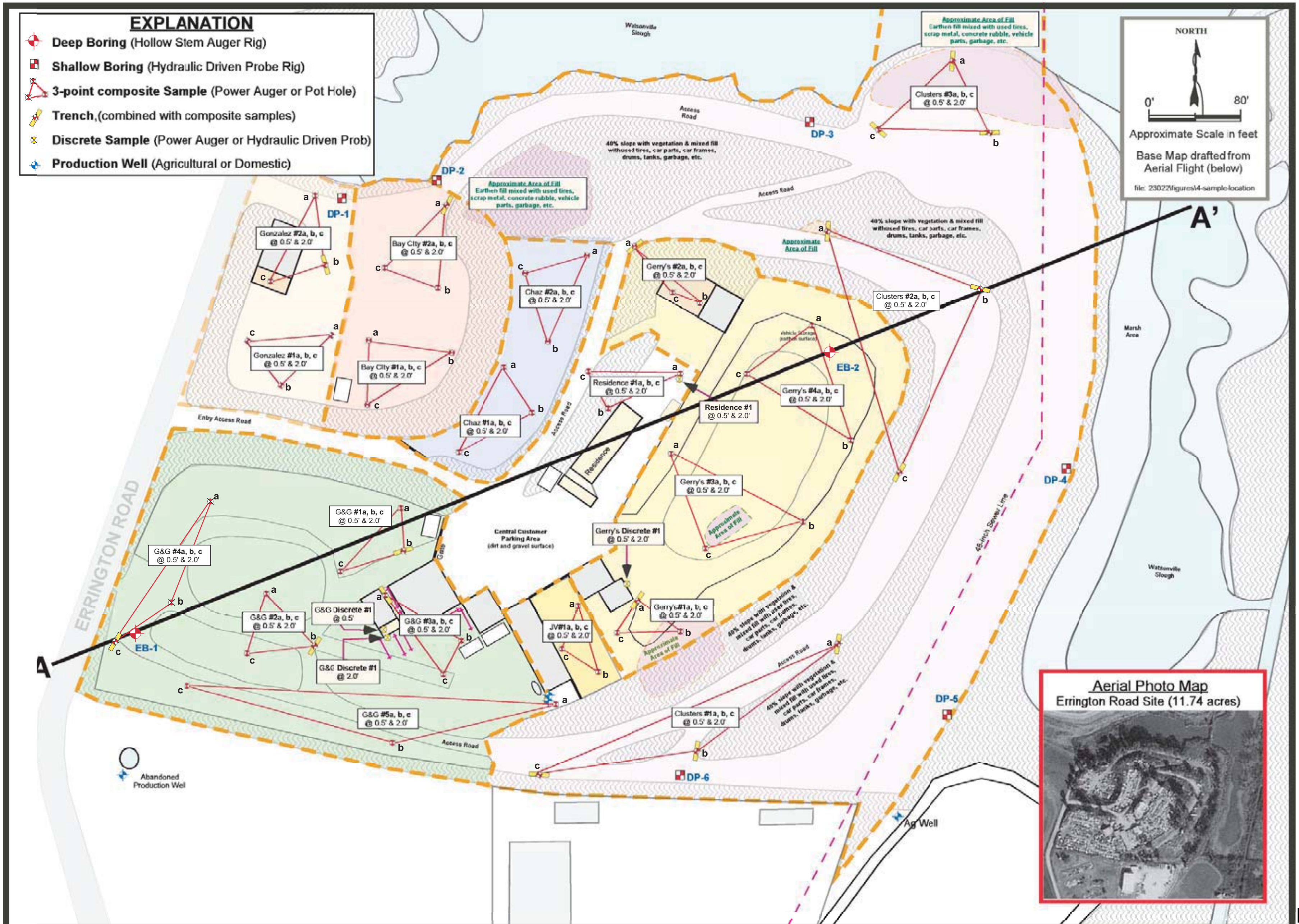
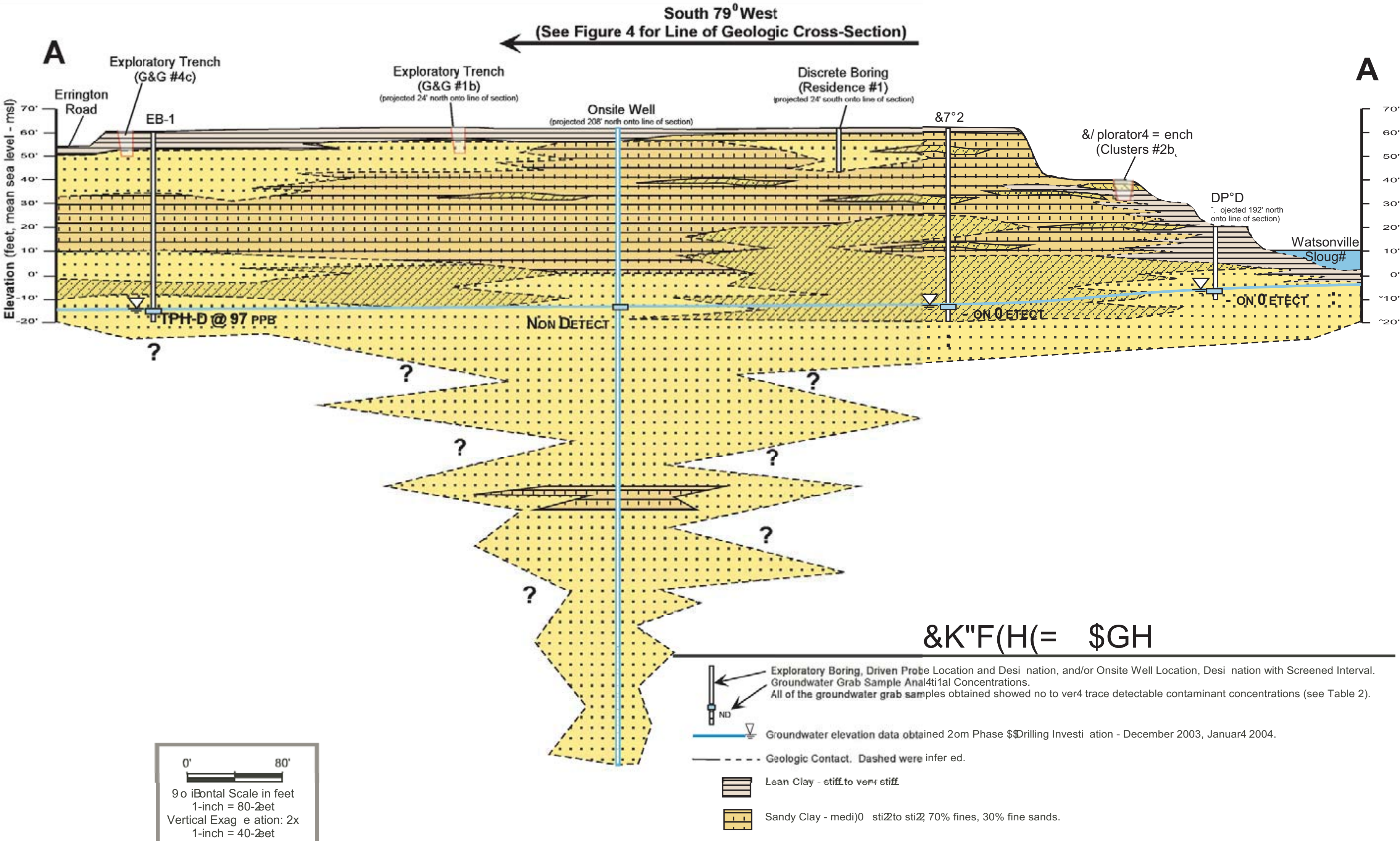


FIGURE
Job # 23022

Site Map
Soil and Groundwater Sampling Locations
Phase I/II Environmental Site Assessment
600 Errington Road
Watsonville, California

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Drive, Watsonville, Ca. 95076
(831) 722 - 3580 (831) 662 - 3100



&K"F(H(= $GH

- Exploratory Boring, Driven Probe Location and Desi nation, and/or Onsite Well Location, Desi nation with Screened Interval. Groundwater Grab Sample Anal4ti1al Concentrations. All of the groundwater grab samples obtained showed no to ver4 trace detectable contaminant concentrations (see Table 2). ND
- Groundwater elevation data obtained 2om Phase $$Drilling Investi ation - December 2003, Januar4 2004.
- Geologic Contact. Dashed were infer ed.
- Lean Clay - stiff to ver4 stiff.
- Sandy Clay - medi)0 sti2to sti2, 70% fines, 30% fine sands.
- Poorl4 Graded Sand, loose, 95% fine sands, 5% fines
- Clayey Silt4 Sand, medi)0 sti2to medi)0 dense, f iable, 60% fine to medi)0 sands, 30% fines, 10% silts.

HG=&'5

° See Fig) e 5 for line of geologic section A-A'.
° Elevations are approxi0 ate.
- Cross-section litholog4 has been obtained from geologic logs from drilling at the site, and Department of Water Resources Well Completion , eport for onsite well.

22023/fig) es/A-A'.cnv

FIGURE B
Job # 22023

Geologic Cross Section AC 7
Phase I/II Environmental Site Assessment
600 Er ington Road
Watsonville, California

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Drive, Watsonville, Ca. 95076
'831) 722 - 3580 (831) 662 - 3100

Table 1
Soil Sample Analytical Results
600 Errington Road, Watsonville, California
All soil results are in parts per million (mg/kg).

SOIL SAMPLE DETAILS					LABORATORY RESULTS															
Current Business at Sample Location	General Land-Use at Sample Location	Sample Identification		Sample Depth (feet, bgs)	Total Petroleum Hydrocarbons			Volatile Organic Compounds (VOC's)					Solvent Compounds	Mercury	Ethylene Glycol	LUFT 5 Metals				
		3-point Composite	Discrete Sample		Diesel	Motor Oil	Gasoline	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	Halogenated Volatile Organic Compounds (HVOC's)			Cadmium	Chromium	Lead	Nickel	Zinc
G & G Auto Wreckers	Hazardous Materials Storage & Vehicle Inventory Storage	G&G# - **1a, b, c**		0.5	**68*[3]**	**310[3]**	ND	ND	ND	ND	ND	ND	ND	0.076	---	ND	65	49	93	99
				2.0	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	ND	**83[3]**	**70[3]**	130	110
			1a	2.0	---	---	---	---	---	---	---	---	---	---	---	---	64	25	---	---
			1b	2.0	---	---	---	---	---	---	---	---	---	---	---	---	85	89	---	---
			1c	2.0	---	---	---	---	---	---	---	---	---	---	---	---	72	50	---	---
	Vehicle Dismantling, Fluid Draining & Vehicle Inventory Storage	G&G# - **2a, b, c**		0.5	25*	**170[3]**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	50	40	70	93
				2.0	**110*[3]**	**360[3]**	ND	ND	ND	ND	ND	ND	---	---	---	ND	48	43	75	65
			2a	2.0	19*	78	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2b	2.0	11*	33	---	---	---	---	---	---	---	---	---	---	---	---	---	---
				4.0	3.6*[5]	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2c	2.0	21*	86	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Fluid Draining, Parts Storage & Vehicle Inventory Storage	G&G# - **3a, b, c**		0.5	**60*[3]**	**700[3]**	ND	ND	ND	ND	ND	ND	ND	0.065	ND	ND	60	28	82	94
				2.0	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	ND	**71[3]**	20	100	79
			3a	2.0	---	---	---	---	---	---	---	---	---	---	---	---	74	---	---	---
			3b	2.0	---	---	---	---	---	---	---	---	---	---	---	---	53	---	---	---
			3c	2.0	---	---	---	---	---	---	---	---	---	---	---	---	75	---	---	---
	Fluid Draining, Parts Storage, Vehicle Crushing & Off-Hauling	G&G# - **4a, b, c**		0.5	**620*[3]**	**3,300[3]**	8.6*[2]	ND	0.085	0.12	0.82	ND	ND	---	---	ND	19	**5,400[3]**	28	370
				2.0	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	ND	54	**66[3]**	77	280
			4a	0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	100	---	---
				2.0	---	---	---	---	---	---	---	---	---	---	---	---	---	**260[4]**	---	---
			4b	0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	**170**	---	---
				2.0	---	---	---	---	---	---	---	---	---	---	---	---	---	**150[4]**	---	---
			4c	0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	**480**	---	---
				2.0	---	---	---	---	---	---	---	---	---	---	---	---	---	25	---	---
	Vehicle Inventory Storage	G&G# - **5a, b, c**		0.5	ND	ND	---	---	---	---	---	---	---	---	---	ND	50	32	67	75
				2.0	ND	ND	---	---	---	---	---	---	---	---	---	ND	53	17	85	47
			5a	0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	37	---	---
			5b	0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	33	---	---
			5c	0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	69	---	---
	Fluid Draining & Hazardous Materials Storage		**G&G Discrete #1**	0.5	**110***	**510**	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---
				2.0	**130***	**980**	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---
				4.0	1.5*[6]	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Fluid Draining, Parts Storage, Vehicle Crushing & Off-Hauling		**EB-1**	20.0	ND	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---
				40.0	1.1	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 1
Soil Sample Analytical Results
600 Errington Road, Watsonville, California
All soil results are in parts per million (mg/kg).

SOIL SAMPLE DETAILS					LABORATORY RESULTS															
Current Business at Sample Location	General Land-Use at Sample Location	Sample Identification		Sample Depth (feet, bgs)	Total Petroleum Hydrocarbons			Volatile Organic Compounds (VOC's)					Solvent Compounds	Mercury	Ethylene Glycol	LUFT 5 Metals				
		3-point Composite	Discrete Sample		Diesel	Motor Oil	Gasoline	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	Halogenated Volatile Organic Compounds (HVOC's)			Cadmium	Chromium	Lead	Nickel	Zinc
GONZALEZ Towing Yard & Autobody	Vehicle Inventory Storage	Gonzalez# - **1a, b, c**		0.5	6.1*	30	---	---	---	---	---	---	---	---	---	ND	43	17	67	45
				2.0	1.6*	ND	---	---	---	---	---	---	---	---	---	ND	55	14	74	45
	Hazardous Materials Storage, Paint Shop & Auto Body Shop	Gonzalez# - **2a, b, c**		0.5	8.8*	58	ND	ND	ND	ND	ND	ND	ND	0.083	ND	ND	58	**100**[3]	92	110
				2.0	1.6*	ND	ND	ND	ND	ND	ND	ND	---	---	---	ND	61	16	88	50
			2a	0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	33	---	---
			2b	0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	120	---	---
			2c	0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	85	---	---
CLUSTER'S Vehicle Storage Yard	Vehicle Inventory Storage & Misc. Debris Storage	Clusters**# - 1a, b, c**		0.5	ND	ND	---	---	---	---	---	---	---	---	---	ND	63	16	100	54
				2.0	6.4*	31	---	---	---	---	---	---	---	---	---	ND	59	20	79	64
		Clusters# - **2a, b, c**		0.5	3.2*	16	---	---	---	---	---	---	---	---	---	ND	61	16	120	58
				2.0	ND	ND	---	---	---	---	---	---	---	---	---	ND	61	17	110	64
	Misc. Debris Storage & Earthen Fill Area	Clusters# - 3**a, b, c**		0.5	5.6*	57	---	---	---	---	---	---	---	---	---	ND	50	41	72	62
				2.0	4.0*	39	---	---	---	---	---	---	---	---	---	ND	46	31	71	61
CHAZ Towing Yard	Vehicle Inventory Storage Impound Yard	Chaz # - **1a, b, c**		0.5	31*	**250**[3]	---	---	---	---	---	---	---	---	---	ND	44	34	55	69
				2.0	4.5*	35	---	---	---	---	---	---	---	---	---	1.2	53	**100**[3]	77	160
			1a	2.0	---	---	---	---	---	---	---	---	---	---	---	---	---	**280**[4]	---	---
			1b	2.0	---	---	---	---	---	---	---	---	---	---	---	---	---	36	---	---
			1c	2.0	---	---	---	---	---	---	---	---	---	---	---	---	---	19	---	---
		Chaz # - **2a, b, c**		0.5	15*	130	---	---	---	---	---	---	---	---	---	ND	54	26	84	71
				2.0	5.3*	48	---	---	---	---	---	---	---	---	---	ND	57	38	83	69

Table 1

Soil Sample Analytical Results

600 Errington Road, Watsonville, California

All soil results are in parts per million (mg/kg).

SOIL SAMPLE DETAILS					LABORATORY RESULTS															
Current Business at Sample Location	General Land-Use at Sample Location	Sample Identification		Sample Depth (feet, bgs)	Total Petroleum Hydrocarbons			Volatile Organic Compounds (VOC's)					Solvent Compounds	Mercury	Ethylene Glycol	LUFT 5 Metals				
		3-point Composite	Discrete Sample		Diesel	Motor Oil	Gasoline	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	Halogenated Volatile Organic Compounds (HVOC's)			Cadmium	Chromium	Lead	Nickel	Zinc
GERRY'S FOREIGN Auto Wreckers and Transport	Hazardous Materials Storage, Parts Storage & Vehicle Crushing Area	Gerry's # - **1a, b, c**		0.5	45*	**200**[(3)]	ND	ND	ND	ND	ND	ND	ND	0.068	ND	ND	43	29	66	81
				2.0	12*	57	ND	ND	ND	ND	ND	ND	---	---	---	ND	46	28	74	53
	Paint Shop & Auto Body Shop	Gerry's # - **2a, b, c**		0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.087	ND	ND	51	17	100	61
				2.0	62*	**200**[(3)]	ND	ND	ND	ND	ND	ND	---	---	---	ND	56	21	83	67
			2a	2.0	ND	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2b	2.0	**190***	**600**	---	---	---	---	---	---	---	---	---	---	---	---	---	---
				4.0	2.0*[6]	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---
			2c	2.0	3.2*	16	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Vehicle Dismantling, Fluid Draining & Vehicle Inventory Storage	Gerry's # - **3a, b, c**		0.5	**170***[(3)]	**670**[(3)]	---	---	---	---	---	---	---	---	---	ND	43	**130**[(3)]	75	130
				2.0	ND	ND	---	---	---	---	---	---	---	---	---	ND	**71**[(3)]	19	110	67
			3a	0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	46	---	---
				2.0	---	---	---	---	---	---	---	---	---	---	---	---	79	---	---	---
			3b	0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	110	---	---
				2.0	---	---	---	---	---	---	---	---	---	---	---	---	72	---	---	---
			3c	0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	15	---	---
				2.0	---	---	---	---	---	---	---	---	---	---	---	---	71	---	---	---
	Vehicle Dismantling, Fluid Draining & Vehicle Inventory Storage	Gerry's # - **4a, b, c**		0.5	33*	130	---	---	---	---	---	---	---	---	---	ND	50	47	87	86
				2.0	ND	ND	---	---	---	---	---	---	---	---	---	ND	**78**[(3)]	20	120	78
			4a	2.0	---	---	---	---	---	---	---	---	---	---	---	---	97	---	---	---
			4b	2.0	---	---	---	---	---	---	---	---	---	---	---	---	77	---	---	---
			4c	2.0	---	---	---	---	---	---	---	---	---	---	---	---	77	---	---	---
	Hazardous Materials Storage & Engine Block/Parts Storage		**Gerry's Discrete #1**	0.5	1.7*	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---
				2.0	**110**	390	8.9	ND	0.51	0.19	0.99	ND	---	---	---	---	---	---	---	---
				4.0	4.5*[6]	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Vehicle Inventory Storage		**EB-2**	20.0	THERE WERE NO DETECTIONS IN THE EB-2 WATER SAMPLE, THEREFORE THESE SAMPLES ARE TO REMAIN ON HOLD															
				40.0																
JV Towing Yard	Vehicle Inventory Storage Impound Yard	JV # - **1a, b, c**		0.5	8.6*	ND	---	---	---	---	---	---	---	---	---	ND	49	**60**[(3)]	91	320
				2.0	2.1*	ND	---	---	---	---	---	---	---	---	---	ND	49	22	77	58
			1a	0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	48	---	---
			1b	0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	16	---	---
			1c	0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	17	---	---

Exhibit B

Table 1

Soil Sample Analytical Results

600 Errington Road, Watsonville, California

All soil results are in parts per million (mg/kg).

SOIL SAMPLE DETAILS					LABORATORY RESULTS															
Current Business at Sample Location	General Land-Use at Sample Location	Sample Identification		Sample Depth (feet, bgs)	Total Petroleum Hydrocarbons			Volatile Organic Compounds (VOC's)					Solvent Compounds	Mercury	Ethylene Glycol	LUFT 5 Metals				
		3-point Composite	Discrete Sample		Diesel	Motor Oil	Gasoline	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	Halogenated Volatile Organic Compounds (HVOC's)			Cadmium	Chromium	Lead	Nickel	Zinc
Onsite Residence (no business)	Batteries Storage & Misc. Parts Storage	Residence# - **1a, b, c**		0.5	12*	56	---	---	---	---	---	---	---	---	---	ND	45	15	68	42
				2.0	34*	140	---	---	---	---	---	---	---	---	---	ND	53	18	78	51
	Batteries & Used Motor Oil Storage		**Residence #1 (discrete)**	0.5	14^{*3}	22^{*3}	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---
				2.0	**500^{*3}**	**1,400^{*4}**	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---	---	---
				4.0	1.5^{*6}	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---
BAY CITY Towing Yard	Vehicle Inventory Storage	Bay City# - **1a, b, c**		0.5	6.3*	33	---	---	---	---	---	---	---	---	---	ND	53	28	63	110
				2.0	1.5*	15	---	---	---	---	---	---	---	---	---	ND	56	18	65	50
	Vehicle Inventory Storage	Bay City# - **1a, b, c**		0.5	8.9*	54	---	---	---	---	---	---	---	---	---	ND	46	44	56	120
				2.0	9.4*	64	---	---	---	---	---	---	---	---	---	ND	50	48	98	120
Laboratory Practical Quantitation Limit (PQL):					**1**	**13**	**2.5**	**0.025**	**0.025**	**0.025**	**0.05**	**0.25**	**Varies**	**0.05**	**200**	**1**	**1**	**1**	**1**	**1**
Preliminary Remediation Goals (PRGs)(1):				**Residential Sites:**	**100 (2)**	**500(2)**	**100 (2)**	**0.6**	**520**	**8.9**	**270**	**17**	**Varies**	**23**	**100,000**	**37**	**210**	**150**	**1,600**	**23,000**
				Industrial Sites:	**100 (2)**	**1000 (2)**	**100 (2)**	**1.3**	**520**	**20**	**420**	**36**	**Varies**	**310**	**100,000**	**450**	**460**	**750**	**20,000**	**100,000**
Target Concentration for the 3-point Composite Samples that would require Laboratory Analysis of the individual Discrete Samples (3)					**33**	**165**	**33**	**0.2**	**173**	**3**	**90**	**5**	**Any Detection**	**7**	**33,000**	**12**	**70**	**50**	**533**	**7,666**

NOTES:

All soil results are in parts per million (ppm), equivalent to milligrams per kilogram (mg/kg).

ND = Not Detected at or above the laboratory PQL.

NA = Not Applicable. No discrete soil samples were analyzed for Mercury, Ethylene Glycol, or LUFT 5 Metals.

Bold FONT = Indicates analytical concentration is above ESL's (for TPH constituents), PRG's or SC-HSA Regulatory Action Levels.

--- = Sample not analyzed for these constituents.

< # = Detection limit elevated due to sample dilution and compound not detected at or above detection limit reported.

1 = **Preliminary Remediation Goals (PRG's)** for residential & industrial sites are listed. US-EPA Region 9 has provided these values for sites having elevated levels of contaminants in soil and tap-water. The PRGs are toxicological-based contaminant concentration limits which are used as a guidance to protect human health and safety, including sensitive groups, over a lifetime. PRGs are for relative comparison purposes (guidance) and should be evaluated using site-specific conditions.

2 = **Environmental Screening Levels (ESL's) are used as a guidance value for Total Petroleum Hydrocarbon detections as there are no established PRG values for petroleum hydrocarbons.** ESL's have been prepared by California Regional Water Quality Control Board (CRWQCB) - San Francisco Bay Region, entitled: *Screening For Environmental Concerns at Sites With Contaminated Soil and Groundwater* (Interim Final - July 2003). This document is a update to the December 2001 edition document entitled: *Application of Risk-Based Screening Levels (RBSL's) and Decision Making to Sites With Impacted Soil and Groundwater.* The ESL's are intended to provide guidance on whether or not a risk to human health exist and whether or not remediation should be warranted. The guidance values for TPH were obtained for "Shallow Soils ($\leq$ 3m) where groundwater is a current or potential source of drinking water" (Table A) .

3 = **Target Concentration Exceeded for Composite Samples**: 3-point composite samples were selected for inital screening of this 10.9 acre industrial site for cost effective assessment (discrete analysis across the site would be cost prohibitive). Because a portion of the 3 samples that make up the "composite" are mixed at the lab for a single analysis, there is a potential dillution effect if one of the samples has an elevated concentration. We therefore use a "worst case" target concentration for these composite samples that works out to be one-third of the PRG value for residential sites. If this conservative, worst-case target concentration is exceeded in the composite sample, then each of the three samples that make up the composite sample are then individually analyzed as discrete samples and again checked against the PRG values to determine whether a health-risk exists in shallow soils. ANY COMPOSITE SAMPLE THAT EXCEEDS A TARGET CONCENTRATION IS HIGHLIGHTED IN ORANGE.

4 = Concentration of Discrete Sample Remains above Residential Preliminary Remediation Goal for compound identified.

*** =** Laboratory indicates that the reported TPH-Diesel value is the result of overlapping Motor Oil into the Diesel quantitation range.

***2 =** Laboratory indicates that the reported TPH-Gasoline value is the result of heavy hydrocarbons within the TPH-Gasoline quantitation range.

***3 =** Laboratory indicates that the reported TPH-Diesel value is the result of overlapping Hydraulic / Motor Oil into the Diesel quantitation range.

***4 =** Laboratory indicates that although TPH-Motor Oil is present, a second fuel overlapping from the TPH-Hydraulic Oil range into the Motor Oil quantitation range, has resulted in an elevated final TPH-Motor Oil value.

***5 =** Laboratory indicates that the reported TPH-Diesel value is the result of discrete peak that is not typical of TPH-diesel but is within the Diesel quantitation range.

***6 =** Laboratory indicates that the reported TPH-Diesel value is the result of discrete peak and overlapping Motor Oil into the Diesel quantitation range.

Table 2

Groundwater Grab Sample Analytical Results

600 Errington Road, Watsonville, California

(All groundwater results are in micrograms per liter (*u* g/L).

Sampling Information		Analytical Results														
Sample Identification	Sample Depth (ft, bgs)	Total Petroleum Hydrocarbons			Volatile Organic Compounds (VOC's)					Solvent Compounds (Halogenated VOC's)	Ethylene Glycol	Title 22			Bacteriological	
		Diesel	Motor Oil	Gasoline	Benzene	Toluene	Ethylbenzene	Xylene	MTBE			General Mineral	General Physical	Inorganics	E-Coli	Total Coliforms
Onsite Well	80.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	---	All Concentrations Detected Are Below Public Health Drinking Water Limits[3] (see appropriate Appendix for details)			Absent	Present
EB-1	71.03	97*	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---
EB-2	71.67	ND	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---	---
DP-1	DRY	No Groundwater Sample Obtained														
DP-2	26.8'	<63	<313	ND	ND	ND	ND	ND	ND	1,1,1-Trichloroethane @ 0.5 ppb	ND	---	---	---	---	---
DP-3	25.9'	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---
DP-4	24.67'	<82	<410	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---
DP-5	24.74'	<62	<309	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---
DP-6	27.42'	<82	<410	ND	ND	ND	ND	ND	ND	ND	ND	---	---	---	---	---
Laboratory Practical Quantitation Limit (PQL):		**50**	**250**	**50**	**0.5**	**0.5**	**0.5**	**1**	**1**	**Varies**	**NA**	**Varies (see appropriate Appendix for details)**			**Absent/Present**	
Regulatory Action Levels (AL's)[(1)]:		**1,000[(2)]**		**100[(2)]**	**1**	**150**	**700**	**1750**	**5[(2)]**	**Varies**	**Not Established**	**Varies**			**Absent[1]**	**Absent[1]**

NOTES:

All grab groundwater analytical results are in micrograms per liter (ug/L) equivalent to parts per billion (ppb).

1 = **Regulatory Action Levels** for groundwater are based on Primary or Secondary Maximum Contaminant Levels (MCL's) or Action Levels. These levels have been established in the California Code of Regulations (Title 22) set by Department of Health Services (DHS), or Water Quality Goals (WQG's) established by the Central Coast Region of the California Regional Water Quality Control Board (CRWQCB).

2 = All compounds have MCL's except Lead, Zinc, MTBE and Total Petroleum Hydrocarbons (i.e. Extractables/Purgeables). Total Petroleum Hydrocarbons are Water Quality Goals; Lead is an Action Level; MTBE and Zinc are Secondary MCL's.

3 = California Administrative Code; Title 22.

*** =** Laboratory indicates that the reported TPH-Diesel value is the result of overlapping Stoddard into the Diesel quantitation range.

ND = Not Detected at or above the laboratory PQL.

NA = Not Applicable. No grab groundwater samples were analyzed for Mercury, Ethylene Glycol, or Luft 5 Metals.

Bold FONT = Indicates analytical concentration is above ESL's (for TPH constituents), PRG's or SC-HSA Regulatory Action Levels.

--- = Sample not analyzed for these constituents.

< # = Detectino Limit Reported (DLR): Detection limit elevated due to sample dilution or limited sample volume and, compound not detected at or above detection limit reported.

APPENDIX C

Leachability & Health-Based Risk Evaluations
Technical Reference Documents

<u>Sub-Section</u>	<u>Risk Assessment Document/Reference</u> (Thomas Harder & Company)	(Response Date)
Appendix C-1:	***Transport (leachability) Modeling Report***	**May 20, 20211**
Appendix C-2:	***Response to SC-HSA's Follow-up Technical Comments,*** *(to Technical Comments dated* December 5, 2017),	**April 19, 2018**
Appendix C-3:	***Response to SC-HSA's Initial Comments*** *(to Technical Comments dated* September 29, 2017),	**October 26, 2017**

Appendix C-1

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Transport (leachability) Modeling Report

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Source: **Thomas Harder & Company, May 20, 2021**

Thomas Harder & Co.
Groundwater Consulting

May 20, 2021

Mr. Pat Hoban, PG, QSD
Principal Geologist
Weber, Hayes & Associates
120 Westgate Drive
Watsonville, California 95076

Re: Transport Modeling
Former Clusters Storage Yard
Watsonville, California

Dear Mr. Hoban,

The transport modeling presented here presents forecasts of both travel time and future concentrations of lead, total petroleum hydrocarbons as diesel (TPH-d), total petroleum hydrocarbons as motor oil (TPH-mo), and naphthalene (the 'chemicals of interest' or 'COIs') in groundwater at the subject property located at 511 Ohlone Parkway in Watsonville, California (see Figure 1 and Figure 2 in **Attachment A**).

It is our understanding that the current redevelopment plan for the property includes the burial of soil impacted with the COIs ('the burial envelope'; see **Attachment B**) and subsequent installation of an engineered clean cap/cover at the ground surface. Based on the configuration of the burial envelope and groundwater levels at a nearby site, it is our understanding that the base of the burial envelope will be 15 to 20 feet above the water table[1] (i.e., 'the separation distance' or 'travel distance').

Modeling Approach

The transport modeling accounts for migration from the base of the burial envelope through the underlying 15- to 20-foot thick unsaturated zone due to advection and dispersion and subsequent dilution in the saturated zone due to groundwater advection. This is accomplished by linking an unsaturated zone transport model to a saturated zone dilution model. Although the impacted soils

[1] It is our further understanding that groundwater occurs under unconfined conditions.

will extend laterally (in plan-view) over an "L-shaped" area of approximately 17,000 square feet (i.e., approximately 0.4 acres; Weber, Hayes & Associates, Inc. [WH&A, 2021] and as shown herein in **Attachment B**), a one-dimensional approach is used to provide a conservative analysis and for the sake of simplicity.

Model Equations

The unsaturated zone model is the solution to the advection-dispersion equation provided by Ogata and Banks (1961).

$$C(z,t) = \frac{C_0}{2}\left(erfc\left[\frac{z-v_z t}{2\sqrt{D_z t}}\right] + exp\left[\frac{v_z z}{D_z}\right] erfc\left[\frac{z+v_z t}{2\sqrt{D_z t}}\right]\right) \quad \text{[Eqn. 1]}$$

where:

$C(z,t)$ = concentration at distance 'z' from the source at time 't' after COI-impacted soils are buried and capped (COI-specific value in micrograms per liter [μg/L]);

C_0 = source concentration (COI-specific value in μg/L);

erfc = complimentary error function (mathematical operator);

z = vertical distance (feet [ft]);

v_z = advective flow rate (ft/year);

t = time (years);

D_z = dispersion coefficient (ft^2/year); and

exp = exponential function (mathematical operator).

This widely-used solution is published in numerous hydrogeologic textbooks (e.g., Fetter, 1993; Freeze and Cherry, 1979; Domenico and Schwartz, 1990; and Weidemeier et al., 1999, to list just a few) and assumes a constant (non-depleting) aqueous-phase source (the impacted soils containing the COIs) that impinges over time on the initially unimpacted unsaturated zone soils separating the overlying impacted soils from the underlying water table.

Because z is chosen to be the distance between the bottom of the source and the water table for this analysis, $C(z,t)$ is the concentration in unsaturated zone pore water at the unsaturated zone/saturated zone interface (i.e., $C(z,t) = C_{wt}$) and, because the source is assumed to be constant, $C_{wt} = C_0$ for large values of t. The value of C_{wt} is then used to calculate the concentration in groundwater (C_{gw}) using the U.S. Environmental Protection Agency (USEPA) dilution-attenuation factor (DAF) method (USEPA, 1996a):

$$C_{gw} = \frac{C_{wt}}{DAF} \quad \text{[Eqn. 2]}$$

where:

C_{gw} = concentration in groundwater directly beneath the source (COI-specific value in µg/L);

C_{wt} = concentration in unsaturated zone pore water directly beneath the source at the unsaturated zone/saturated zone interface at time 't' after COI-impacted soils are buried and capped (COI-specific value in micrograms per liter [µg/L]); and

DAF = saturated zone dilution attenuation factor (unitless).

Model Inputs

C_0 (source concentration): The concentrations of the COIs in soil have been the subject of numerous investigations documented by Weber, Hayes & Associates (WH&A, 2021). Based on information provided by WH&A regarding the planned grading and filling, and associated removal of impacted soils, **Table 1** was prepared to list the samples and COI concentrations representative of soils that will comprise the burial envelope. Using the USEPA statistical software ProUCL (USEPA, 2015), the 95% upper confidence level (95% UCL) of the mean wet weight concentrations in soil within the burial envelope are as follows:

- Lead: 140 milligrams per kilogram (mg/kg);
- TPH-d: 71 mg/kg;
- TPH-mo: 496 mg/kg; and
- Naphthalene: 0.008 mg/kg.

Geotechnical laboratory reports are included as **Attachment C**. Based on the results shown in these reports, the average moisture content and associated percent solids were calculated to be 0.195 gram/gram and 83.7%, respectively.[2] The 95% UCLs on a dry weight basis, as required for the model, are therefore:

- Lead: 168 milligrams per kilogram (mg/kg);
- TPH-d: 85 mg/kg;
- TPH-mo: 593 mg/kg; and
- Naphthalene: 0.009 mg/kg.

These dry weight concentrations in soil are used to derive the COI-specific values for C_0 as follows:

$$C_0 = \frac{C_{soil}}{K_d} \times CF \qquad \text{[Eqn. 3]}$$

[2] The average moisture content and porosity on a volumetric basis are 31.1% and 42.2%, respectively. The average saturation is therefore 74.2%, which is reasonable given the generally fine-grained nature of Site soils and the proximity of the Site to the adjacent Watsonville Slough immediately to the east and the Struve Slough approximately 0.3 miles to the west.

where:

C_0 = aqueous-phase source concentration (COI-specific value in µg/L);

C_{soil} = sorbed-phase source concentration (concentration in soil) (COI-specific value in mg/kg);

K_d = soil-water partition coefficient (L/kg); and

CF = conversion factor (1000 µg/mg).

The mean K_d value for soil/soil water from USEPA (2005) for lead is 5012 cm^3/g (log K_d = 3.7). For the organic COIs (i.e., TPH-d, TPH-mo, and naphthalene), K_d is calculated as the product of K_{oc} (the organic carbon-water partition coefficient) and f_{oc} (fraction organic carbon). The K_{oc} values for TPH-d, TPH-mo, and naphthalene based on USEPA (2021a) are as follows:

- TPH-d: 1,265 cm^3/g;
- TPH-mo: 16,345 cm^3/g; and
- Naphthalene: 1,544 cm^3/g.

The K_{oc} value for TPH-d is based on the log average value for 'Total Petroleum Hydrocarbons (Aliphatic Medium)' (i.e., log 796 cm^3/g = ~2.9) and 'Total Petroleum Hydrocarbons (Aromatic Medium)' (i.e., log 2011 cm^3/g = ~3.3) consistent with USEPA (2021b) with the assumption that TPH-d contains approximately 12 to 20 carbon atoms. The K_{oc} value for TPH-mo is based on the log average value for 'Total Petroleum Hydrocarbons (Aliphatic High)' (i.e., log 4818 cm^3/g = ~3.7) and 'Total Petroleum Hydrocarbons (Aromatic High)' (i.e., log 55450 cm^3/g = ~4.7) consistent with USEPA (2021b) with the assumption that TPH-mo contains approximately 18 to 34 carbon atoms.

Using an average f_{oc} value (see **Attachment C**[3]) of 0.0036 g/g, the K_d values for TPH-d, TPH-mo, and naphthalene are as follows:

- TPH-d: 4.6 cm^3/g;
- TPH-mo: 59 cm^3/g; and
- Naphthalene: 5.6 cm^3/g.

Substituting the C_{soil} and K_d values for each COI into **Eqn. 3** yields the following values of C_0 used in the model:

- Lead: 33 µg/L;
- TPH-d: 18,700 µg/L;
- TPH-mo: 10,100 µg/L; and

[3] The laboratory report from Waypoint Analytical included in **Attachment C** reports 'organic matter' as a percent. The f_{oc} as used in transport modeling is adjusted (scaled down) by a factor of 1.724 consistent with Fetter (1993).

- Naphthalene: 1.6 µg/L.

z (vertical distance): This is the distance between the bottom of the COI-impacted soils and the underlying water table. Based on the proposed burial envelope and historical depths to groundwater, the value of z used as input to the model is the average of 15 and 20 feet (i.e., 17.5 feet).

v_z (advective flow rate): This value is based on a conservative precipitation-based model, the conservative assumption that the proposed cap/cover will impede only 50% of the precipitation, and accounts for the widely accepted concept that the COIs strongly sorb to soil.

The precipitation-based model of Connor et al. (1997) as presented in Weidemeier et al.(1999) is as follows:

$$I_{sand} = 0.0018P^2 \quad \text{[Eqn. 4a]}$$

$$I_{silt} = 0.0009P^2 \quad \text{[Eqn. 4b]}$$

$$I_{clay} = 0.00018P^2 \quad \text{[Eqn. 4c]}$$

where:

I_{sand}, I_{silt}, and I_{clay} = infiltration rate for sand, silt, and clay soil types, respectively (centimeter/year [cm/yr]); and

P = annual precipitation (cm/yr).

Given the average annual precipitation for Watsonville of 23.5 inches per year as reported at www.usclimatedata.com and equally weighting the sand, silt, and clay fractions based on review of the boring logs (**Attachment A**) for the soils to be buried and capped, the infiltration rate is calculated to be 0.7 inches per year. This value is equivalent to roughly 3% of the annual rainfall, which is in reasonable agreement with values reported by Wood (1999) and Maxey and Eakin (1949) as cited by Dettinger (1989).

The infiltration rate is then used to calculate v_z, which accounts for the tendency of the COIs to sorb to soil as follows:

$$v_z = \frac{I}{R} \quad \text{[Eqn. 5a]}$$

where:

I = infiltration rate (cm/yr); and

R = retardation factor (unitless);

$$v_z = \frac{I}{1+\frac{\rho_b}{\theta_w}K_d} \quad \text{[Eqn. 5b]}$$

where:

ρ_b = dry bulk density (g/cm^3);

θ_w = moisture content (water-filled porosity) (cm^3/cm^3); and

I and K_d are as defined above.

The values for ρ_b and θ_w (1.59 g/cm^3 and 0.311 cm^3/cm^3, respectively) are average values based on site-specific data for unsaturated zones soils between the COI-impacted soils and the water table (**Attachment C**). When these values are used along with the COI-specific K_d values and the value of I above, the COI-specific values of R for the COIs are calculated to be:

- Lead: 26,000;
- TPH-d: 24;
- TPH-mo: 300; and
- Naphthalene: 30.

Thus, the COIs are predicted to migrate downward towards the water table at rates ranging from 24 to 26,000 times slower than the rate of the conservatively calculated infiltration rate. To put these values in perspective, plots of travel distance versus time for each of the COIs are presented in **Figure 1**. As shown in this figure, the time required for the COIs to migrate from the base of the impacted zone over the 17.5-foot distance to the underlying water table (i.e., the 'travel time')[4] is predicted to exceed 1,000 years for all COIs. While predictions this far into the future are of course uncertain, the overriding point is that the COIs are predicted to migrate at a rate so low as to not warrant concern.

t (time): Given the slow migration rates presented above, the values of t are set to large values (i.e., greater than 1,000 years) for all COIs so that model-predicted concentrations can be readily viewed on concentration versus time graphs.

D_z (dispersion coefficient): The value of D_z accounts for the combined effect of mechanical dispersion, which is due to contaminant spreading due to advection, and molecular diffusion, which is contaminant spreading due to concentration gradients as follows:

$$D_z = D^*_{eff} + D_m \quad \text{[Eqn. 6a]}$$

where:

D_m = mechanical dispersion (ft^2/yr); and

[4] The travel time (t_{trav}) can be calculated as z/v_z. It is also the time at which $C(z,t)/C_0 = 0.5$ as predicted using **Eqn. 1**.

D^*_{eff} = retardation factor (unitless).

The expanded form of **Eqn. 6a** that shows how D^*_{eff} and D_m and are calculated in the model is:

$$D_z = \underbrace{\frac{D_w \frac{\theta_w^{10/3}}{n^2}}{R}}_{D^*_{eff}} + \underbrace{\propto v_z}_{D_m} \qquad \text{[Eqn. 6b]}$$

where θ_w, R, and v_z are previously defined and:

D_w = aqueous-phase diffusion coefficient (ft^2/yr);

n = porosity (ft^3/ft^3); and

α = dispersivity (ft).

USEPA lists values of D_w in their regional screening level database (USEPA, 2021a) for all COIs except for lead. Given the generally narrow range of this parameter for all compounds listed in USEPA's database, a conservatively high upward rounded average value of 0.34 ft^2/year (1E-05 cm^2/sec) is used for all COIs. The value of n (0.422 ft^3/ft^3) is an average value based on site-specific data for unsaturated zones soils between the COI-impacted soils and the water table (**Attachment C**). α is a scale-dependent parameter and is calculated as follows (Xu and Eckstein, 1995) as cited in Weidemeier et al. (1999) and USEPA (1996b):

$$\propto = 3.2808 \times 0.83 \times log[z]^{2.414} \qquad \text{[Eqn. 6c]}$$

where z (17.5 ft) is defined as above thus resulting in a value of α of 1.3 ft.

Using these equations, the values of D^*_{eff}, D_m, and D_z are calculated to be 1.5E-06 ft^2/year, 2.9E-06 ft^2/year, and 4.4E-06 ft^2/year, respectively.

<u>DAF (saturated zone dilution attenuation factor):</u> The DAF is calculated using the equation provided by USEPA (USEPA, 1996a):

$$DAF = 1 + \frac{K \times i \times MZD}{I \times L} \qquad \text{[Eqn. 7a]}$$

where:

K = hydraulic conductivity of the saturated zone (ft/year);

i = hydraulic gradient (ft/ft);

MZD = mixing zone depth (ft);

I = infiltration rate (ft/year; defined above in units of cm/year);

L = source length parallel to direction of groundwater flow (ft);

where:

$$MZD = \sqrt{0.0112L^2} + b\left(1 - exp\left[\frac{-LI}{Kib}\right]\right) \quad \text{[Eqn. 7b]}$$

where b is the thickness of the saturated zone in meters. In fact, **Eqn. 7b** requires that all parameters be expressed in meters and years. The values of the **Eqn. 7b** parameters are as follows:

- L = 40 meters based on the 17,000 square foot area to be backfilled with COI-impacted soil;
- b = 3.05 meters (10 ft) based on professional judgment;
- I = 0.018 meters/year based on the value of I presented previously (0.7 inches/year);
- K = 560 meters/year (5 ft/day) based on professional judgment for the fine-grained sands generally identified in the deeper soil samples (**Attachment C**); and
- i = 0.028 meter/meter based on an approximate mid-range value[5] reported for the MF Farming site, which is located immediately south of the Site and on the same side of the Watsonville Slough (Trinity Source Group, 2015).

When these values are used as input and with the restriction that MZD must be ≤ b as noted by USEPA, MZD is calculated to be 3.05 meters and the DAF is calculated to be 68.

Model Results

Using **Eqn. 2** along with the C_0 values listed above (33 µg/L, 18700 µg/L, 10100 µg/L, and 1.6 µg/L for lead, TPH-d, TPH-mo, and naphthalene, respectively) as the C_{wt} values because the source is conservatively assumed to be constant and transport is conservatively assumed to be exclusively one-dimensional in the downward direction, the maximum model-predicted values of C_{gw} (at very large values of t as shown below) are as follows:

Lead: $$C_{gw,max} = \frac{33\ \mu g/L}{68} = 0.5\frac{\mu g}{L} \quad \text{[Eqn. 8a]}$$

TPH-d: $$C_{gw,max} = \frac{18{,}700\ \mu g/L}{68} = 275\frac{\mu g}{L} \quad \text{[Eqn. 8b]}$$

TPH-mo: $$C_{gw,max} = \frac{10{,}100\ \mu g/L}{68} = 149\frac{\mu g}{L} \quad \text{[Eqn. 8c]}$$

Naphthalene: $$C_{gw,max} = \frac{1.6\ \mu g/L}{68} = 0.02\ \mu g/L \quad \text{[Eqn. 8d]}$$

5 Reported hydraulic gradient values range from 0.02 (February 2014) to 0.056 (maximum value reported in June 2015). The value of 0.028 used here was the most recent minimum value reported in June 2015. The MF Farming site was closed by the Santa Cruz County Health Services Agency on October 23, 2015.

The 'MCL Priority'[6] values for lead, TPH-d, and naphthalene as published by the Regional Water Quality Control Board in their Environmental Screening Level (ESL) Summary Table[7] are 15 μg/L, 200 μg/L, and 0.17 μg/L, respectively. There is no value published for TPH-mo but the TPH-HOP ESL of 410 μg/L is used here as a surrogate for the sake of comparison as shown in the table below.

COI	Maximum model-predicted concentration in groundwater ($C_{gw,max}$; μg/L)	'MCL Priority' ESL (μg/L)
Lead	0.5	15
TPH-d	275	200
TPH-mo	149	410
Naphthalene	0.02	0.17

The fact that the values of $C_{gw,max}$ are all less than the MCL Priority ESLs and/or that these concentrations will not occur until an inordinantly long time into the future as shown on **Figure 2** (lead), **Figure 3a** and **Figure 3b** (TPH-d), **Figure 4** (TPH-mo), and **Figure 5** (naphthalene) are compelling lines of evidence that the proposed plan to bury and cap/cover COI-impacted soils to the prescribed depth above the water table is protective of groundwater.

Closing

The proposed burial and engineered cap/cover system as modeled herein shows that migration of the COIs towards the water table will occur at exceedingly slow rates thus leading to exceedingly long times for which the system will not impact groundwater. Given that MCLs will not be exceeded for all COIs except for TPH-d, and then only after the very long model-predicted travel times presented herein, any impact is projected to be inconsequential.

While we recognize that uncertainties undoubtedly exist when projecting where a solute will be located so far into the future, following the reasoning used by USEPA as cited in National Research Council (1990), the modeling here puts some reasonable bounds on where the solute will not be located. As such, it is reasonable to conclude that any engineered system that will not adversely impact the resource of interest (i.e., groundwater) for so many years should be considered sufficiently designed and protective.

6 'MCL Priority' values as listed in the ESL Summary Table provides all available California maximum contaminant level (MCL) values. If no MCL values are available, the lower of the cancer and noncancer tapwater direct exposure levels is listed.
7 https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.html

We appreciate the opportunity to provide consulting services to Weber, Hayes & Associates. If you have any questions, please contact me at 949 795-0855 (cell), 714 779-3875 (office), or via electronic mail at jimvdw@thomashardercompany.com.

Sincerely,

Jim Van de Water

Jim Van de Water, P.G., C.HG.
Principal Hydrogeologist

Table

1: COI Concentrations

Figures

1: Model-Predicted Travel Distances for COIs vs. Time
2: Model-Predicted Concentration of Lead vs. Time and Model-Predicted Travel Time
3a: Model-Predicted Concentration of TPH-d vs. Time and Model-Predicted Travel Time
3b: Model-Predicted Concentration of TPH-d vs. Time
4: Model-Predicted Concentration of TPH-mo vs. Time and Model-Predicted Travel Time
5: Model-Predicted Concentration of Naphthalene vs. Time and Model-Predicted Travel Time

Attachments

A: Location Map and Vicinity Map
B: Location of Burial Envelope
C: Geotechnical Soil Analysis

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TABLE

TABLE 1
COI Concentrations
~ within burial envelope ~

UPDATED Sample ID	ORIGINAL Consultant ID		Depth (ft)	Lead (mg/kg)	TPH-diesel (mg/kg)	TPH-motor oil (mg/kg)	Naphthalene (mg/kg)
B-2(t)	TB-2		0.5	--	--	--	--
B-3(t)	TB-3		2.5	--	--	--	--
B-3(t)	TB-3		4	--	--	--	--
B-6(t)	TB-6		0.75	--	--	--	--
B-7(t)	TB-7		0.5	--	--	--	--
B-8(t)	TB-8		1.5	--	--	--	--
B-8(t)	TB-8		2.5	--	--	--	--
B-8(t)	TB-8		4	--	--	--	--
B-9(t)	TB-9		0.5	40	--	--	--
B-9(t)	TB-9		1.5	--	--	--	--
B-9(t)	TB-9		2.5	--	--	--	--
B-9(t)	TB-9		4	--	--	--	--
T-1(t)	Area 1	T4	4	--	--	--	--
T-2(t)		T6	3.5	20	<1.2	85	<0.005
T-3(t)		T9	2	29	94	240	<0.005
T-4(t)		T10	1	6.8	<1.2	32	<0.005
T-5(t)		T11	1.5	--	--	--	--
T-6(t)		T12	1	76	<1.2	250	<0.005
T-7(t)	Area 2	T6	1	8.6	<1.2	<6.5	<0.005
T-8(t)		T12	2	22	<2.4	400	<0.005
T-9(t)		T15	2	55	<2.4	510	<0.005
T-10(t)	Area 3	T1	3	--	--	--	--
T-11(t)	Area 5	T1	6	3,200	<6	680	<0.005
T-12(t)		T3	2	1,100	<2.4	800	<0.005
T-13(t)		T5	3	--	--	--	--
T-14(t)		T10	4	16	<1.2	18	<0.005
T-17(t)	Area 8	T1	2	120	<2.3	51	<0.005
B-10(w)	SB-1		2	13	<1.2	22	--
B-11(w)	SB-2		0.5	110	670	5500	--
B-11(w)	SB-2		2	9.9	4.8	39	<0.005
B-12(w)	SB-3		2	17	<1.2	29	--
B-13(w)	SB-4		2	14	6.2	38	<0.005
B-14(w)	SB-5		0.5	23	60	820	<0.005
B-14(w)	SB-5		2	6.9	8.9	63	<0.005
B-15(w)	SB-6		0.5	32	15	170	<0.005
			2	7.5	<1.2	<6.5	<0.005
B-16(w)	SB-7		0.5	13	6.5	63	--
			2	11	<1.2	<6.5	--
B-17(w)	SB-8		0.5	17	53	750	--
			2	9.5	4.9	51	--
B-18(w)	SB-9		0.5	38	110	1300	--
			2	8	10	98	--
B-19(w)	SB-10		0.5	15	7.1	48	--
			2	8.6	<1.2	<6.5	--
B-20(w)	SB-11		0.5	24	12	150	--
			2	12	<1.2	21	--
B-22(w)	SB-13		0.5	17	7.1	64	--
			2	8.3	<1.2	19	--
B-23(w)	SB-14		0.5	12	150	1600	--
			2	13	<1.2	<6.5	--
B-24(w)	SB-15		0.5	8.1	10	140	--
			2	9.6	<1.2	28	--

TABLE 1
COI Concentrations
~ within burial envelope ~

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	TPH-diesel (mg/kg)	TPH-motor oil (mg/kg)	Naphthalene (mg/kg)
B-25(w)	DP-1	2	9.1	<1.2	<6.5	--
B-26(w)	DP-2	2	9.4	<1.2	<6.5	--
B-27(w)	DP-4	2	9	5.2	14	0.023
B-28(w)	DP-5	2	5.9	<1.2	<6.5	--
B-29(w)	DP-6	2	7.5	5.6	23	<0.0050
B-30(w)	DP-7	2	8.8	7.3	42	--
B-31(w)	DP-8	2	23	5.8	33	--
B-33(L)	CL-1	1	9.9	--	--	--
		3	6.2	--	--	--
B-34(L)	CL-2	2	9.8	--	--	--
		3	7.7	--	--	--
B-35(L)	CL-3	2	5.7	--	--	--
		3	5.9	--	--	--
B-36(L)	CL-4	4	7.1	--	--	--
B-40(L)	R-1	0.5	8.6	--	--	--
		2	7.8	--	--	--
B-41(L)	R-2	0.5	6.9	--	--	--
B-41(L)	R-2	2	5.5	--	--	--
B-41(L)	R-2	3	5.2	--	--	--
B-42(L)	R-3	1	5.4	--	--	--
B-42(L)	R-3	3	5.9	--	--	--
B-43(L)	GZ-1	2	9.4	--	--	--
B-43(L)	GZ-1	3	5.1	--	--	--
B-44(L)	GZ-2	1	44	--	--	--
		3	9.8	--	--	--
B-45(L)	BC-1	3	13	--	--	--
		5	9	--	--	--
		7	33	--	--	--
B-46(L)	BC-2	3	21	--	--	--
		5	25	--	--	--
		7	8.9	--	--	--
B-47(L)	BC-3	3	11	--	--	--
		5	9.3	--	--	--
		7	17	--	--	--
B-48(L)	BC-4	3	17	--	--	--
		5	6.5	--	--	--
		7	7.6	--	--	--
B-49(L)	CZ-1	2	1	--	--	--
		4	10	--	--	--
B-50(L)	CZ-2	1	6.9	--	--	--
		3	6.8	--	--	--
		7	7.7	--	--	--
		11	7.9	--	--	--
B-51(L)	CZ-3	2	8.2	--	--	--
B-52(L)	G+G-1	2	8	<1	<50	--
		4	10	<1	<50	--
		6	77	160	1200	--
B-53(L)	G+G-2	2	6.8	--	--	--
		4	6.5	--	--	--
		6	3.9	--	--	--
B-54(L)	G+G-3	0.5	7	--	--	--
		2	6.4	--	--	--

TABLE 1
COI Concentrations
~ within burial envelope ~

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	TPH-diesel (mg/kg)	TPH-motor oil (mg/kg)	Naphthalene (mg/kg)
B-55(L)	G+G-4	2	6	1.7	<50	--
B-55(L)	G+G-4	3	9.1	<1	<50	--
B-56(L)	G+G-5	2	5.1	--	--	--
		4	5.1	--	--	--
B-57(L)	G+G-6	2	7.2	--	--	--
		4	5.3	--	--	--
B-58(L)	G+G-7	2	8.2	--	--	--
		3.5	11	--	--	--
B-59(L)	G-1	2	42	--	--	--
		3	5.2	--	--	--
B-60(L)	G-2	2	14	--	--	--
		3	14	--	--	--
B-61(L)	G-3	0.5	11	--	--	--
		2	11	--	--	--
		3	13	--	--	--
B-62(L)	G-4	2	9	--	--	--
		3	7.4	--	--	--
B-63(L)	G-5	2	16	--	--	--
		4	15	--	--	--
		6	6.2	--	--	--
B-64(L)	G-6	2	6.1	--	--	--
		4	24	--	--	--
		6	10	--	--	--
B-65(w)	G&G# - 1a,1b,1c	0.5	49	68*	310	--
		2	70	<1	<13	--
B-65a(w)	G&G 1a	2	25	110	360	--
B-65b(w)	G&G 1b	2	89	19	78	--
B-65c(w)	G&G 1c	2	50	11	33	--
B-66(w)	G&G# - 2a,2b,2c	0.5	40	--	--	--
		2	43	21	86	--
B-67(w)	G&G# - 3a,3b,3c	2	20	<1	<13	--
B-68(w)	G&G# - 4a,4b,4c	2	66	<1	<13	--
B-68a(w)	G&G 4a	2	260	--	--	--
B-68b(w)	G&G 4b	2	150	--	--	--
B-68c(w)	G&G 4c	2	25	--	--	--
B-69(w)	G&G# - 5a,5b,5c	0.5	32	<1	<13	--
B-69(w)	G&G# - 5a,5b,5c	2	17	<1	<13	--
B-69a(w)	G&G 5a	0.5	37	--	--	--
B-69c(w)	G&G 5c	0.5	69	--	--	--
B-70(w)	G&G (discrete #1)	0.5	--	110	510	--
B-70(w)	G&G (discrete #1)	2	--	130	980	--
B-70(w)	G&G (discrete #1)	4	--	1.5	<13	--
B-71(w)	EB-1	20	--	<1	<13	--
B-71(w)	EB-1	40	--	1.1	<13	--
B-72(w)	Gonzalez# - 1a, 1b, 1c	0.5	17	6.1	30	--
		2	14	1.6	<13	--
B-73(w)	Gonzalez# - 2a, 2b, 2c	0.5	100	8.8	58	--
		2	16	1.6	<13	--
B-73a(w)	Gonzalez 2a	0.5	33	--	--	--
B-73b(w)	Gonzalez 2b	0.5	120	--	--	--
B-73c(w)	Gonzalez 2c	0.5	85	--	--	--
B-74(w)	Clusters# - 1a,1b,1c	0.5	16	<1	<13	--
		2	20	6.4	31	--

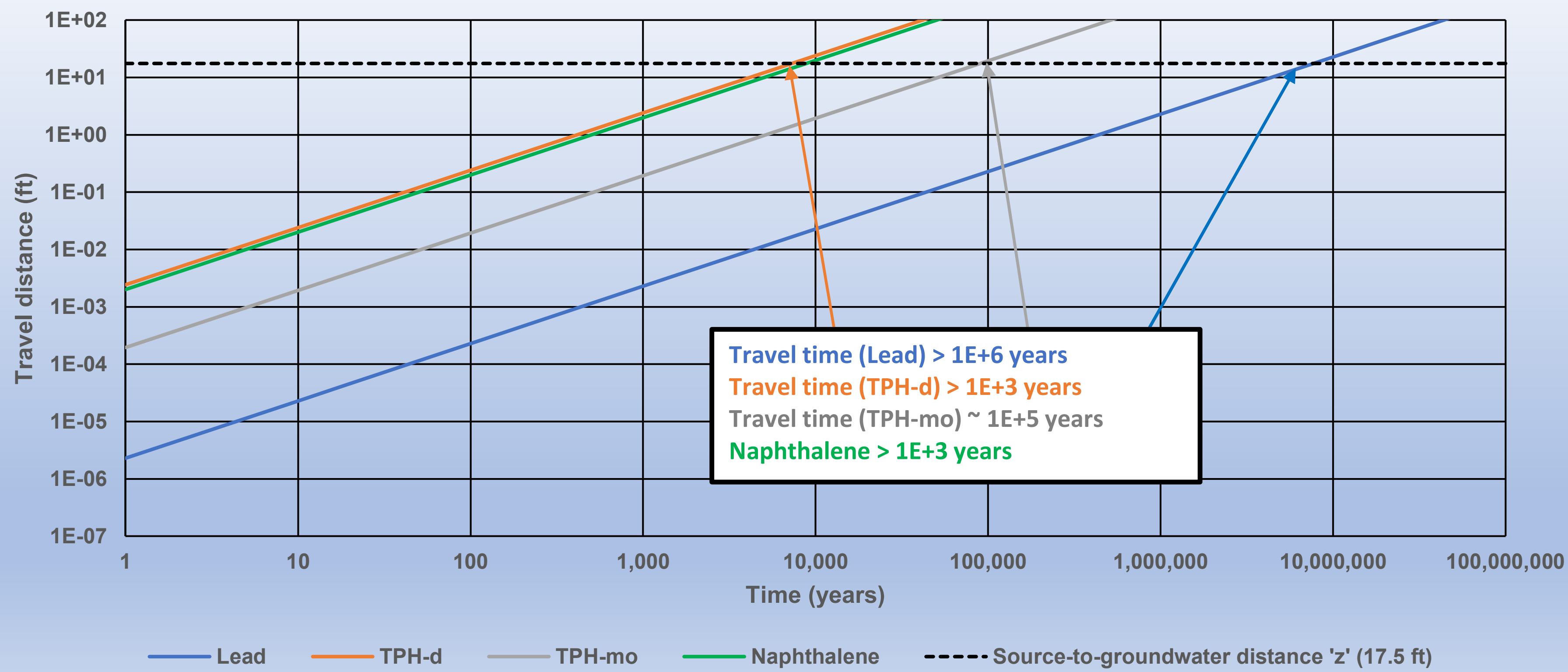
TABLE 1
COI Concentrations
~ within burial envelope ~

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	TPH-diesel (mg/kg)	TPH-motor oil (mg/kg)	Naphthalene (mg/kg)
B-75(w)	Clusters# - 2a,2b,2c	0.5	16	3.2	16	--
		2	17	<1	<13	--
B-77(w)	Chaz #- 1a,1b,1c	0.5	34	31	250	--
		2	100	4.5	35	--
B-77a(w)	Chaz 1a	2	280	--	--	--
B-77b(w)	Chaz 1b	2	36	--	--	--
B-77c(w)	Chaz 1c	2	19	--	--	--
B-78(w)	Chaz # - 2a,2b,2c	0.5	26	15	130	--
		2	38	5.3	48	--
B-79(w)	Gerrys #- 1a,1b,1c	0.5	29	45	200	--
		2	28	12	57	--
B-80(w)	Gerrys #- 2a,2b,2c	0.5	17	<1	<13	--
		2	21	62	200	--
B-80a(w)	Gerrys 2a	2	--	<1	<13	--
B-80b(w)	Gerrys 2b	2	--	190	600	--
		4	--	2	<13	--
B-80c(w)	Gerrys 2c	2	--	3.2	16	--
B-81(w)	Gerrys # - 3a,3b,3c	0.5	130	170	670	--
		2	19	<1	<13	--
B-81a(w)	Gerrys 3a	0.5	46	--	--	--
		2	--	--	--	--
B-81b(w)	Gerrys 3b	0.5	110	--	--	--
		2	--	--	--	--
B-81c(w)	Gerrys 3c	0.5	15	--	--	--
		2	--	--	--	--
B-82(w)	Gerrys # - 4a,4b,4c	0.5	47	33	130	--
		2	20	<1	<13	--
B-82a(w)	Gerrys 4a	2	--	--	--	--
B-82b(w)	Gerrys 4b	2	--	--	--	--
B-82c(w)	Gerrys 4c	2	--	--	--	--
B-83(w)	Gerry's Discrete	0.5	--	1.7	<13	--
B-83(w)	Gerry's Discrete	2	--	110	390	--
B-83(w)	Gerry's Discrete	4	--	4.5	<13	--
B-84(w)	EB-2	20	--	--	--	--
B-84(w)	EB-2	40	--	--	--	--
B-85(w)	JV # - 1a,1b,1c	0.5	60	8.6	<13	--
		2	22	2.1	<13	--
B-85a(w)	JV 1a	0.5	48	--	--	--
B-85b(w)	JV 1b	0.5	16	--	--	--
B-85c(w)	JV 1c	0.5	17	--	--	--
B-86(w)	Residence #- 1a,1b,1c	0.5	15	12	56	--
		2	18	34	140	--
B-87(w)	Residence # (discrete)	0.5	--	14	22	--
B-87(w)	Residence # (discrete)	2	--	500	1400	--
B-87(w)	Residence # (discrete)	4	--	1.5	<13	--
B-88(w)	Bay City # - 1a,1b,1c	0.5	28	6.3	33	--
		2	18	1.5	15	--
B-89(w)	Bay City # - 2a,2b,2c	0.5	44	8.9	54	--
		2	48	9.4	64	--

"<" denotes COI not detected at reporting limit shown
"--" Sample not analyzed for the given COI

FIGURES

Figure 1: Model-Predicted Travel Distances for COIs vs. Time



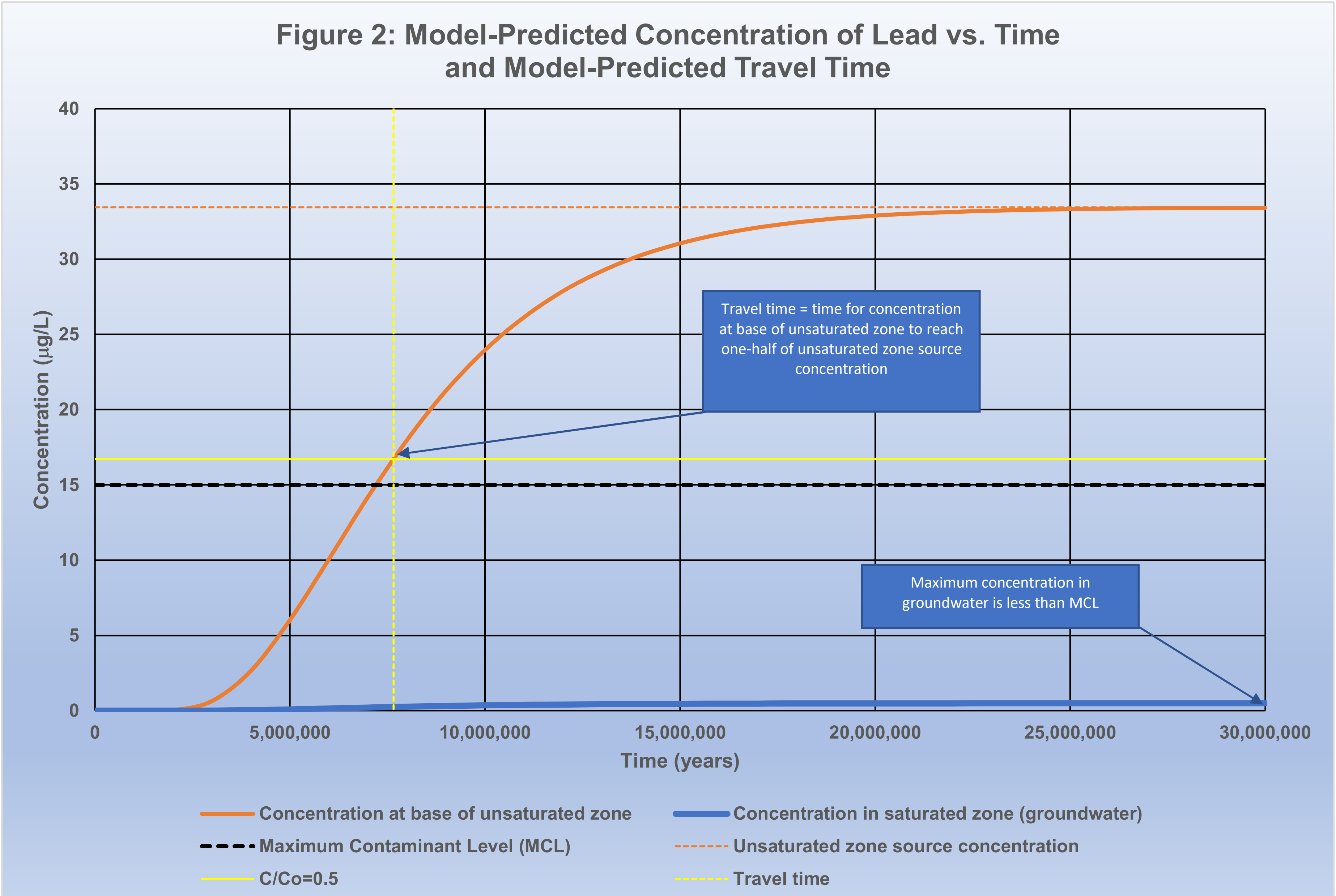


Figure 2: Model-Predicted Concentration of Lead vs. Time
and Model-Predicted Travel Time
Concentration (µg/L)
40
35
30
25
20
15
10
5
0
0
5,000,000
10,000,000
15,000,000
20,000,000
25,000,000
30,000,000
Time (years)
Travel time = time for concentration at base of unsaturated zone to reach one-half of unsaturated zone source concentration
Maximum concentration in groundwater is less than MCL
Concentration at base of unsaturated zone
Concentration in saturated zone (groundwater)
Maximum Contaminant Level (MCL)
Unsaturated zone source concentration
C/Co=0.5
Travel time

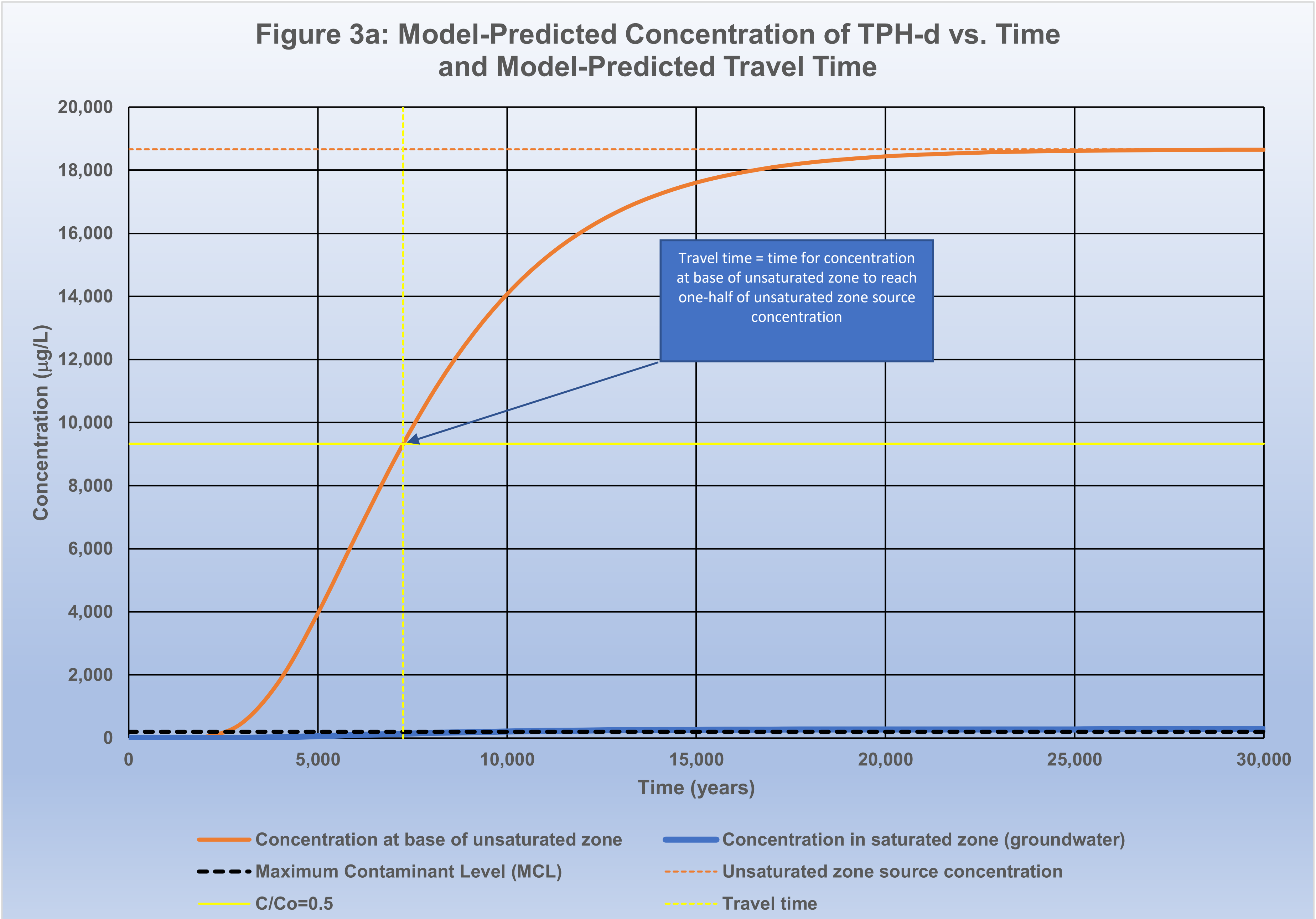


Figure 3a: Model-Predicted Concentration of TPH-d vs. Time
and Model-Predicted Travel Time
Concentration (µg/L)
0
2,000
4,000
6,000
8,000
10,000
12,000
14,000
16,000
18,000
20,000
0
5,000
10,000
15,000
20,000
25,000
30,000
Time (years)
Travel time = time for concentration at base of unsaturated zone to reach one-half of unsaturated zone source concentration
Concentration at base of unsaturated zone
Concentration in saturated zone (groundwater)
Maximum Contaminant Level (MCL)
Unsaturated zone source concentration
C/Co=0.5
Travel time

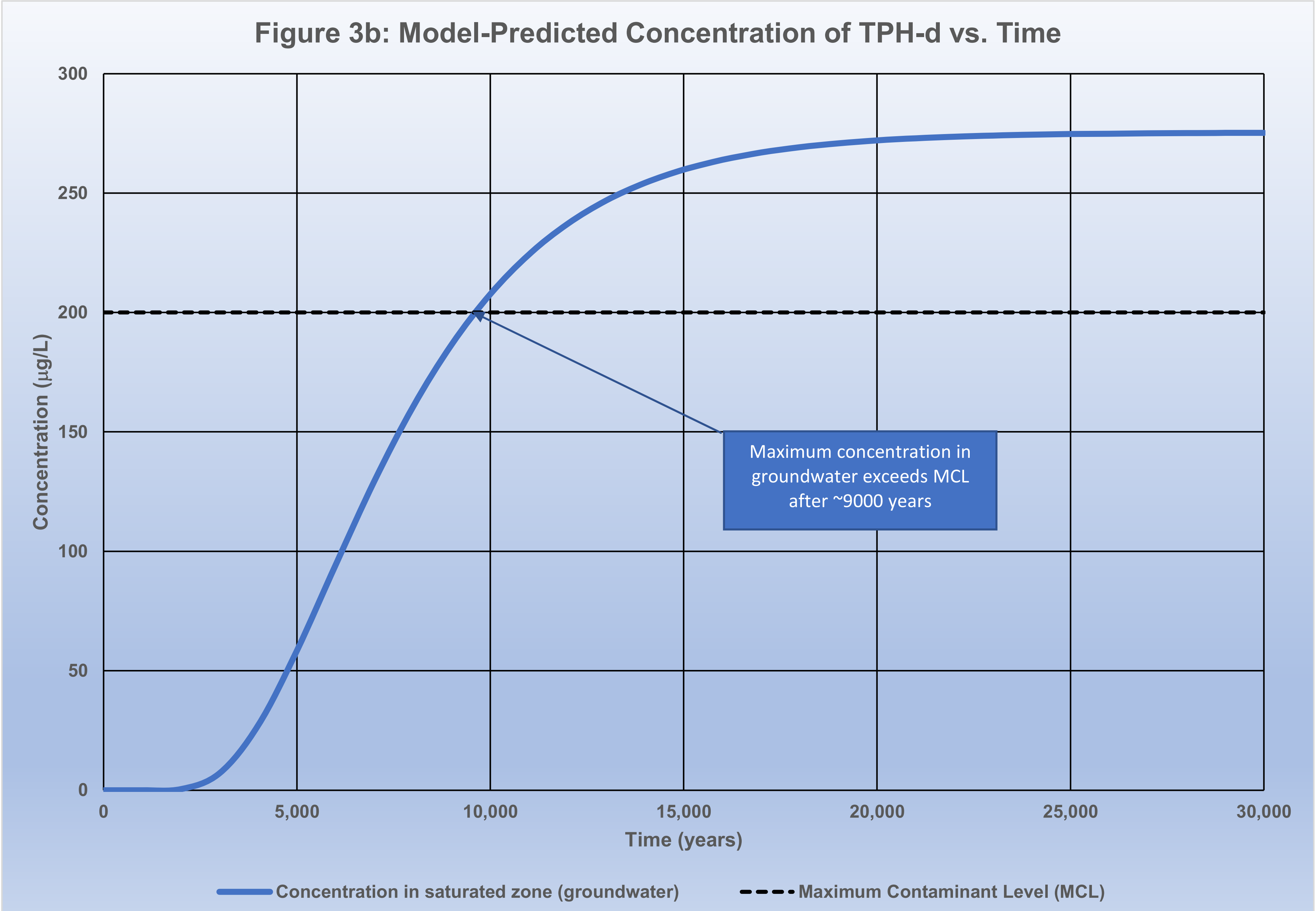


Figure 3b: Model-Predicted Concentration of TPH-d vs. Time
Concentration (µg/L)
300
250
200
150
100
50
0
0
5,000
10,000
15,000
20,000
25,000
30,000
Time (years)
Maximum concentration in groundwater exceeds MCL after ~9000 years
Concentration in saturated zone (groundwater)
Maximum Contaminant Level (MCL)

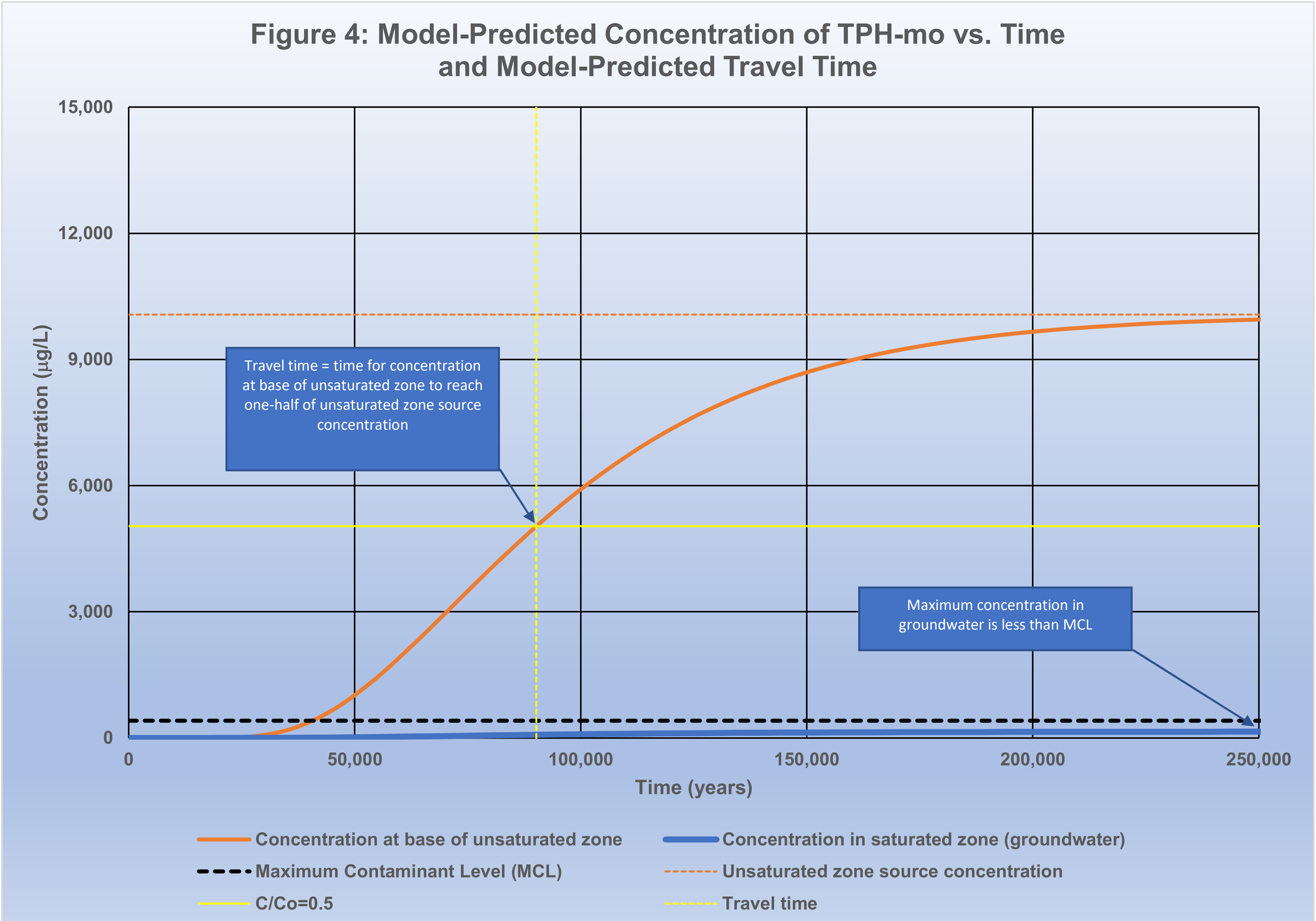


Figure 4: Model-Predicted Concentration of TPH-mo vs. Time
and Model-Predicted Travel Time
15,000
12,000
9,000
6,000
3,000
0
Concentration (µg/L)
0
50,000
100,000
150,000
200,000
250,000
Time (years)
Travel time = time for concentration at base of unsaturated zone to reach one-half of unsaturated zone source concentration
Maximum concentration in groundwater is less than MCL
Concentration at base of unsaturated zone
Concentration in saturated zone (groundwater)
Maximum Contaminant Level (MCL)
Unsaturated zone source concentration
C/Co=0.5
Travel time

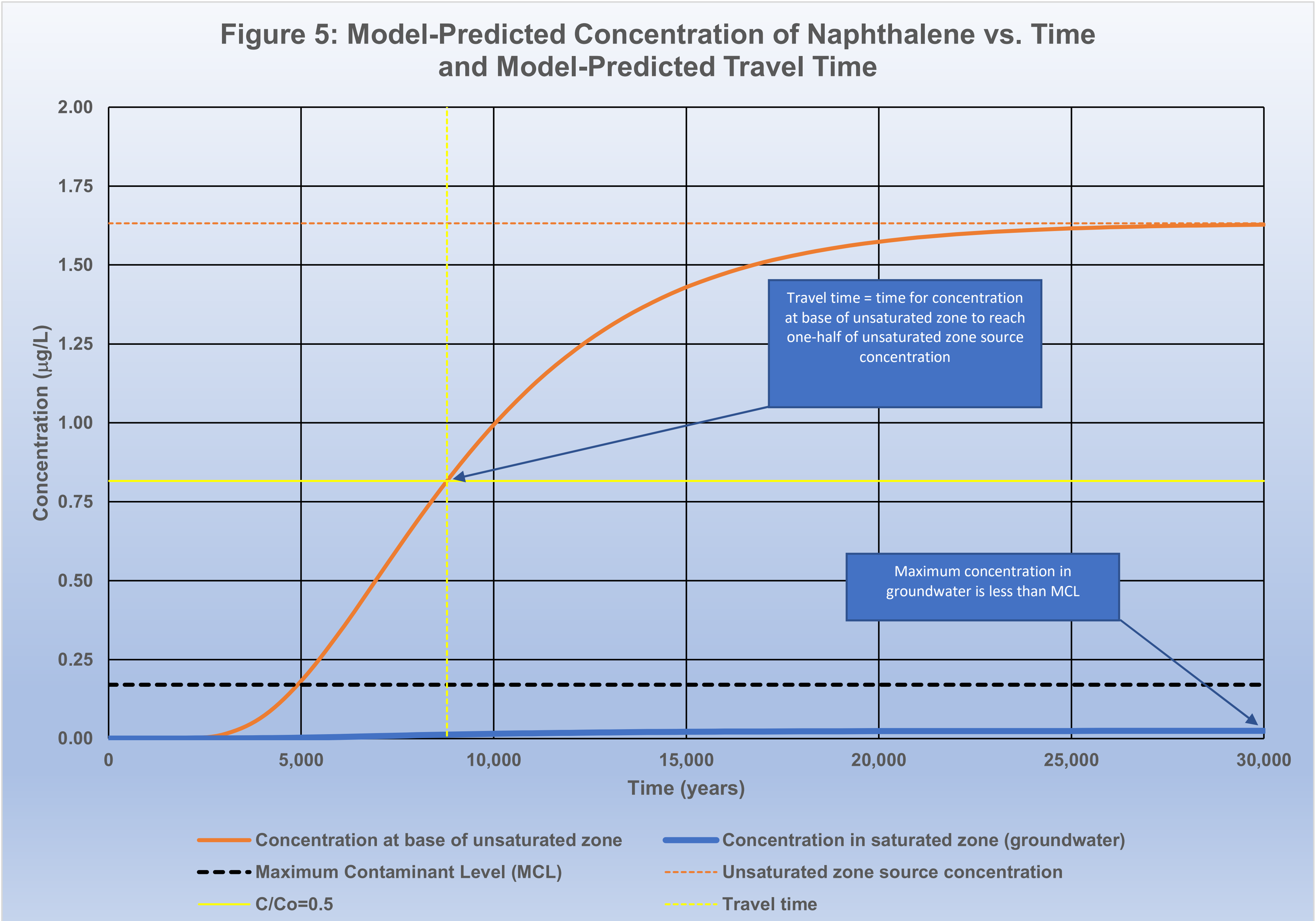


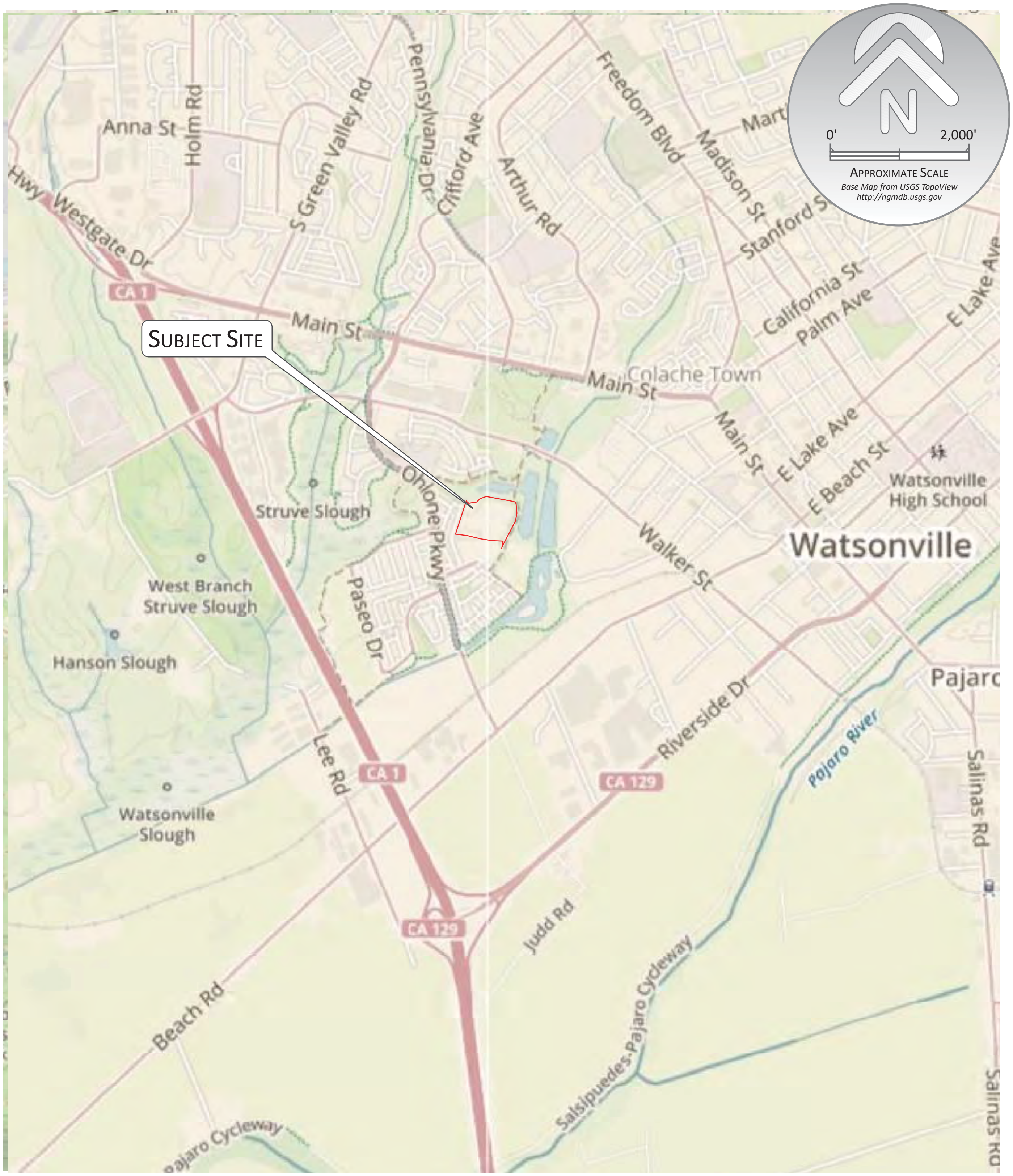
Figure 5: Model-Predicted Concentration of Naphthalene vs. Time
and Model-Predicted Travel Time
Concentration (µg/L)
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
0
5,000
10,000
15,000
20,000
25,000
30,000
Time (years)
Travel time = time for concentration at base of unsaturated zone to reach one-half of unsaturated zone source concentration
Maximum concentration in groundwater is less than MCL
Concentration at base of unsaturated zone
Concentration in saturated zone (groundwater)
Maximum Contaminant Level (MCL)
Unsaturated zone source concentration
C/Co=0.5
Travel time

ATTACHMENT A

Figure 1: Location Map

Figure 2: Vicinity Map

~ from Weber, Hayes & Associates (20**21**) ~



WEBER, HAYES & ASSOCIATES
Hydrogeology and Environmental Engineering
120 Westgate Drive, Watsonville, CA
831.722.3580 / www.weber-hayes.com

LOCATION MAP
REMEDIAL ACTION PLAN

SITE: CLUSTERS STORAGE YARD
ADDRESS: 511 OHLONE PARKWAY, WATSONVILLE, CA

DATE: JULY 2017 | REVISIONS/NOTES:

FIGURE 1
Project 2X623

Figure 2
Project 2x623

Vicinity Map
Remedial Action Plan
Site: Clusters Junkyard
Address: 511 Ohlone Parkway, Watsonville, CA

Revisions/Notes:

Date: July 2017

Weber, Hayes & Associates
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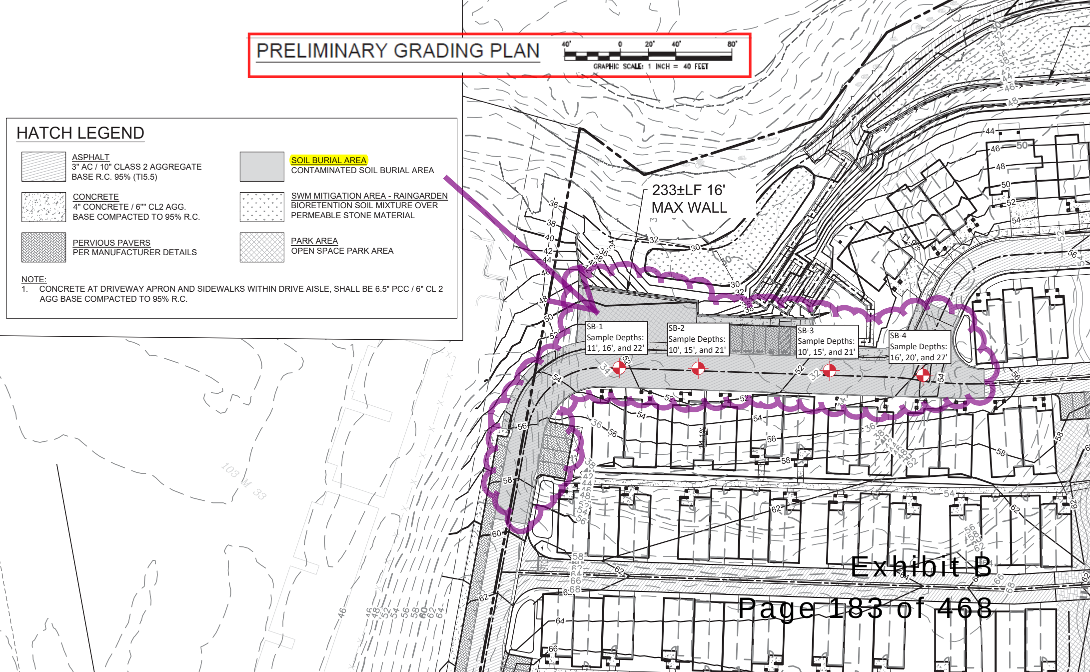
ATTACHMENT B

Location of Burial Envelope

~ provided by Weber, Hayes & Associates ~

PRELIMINARY GRADING PLAN

GRAPHIC SCALE: 1 INCH = 40 FEET



HATCH LEGEND

ASPHALT
3" AC / 10" CLASS 2 AGGREGATE BASE R.C. 95% (TI5.5)

CONCRETE
4" CONCRETE / 6"" CL2 AGG. BASE COMPACTED TO 95% R.C.

PERVIOUS PAVERS
PER MANUFACTURER DETAILS

SOIL BURIAL AREA
CONTAMINATED SOIL BURIAL AREA

SWM MITIGATION AREA - RAINGARDEN
BIORETENTION SOIL MIXTURE OVER PERMEABLE STONE MATERIAL

PARK AREA
OPEN SPACE PARK AREA

NOTE:
1. CONCRETE AT DRIVEWAY APRON AND SIDEWALKS WITHIN DRIVE AISLE, SHALL BE 6.5" PCC / 6" CL 2 AGG BASE COMPACTED TO 95% R.C.


Soil Burial Location (topographic trough)

ESTIMATED BURIAL VOLUMES

NOTES:

1. BURIAL AREA = 17,088 SQUARE FEET (ALL UNDER IMPERVIOUS SURFACES)
2. DEPTH FROM BOTTOM OF CONTAMINATED SOILS TO HIGH WATER MARK (ELEV 11) = 15' MIN.
3. TOP BURIAL TAKEN TO BOTTOM ROAD SUBBASE.
4. ASSUMES 15% COMPACTION FACTOR AT 6" LIFTS COMPACTED TO 90% MIN.
5. CUT MATERIAL (NON CONTAMINATED), NOTED BELOW, TO BE USED ELSEWHERE ONSITE.

7,724 CUBIC YARDS EXCAVATION TO BOTTOM BURIAL (ELEV. 26)

18,111 CUBIC YARDS CONTAMINATED FILL

PHASING PLAN

1. PHASE 1 - 30 UNITS
   LOMA VISTA /STREET A (STA: 1+00 - 16+43) STREET C (STA:7+00 - 10+56)
2. PHASE 2 - 29 UNITS
   STREET B (STA: 5+00 - 7+29)
3. PHASE 3 - 27 UNITS
4. PHASE 4 - 27 UNITS
   STREET B (STA: 1+00 - 5+00)
5. PHASE 5 - 30 UNITS
   STREET A (STA: 1+00 - 7+00)

UNIT BREAKDOWN PER PHASE

	PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	TOTAL/UNIT
UNIT A	2	2	0	0	2	6
UNIT C2	14	12	13	10	12	61
UNIT G	5	6	4	6	6	27
UNIT F	3	5	4	5	4	20
UNIT D	6	4	6	6	6	29
TOTALS	30	29	27	27	30	143

PLAN VIEW

40' 0 20' 40' 80'

GRAPHIC SCALE: 1 INCH = 40 FEET

811 Know what's below. Call before you dig.

RAMSEY CIVIL ENGINEERING INC
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DAVID RAMSEY DATE
RCE# 73735

APN# 018-372-14

PLAN TYPE
RESIDENTIAL SUBDIVISION

SITE PLAN: PHASING & UNIT LAYOUT

HILLCREST SUBDIVISION

510 OHLONE PARKWAY, WATSONVILLE, CA 95076

NUMBER	BY	DESCRIPTION	DATE

REVISION BLOCK

DRAWN BY:	DMR
DESIGNED BY:	DMR
DATE:	12/14/2020
SCALE:	AS NOTED
PROJECT NO:	20-021
SHEET:	VE 1.0

ATTACHMENT C

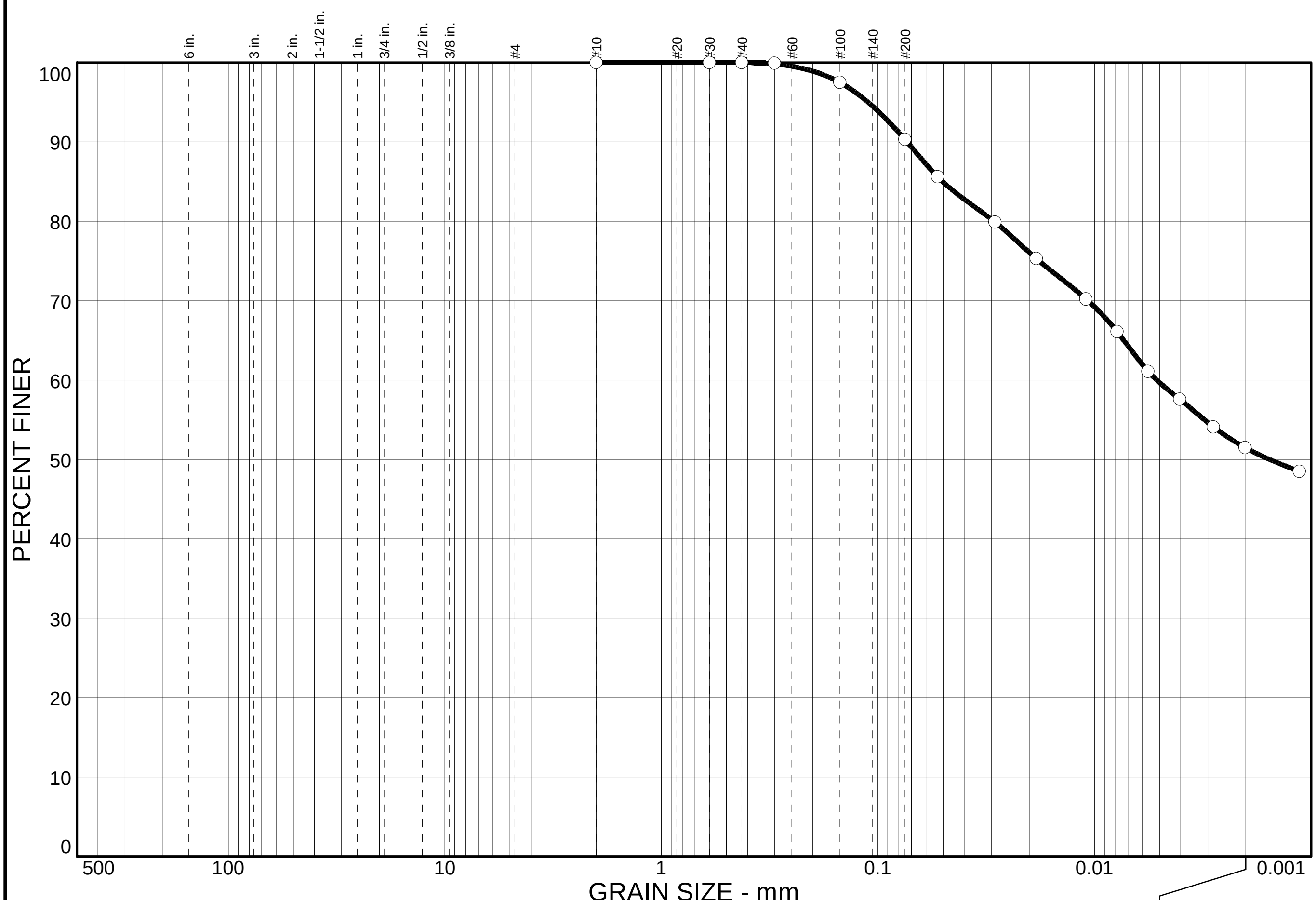
Geotechnical Soil Analysis

~ provided by Weber, Hayes & Associates ~

Geotechnical Soil Quality
Laboratory Analytical Results and Chain of Custody

- **Particle Size Distribution Report Cooper Testing Laboratory**
- **Waypoint Analytical**
- **Moisture-Density-Porosity Report**
- **Specific Gravity by Pycnometer**
- **Corrosivity Tests**
- **Chain of Custody**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	9.7	38.9	51.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#30	100.0		
#40	100.0		
#50	99.9		
#100	97.5		
#200	90.3		
#270	85.6		
0.0288 mm.	79.9		
0.0186 mm.	75.3		
0.0109 mm.	70.2		
0.0079 mm.	66.1		
0.0057 mm.	61.1		
0.0040 mm.	57.6		
0.0028 mm.	54.1		
0.0020 mm.	51.5		
0.0011 mm.	48.5		

* (no specification provided)

Soil Description

Olive Gray CLAY

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0503 D_{60}= 0.0052 D_{50}= 0.0016
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

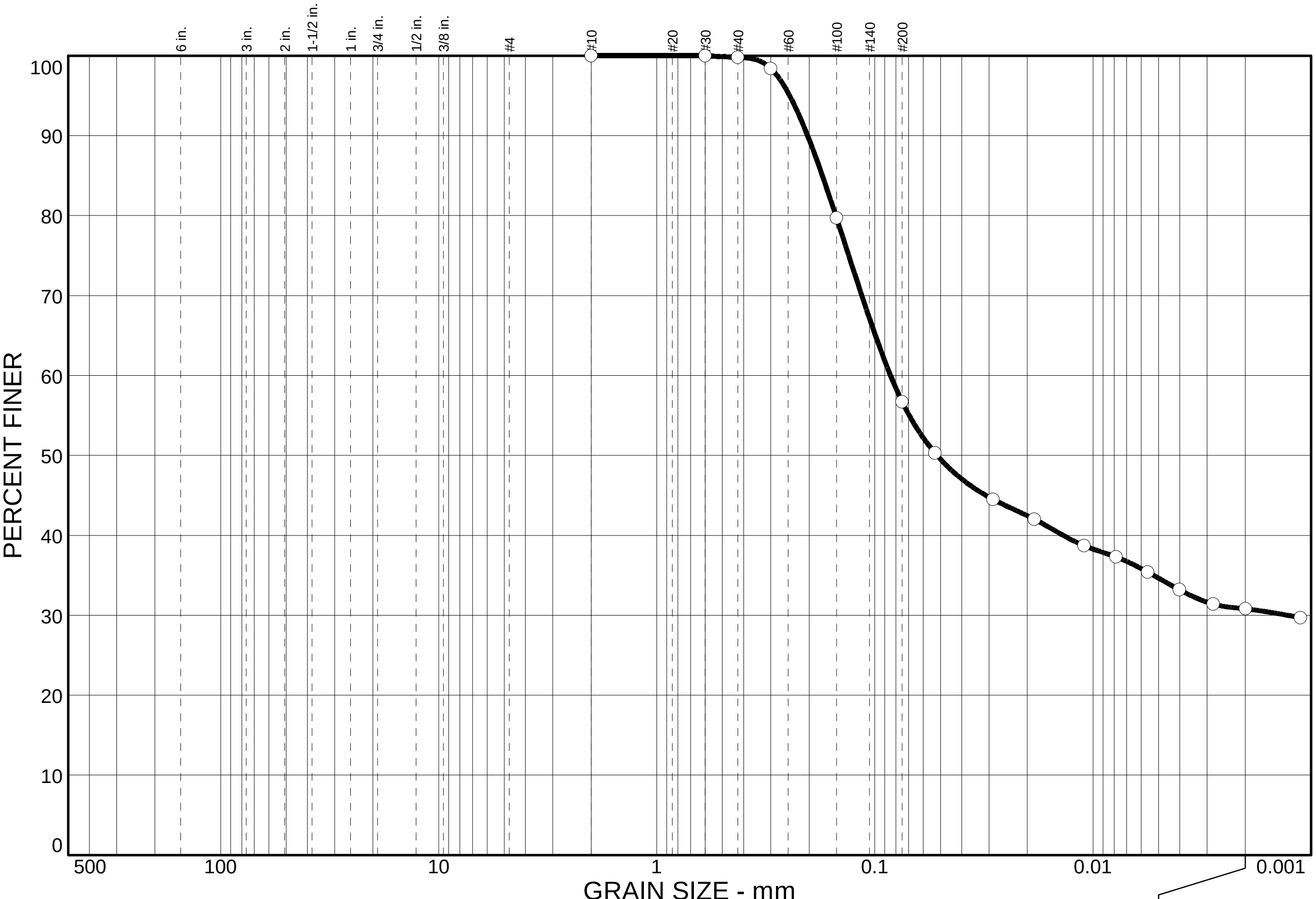
Sample No.: **Source of Sample:** SB-1-d11 **Date:** 2/23/21
Location: **Elev./Depth:** 11'

COOPER TESTING LABORATORY

Client: Weber, Hayes & Associates
Project: 510 Ohlone Parkway, Watsonville, CA. - 2t038

Project No: 407-024 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	43.3	25.9	30.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#30	100.0		
#40	99.8		
#50	98.4		
#100	79.7		
#200	56.7		
#270	50.3		
0.0287 mm.	44.5		
0.0185 mm.	42.0		
0.0110 mm.	38.7		
0.0078 mm.	37.3		
0.0056 mm.	35.4		
0.0040 mm.	33.2		
0.0028 mm.	31.4		
0.0020 mm.	30.8		
0.0011 mm.	29.7		

* (no specification provided)

Soil Description

Dark Yellowish Brown Sandy CLAY

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.174 D_{60}= 0.0848 D_{50}= 0.0519
D_{30}= 0.0013 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

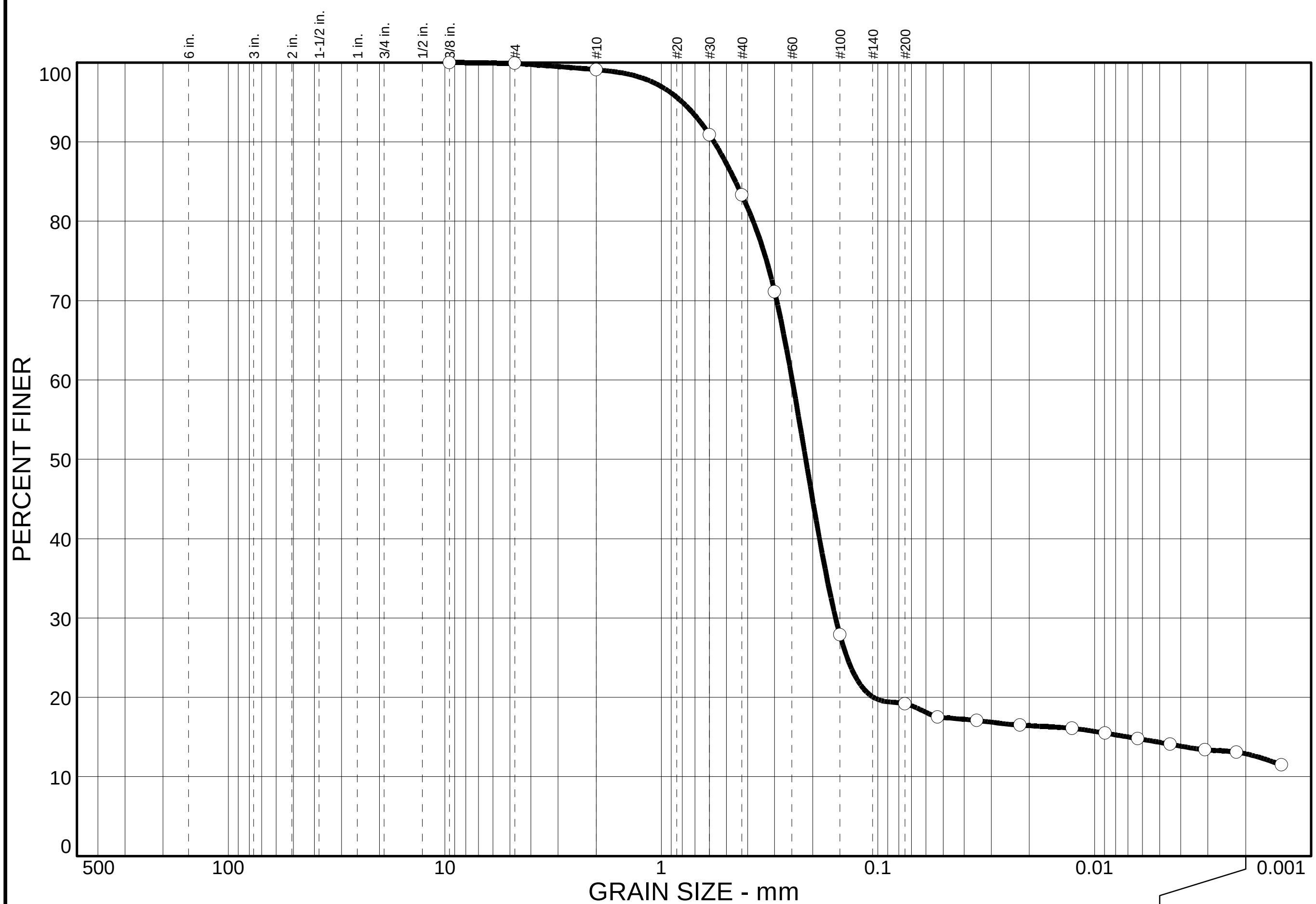
Sample No.: **Source of Sample:** SB-1-d16 **Date:** 2/23/21
Location: **Elev./Depth:** 16'

COOPER TESTING LABORATORY

Client: Weber, Hayes & Associates
Project: 510 Ohlone Parkway, Watsonville, CA. - 2t038

Project No: 407-024 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.1	80.7	6.3	12.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8 in.	100.0		
#4	99.9		
#10	99.1		
#30	90.9		
#40	83.3		
#50	71.1		
#100	27.9		
#200	19.2		
#270	17.5		
0.0350 mm.	17.1		
0.0221 mm.	16.5		
0.0127 mm.	16.1		
0.0089 mm.	15.5		
0.0063 mm.	14.8		
0.0045 mm.	14.1		
0.0031 mm.	13.4		
0.0022 mm.	13.1		
0.0014 mm.	11.5		

* (no specification provided)

Soil Description

Dark Yellowish Brown Silty SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.455 D_{60}= 0.249 D_{50}= 0.216
D_{30}= 0.157 D_{15}= 0.0070 D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

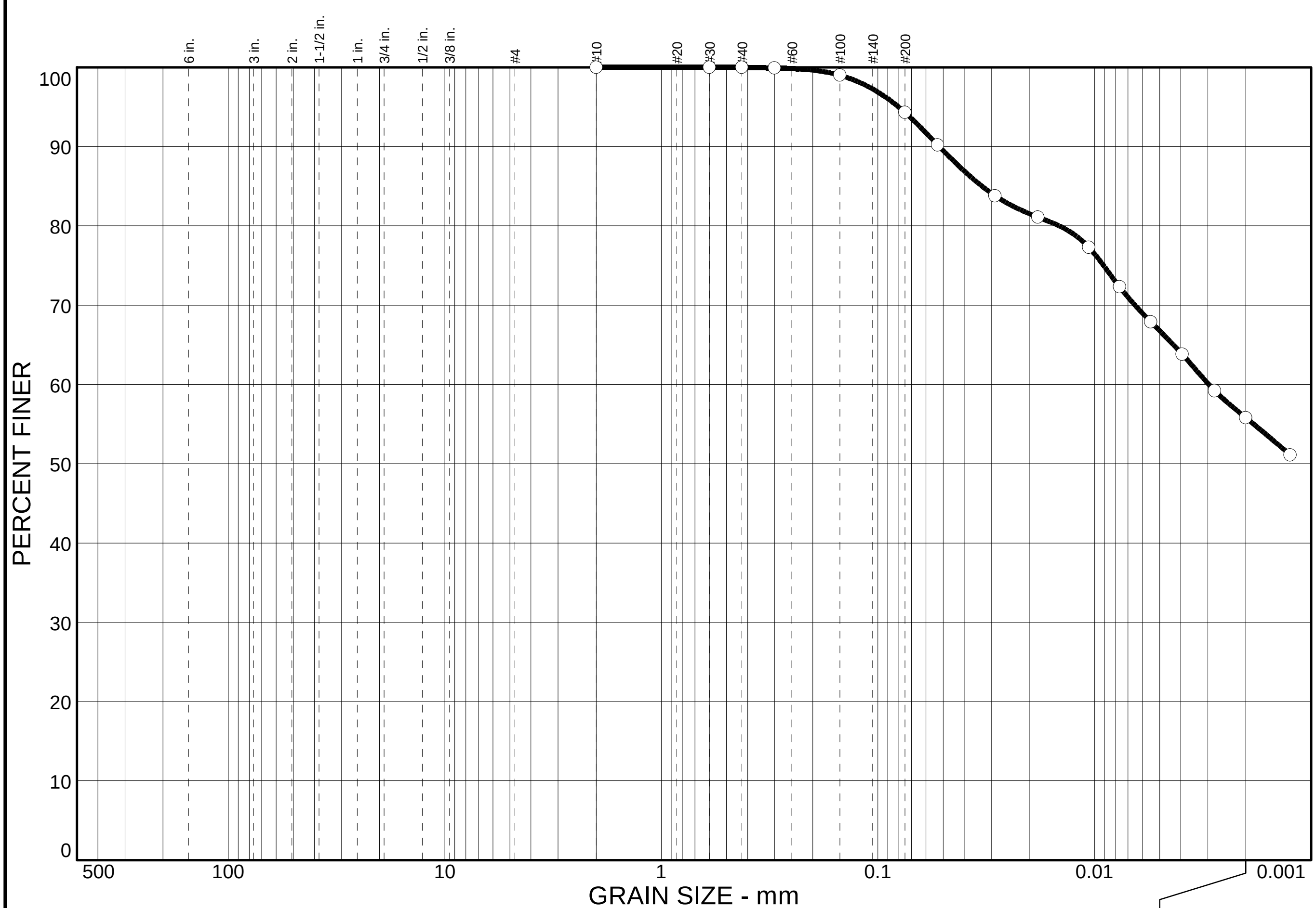
Sample No.: **Source of Sample:** SB-1-d22 **Date:** 2/24/21
Location: **Elev./Depth:** 22'

COOPER TESTING LABORATORY

Client: Weber, Hayes & Associates
Project: 510 Ohlone Parkway, Watsonville, CA. - 2t038

Project No: 407-024 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	5.7	38.5	55.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#30	100.0		
#40	100.0		
#50	99.9		
#100	99.0		
#200	94.3		
#270	90.2		
0.0288 mm.	83.8		
0.0183 mm.	81.1		
0.0106 mm.	77.3		
0.0077 mm.	72.3		
0.0055 mm.	67.9		
0.0039 mm.	63.8		
0.0028 mm.	59.2		
0.0020 mm.	55.8		
0.0012 mm.	51.1		

* (no specification provided)

Soil Description

Very Dark Brown CLAY

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0331 D_{60}= 0.0030 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

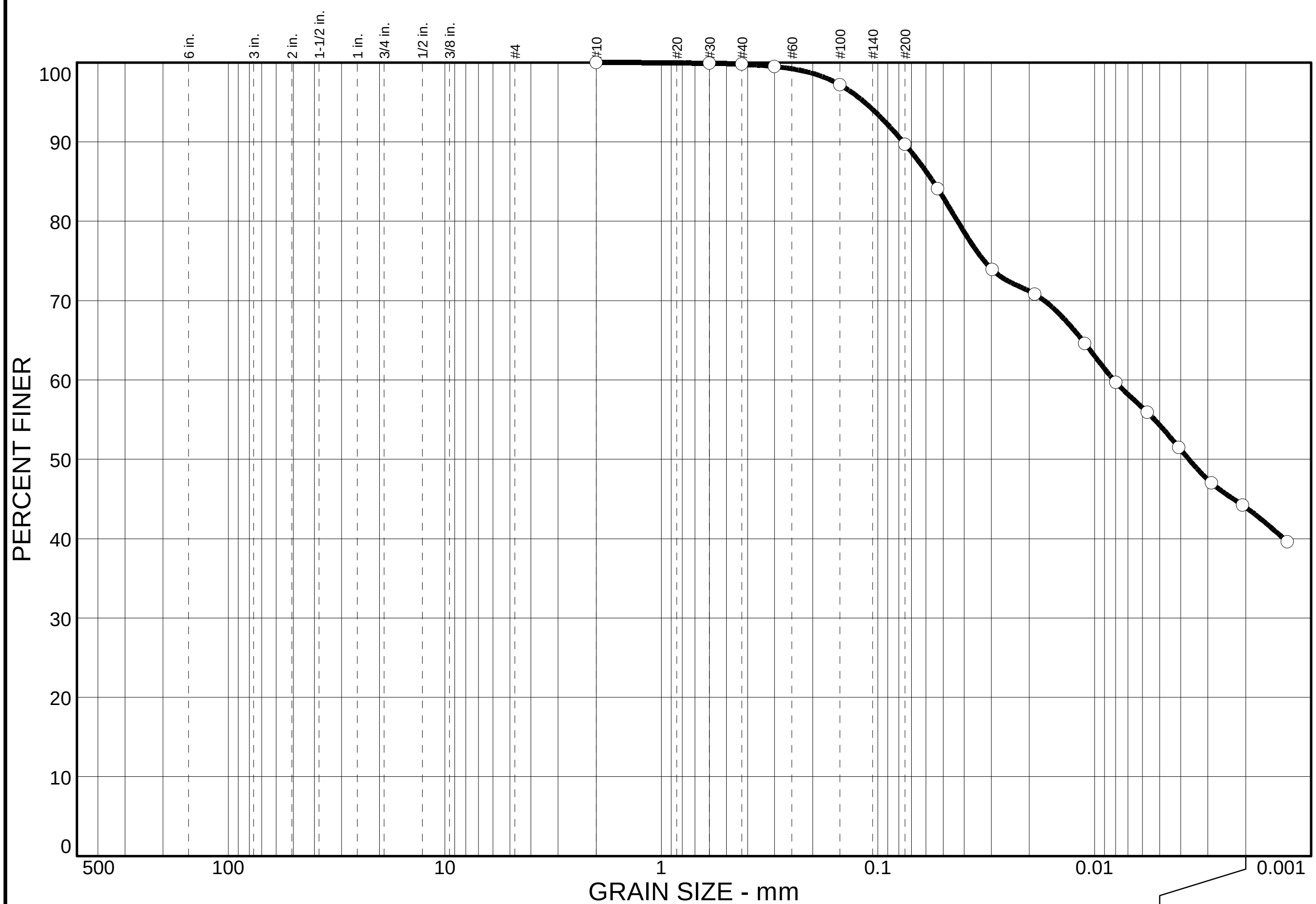
Sample No.: **Source of Sample:** SB-2-d10 **Date:** 2/25/21
Location: **Elev./Depth:** 10'

COOPER TESTING LABORATORY

Client: Weber, Hayes & Associates
Project: 510 Ohlone Parkway, Watsonville, CA. - 2t038

Project No: 407-024 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	10.3	45.8	43.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#30	99.9		
#40	99.8		
#50	99.5		
#100	97.2		
#200	89.7		
#270	84.1		
0.0297 mm.	73.9		
0.0188 mm.	70.8		
0.0111 mm.	64.6		
0.0080 mm.	59.7		
0.0057 mm.	55.9		
0.0041 mm.	51.5		
0.0029 mm.	47.0		
0.0021 mm.	44.2		
0.0013 mm.	39.6		

* (no specification provided)

Soil Description

Very Dark Grayish Brown CLAY

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0557 D_{60}= 0.0082 D_{50}= 0.0037
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

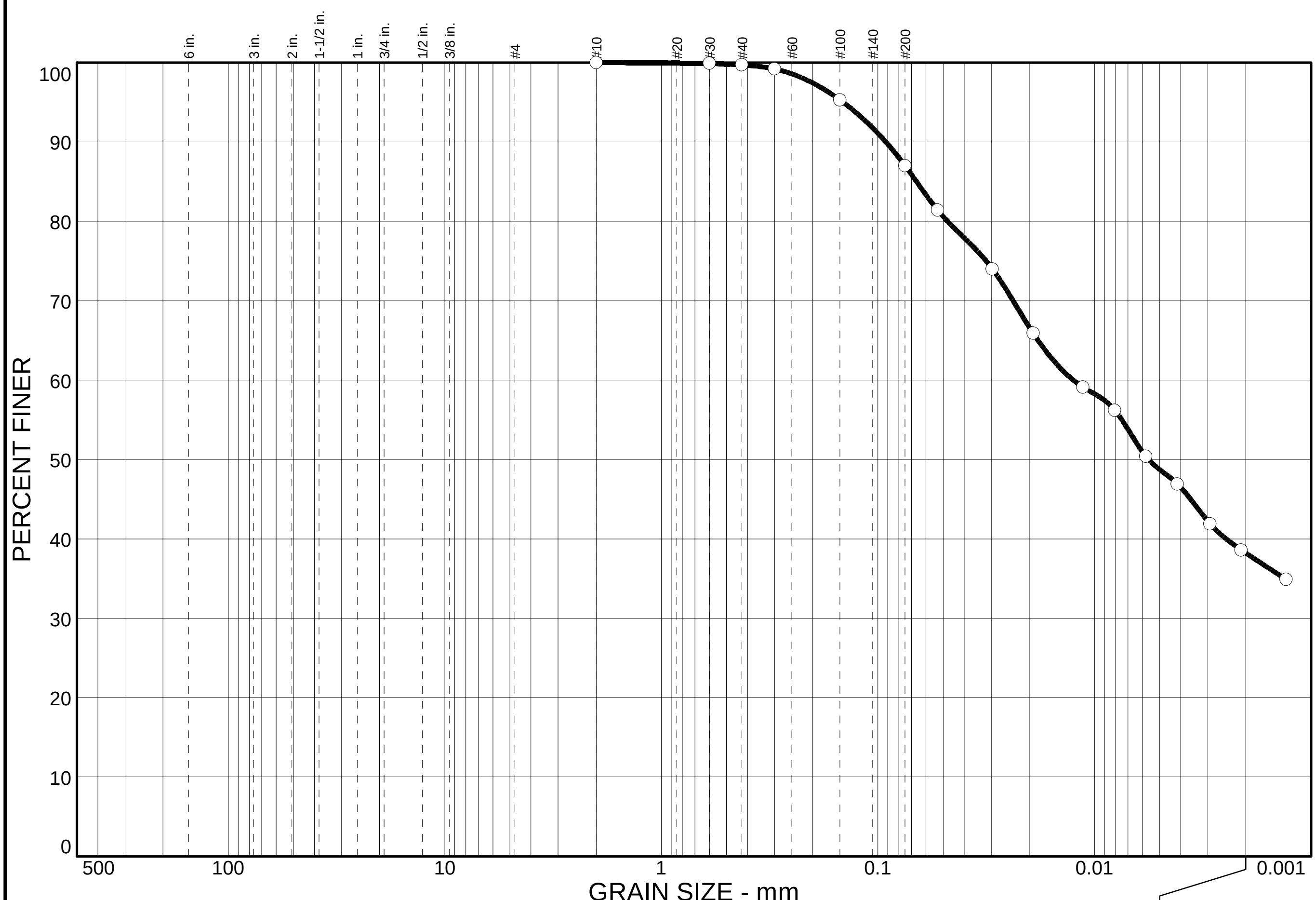
Sample No.: **Source of Sample:** SB-2-d15 **Date:** 2/25/21
Location: **Elev./Depth:** 15'

COOPER TESTING LABORATORY

Client: Weber, Hayes & Associates
Project: 510 Ohlone Parkway, Watsonville, CA. - 2t038

Project No: 407-024 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	13.0	48.8	38.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#30	99.9		
#40	99.7		
#50	99.2		
#100	95.3		
#200	87.0		
#270	81.4		
0.0296 mm.	74.0		
0.0192 mm.	65.9		
0.0113 mm.	59.1		
0.0081 mm.	56.2		
0.0058 mm.	50.4		
0.0041 mm.	46.9		
0.0029 mm.	41.9		
0.0021 mm.	38.6		
0.0013 mm.	34.9		

* (no specification provided)

Soil Description

Dark Grayish Brown CLAY

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0664 D_{60}= 0.0125 D_{50}= 0.0056
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

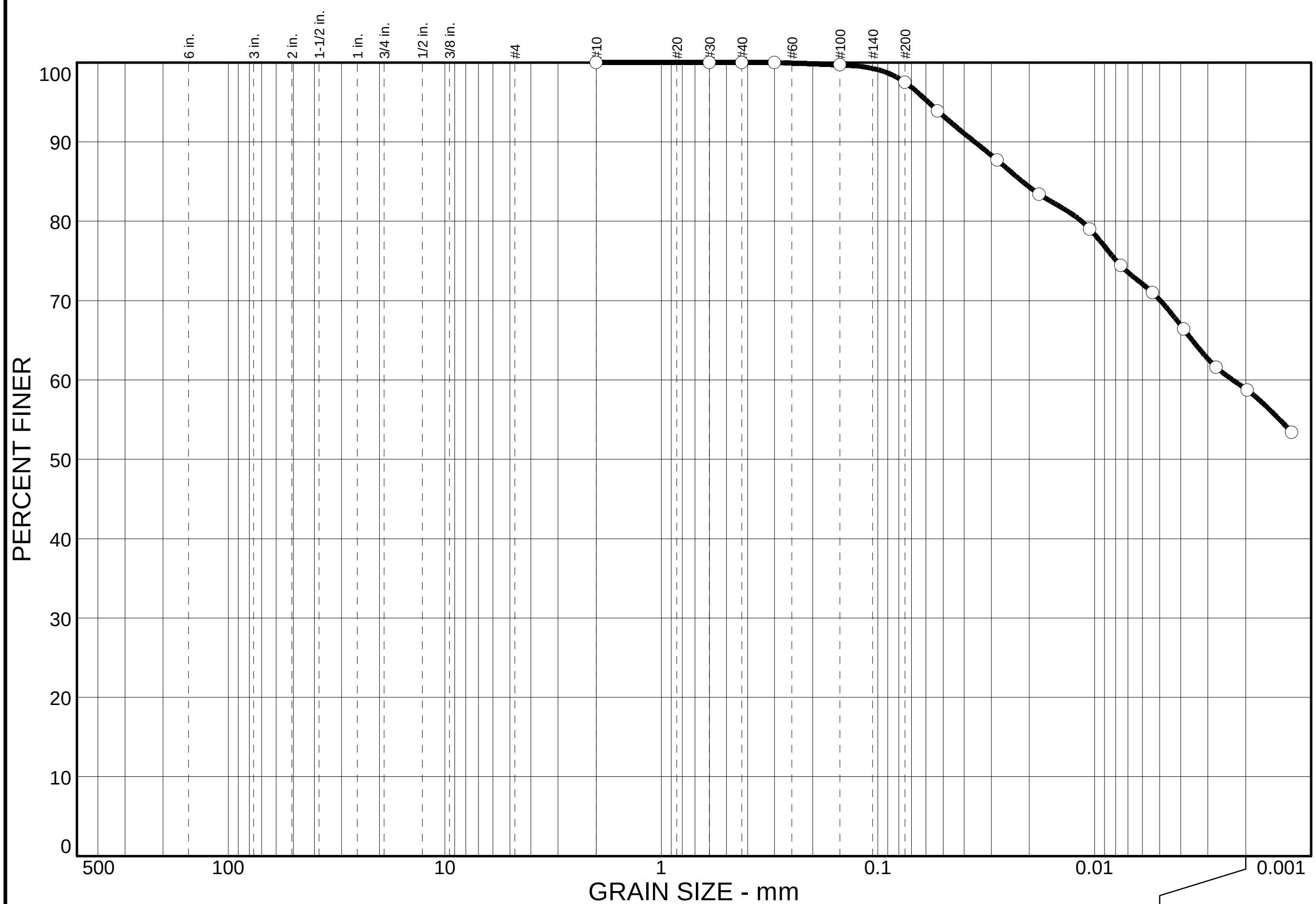
Sample No.: **Source of Sample:** SB-2-d21 **Date:** 2/25/21
Location: **Elev./Depth:** 21'

COOPER TESTING LABORATORY

Client: Weber, Hayes & Associates
Project: 510 Ohlone Parkway, Watsonville, CA. - 2t038

Project No: 407-024 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	2.5	38.7	58.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#30	100.0		
#40	100.0		
#50	100.0		
#100	99.7		
#200	97.5		
#270	93.9		
0.0282 mm.	87.7		
0.0180 mm.	83.4		
0.0105 mm.	79.0		
0.0076 mm.	74.4		
0.0054 mm.	71.0		
0.0039 mm.	66.4		
0.0027 mm.	61.6		
0.0020 mm.	58.7		
0.0012 mm.	53.4		

* (no specification provided)

Soil Description

Very Dark Grayish Brown CLAY

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0215 D_{60}= 0.0023 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

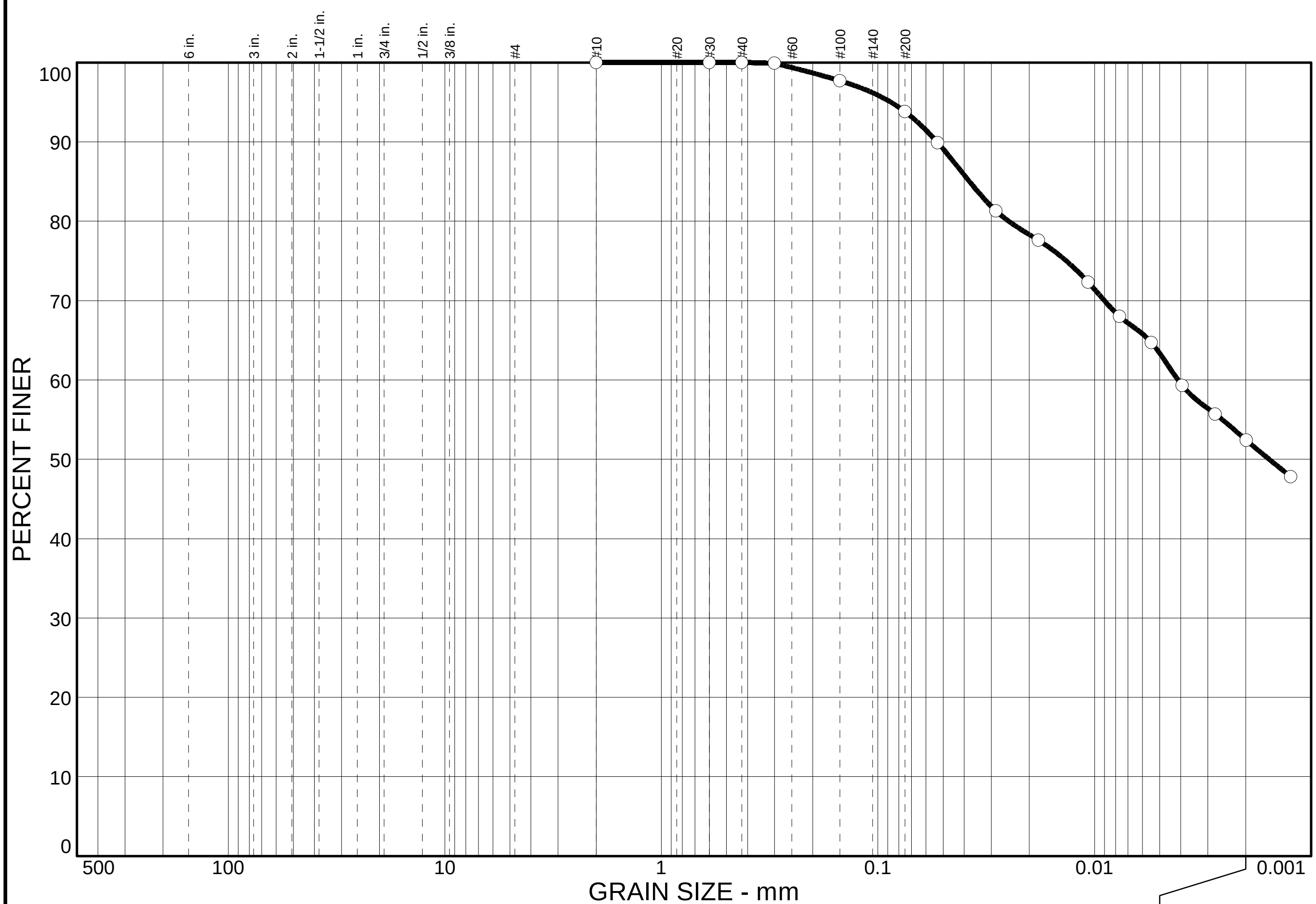
USCS= AASHTO=

Remarks

Sample No.: **Source of Sample:** SB-3-d10 **Date:** 2/25/21
Location: **Elev./Depth:** 10'

COOPER TESTING LABORATORY	**Client:** Weber, Hayes & Associates **Project:** 510 Ohlone Parkway, Watsonville, CA. - 2t038 **Project No:** 407-024 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	6.2	41.4	52.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#30	100.0		
#40	100.0		
#50	99.9		
#100	97.7		
#200	93.8		
#270	89.9		
0.0285 mm.	81.3		
0.0182 mm.	77.6		
0.0107 mm.	72.3		
0.0077 mm.	68.0		
0.0055 mm.	64.7		
0.0039 mm.	59.3		
0.0028 mm.	55.7		
0.0020 mm.	52.4		
0.0012 mm.	47.8		

* (no specification provided)

Soil Description

Dark Grayish Brown CLAY

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0378 D_{60}= 0.0041 D_{50}= 0.0016
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

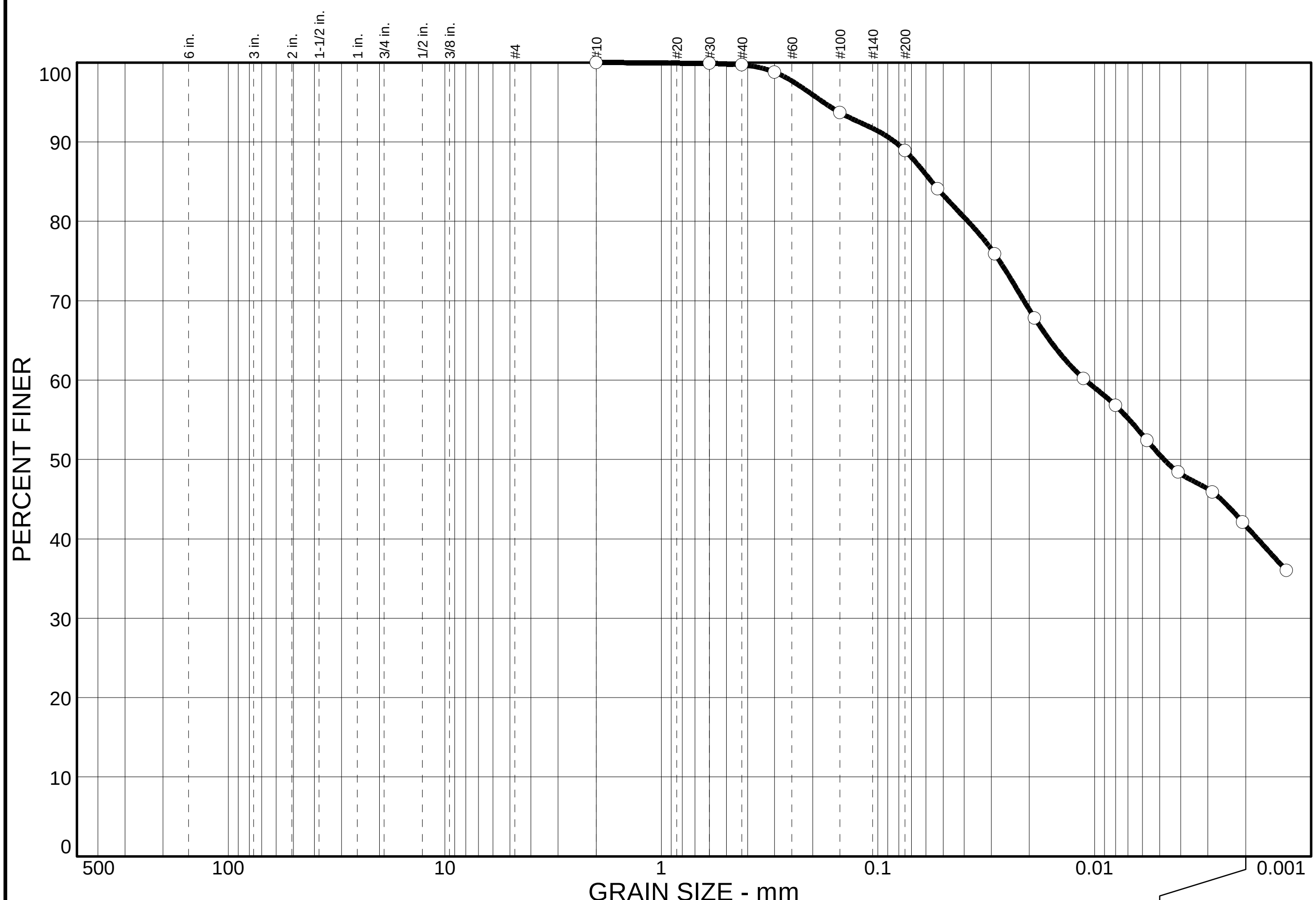
Sample No.: **Source of Sample:** SB-3-d15 **Date:** 2/25/21
Location: **Elev./Depth:** 15'

COOPER TESTING LABORATORY

Client: Weber, Hayes & Associates
Project: 510 Ohlone Parkway, Watsonville, CA. - 2t038

Project No: 407-024 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	11.1	47.3	41.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#30	99.9		
#40	99.7		
#50	98.8		
#100	93.7		
#200	88.9		
#270	84.1		
0.0289 mm.	75.9		
0.0189 mm.	67.8		
0.0112 mm.	60.2		
0.0080 mm.	56.8		
0.0057 mm.	52.4		
0.0041 mm.	48.4		
0.0029 mm.	45.9		
0.0021 mm.	42.1		
0.0013 mm.	36.0		

* (no specification provided)

Soil Description

Dark Brown CLAY

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0565 D_{60}= 0.0110 D_{50}= 0.0048
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

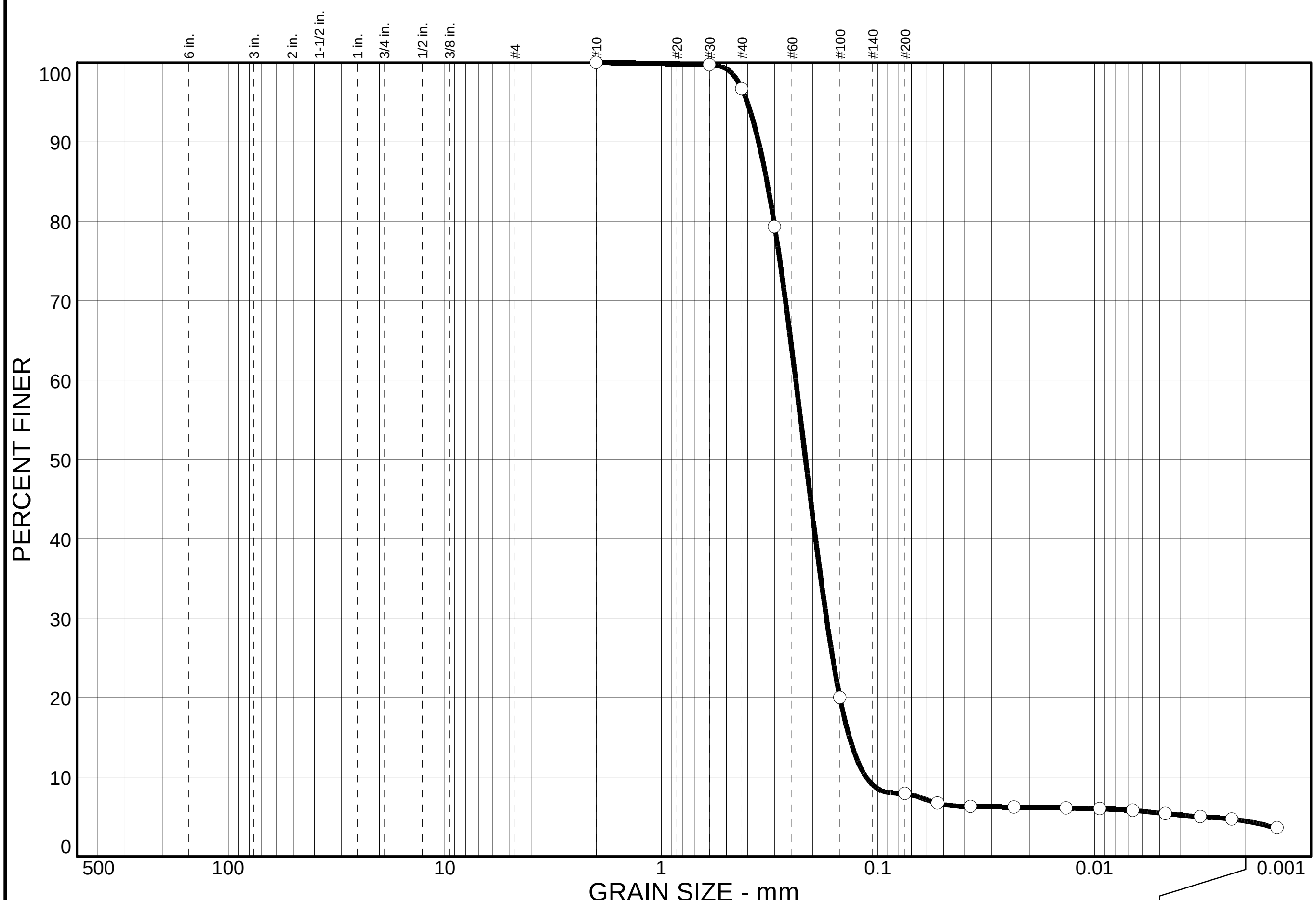
Sample No.: **Source of Sample:** SB-3-d21 **Date:** 2/24/21
Location: **Elev./Depth:** 21(Tip-6")

COOPER TESTING LABORATORY

Client: Weber, Hayes & Associates
Project: 510 Ohlone Parkway, Watsonville, CA. - 2t038

Project No: 407-024 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	92.1	3.5	4.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#30	99.7		
#40	96.7		
#50	79.3		
#100	20.0		
#200	7.9		
#270	6.7		
0.0373 mm.	6.3		
0.0235 mm.	6.2		
0.0135 mm.	6.1		
0.0095 mm.	6.0		
0.0067 mm.	5.8		
0.0047 mm.	5.4		
0.0032 mm.	5.0		
0.0023 mm.	4.7		
0.0014 mm.	3.6		

* (no specification provided)

Soil Description

Dark Yellowish Brown Poorly Graded SAND w/ Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.326 D_{60}= 0.240 D_{50}= 0.216
D_{30}= 0.173 D_{15}= 0.135 D_{10}= 0.114
C_u= 2.11 C_c= 1.10

Classification

USCS= AASHTO=

Remarks

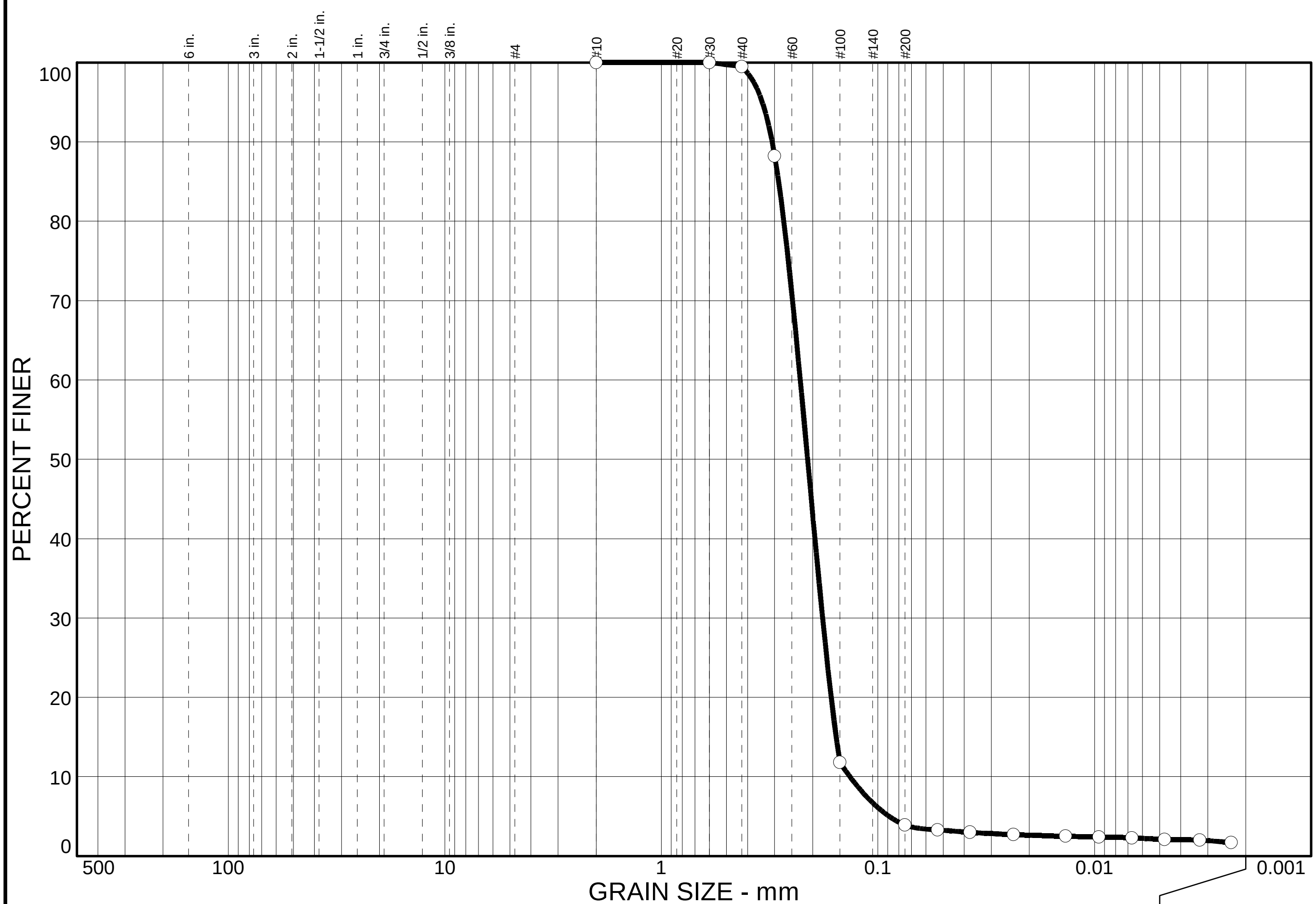
Sample No.: **Source of Sample:** SB-4-d16 **Date:** 2/24/21
Location: **Elev./Depth:** 16'

COOPER TESTING LABORATORY

Client: Weber, Hayes & Associates
Project: 510 Ohlone Parkway, Watsonville, CA. - 2t038

Project No: 407-024 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	96.1	3.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#30	100.0		
#40	99.5		
#50	88.2		
#100	11.8		
#200	3.9		
#270	3.3		
0.0376 mm.	3.0		
0.0237 mm.	2.7		
0.0136 mm.	2.5		
0.0095 mm.	2.4		
0.0067 mm.	2.3		
0.0047 mm.	2.1		
0.0033 mm.	2.0		
0.0023 mm.	1.7		

* (no specification provided)

Soil Description

Dark Yellowish Brown Poorly Graded SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.288 D_{60}= 0.229 D_{50}= 0.212
D_{30}= 0.180 D_{15}= 0.156 D_{10}= 0.135
C_u= 1.70 C_c= 1.05

Classification

USCS= AASHTO=

Remarks

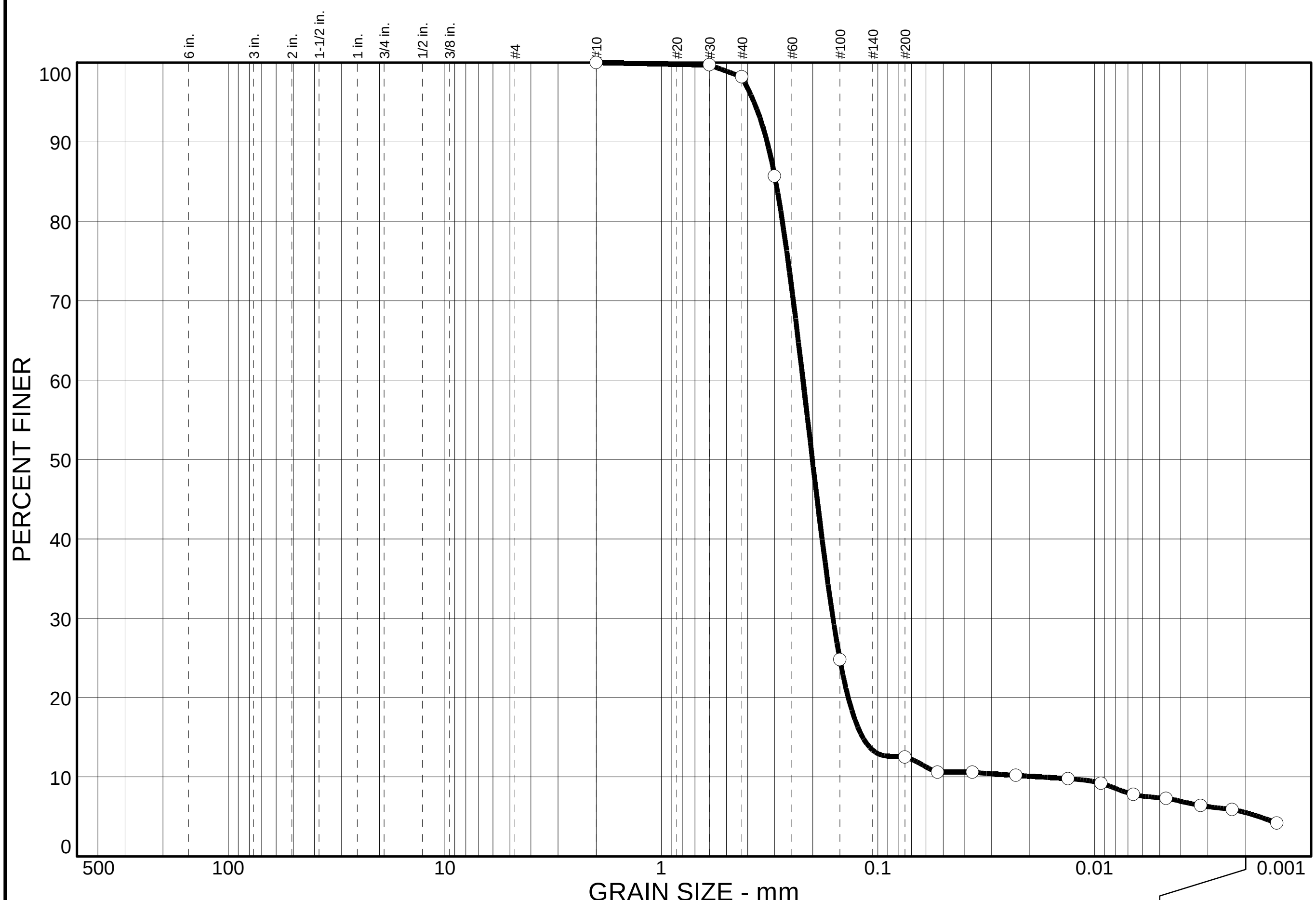
Sample No.: **Source of Sample:** SB-4-d20 **Date:** 2/24/21
Location: **Elev./Depth:** 20'

COOPER TESTING LABORATORY

Client: Weber, Hayes & Associates
Project: 510 Ohlone Parkway, Watsonville, CA. - 2t038

Project No: 407-024 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	87.5	7.0	5.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#30	99.7		
#40	98.2		
#50	85.7		
#100	24.8		
#200	12.5		
#270	10.6		
0.0366 mm.	10.6		
0.0230 mm.	10.2		
0.0133 mm.	9.8		
0.0093 mm.	9.2		
0.0066 mm.	7.8		
0.0047 mm.	7.3		
0.0032 mm.	6.4		
0.0023 mm.	5.9		
0.0014 mm.	4.2		

* (no specification provided)

Soil Description

Dark Yellowish Brown Sandy SILT

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.297 D_{60}= 0.222 D_{50}= 0.201
D_{30}= 0.161 D_{15}= 0.118 D_{10}= 0.0175
C_u= 12.73 C_c= 6.72

Classification

USCS= AASHTO=

Remarks

Sample No.: **Source of Sample:** SB-4-d27 **Date:** 2/24/21
Location: **Elev./Depth:** 27'

COOPER TESTING LABORATORY

Client: Weber, Hayes & Associates
Project: 510 Ohlone Parkway, Watsonville, CA. - 2t038

Project No: 407-024 **Figure**

Report Number
21-057-0009

Account Number
15024

Send To: Cooper Testing Labs, Inc.
937 Commercial St
Palo Alto, CA 94303

4741 East Hunter Ave. Suite A
Anaheim, CA 92807
Main 714-282-8777 ° Fax 714-282-8575
www.waypointanalytical.com

Purchase Order:
Report Date: 03/02/2021
Date Received: 02/26/2021
Date Sampled:

Project: 510 Ohlone Parkway
Watsonville, CA
Project #: 407-024

REPORT OF ANALYSIS

Lab Number: 22539
Sample ID: SB-1-d11

Analysis	Result	Quantitation Limit	Method	Date and Time Test Started	Analyst
Organic Matter (Titration) , %	0.90		WALK-BLACK	03/02/2021 12:53	AAB

Method Reference:
Methods of Soil Analysis, Part 3 - Chemical Methods, 2nd Ed. Rev. Soil Science Society of America, Black, C.A et al. 1982, pages 995-996.

Comments:

Report Number
21-057-0009

Account Number
15024

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Palo Alto, CA 94303

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Anaheim, CA 92807
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Report Date: 03/02/2021
Date Received: 02/26/2021
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Project: 510 Ohlone Parkway
Watsonville, CA
Project #: 407-024

REPORT OF ANALYSIS

Lab Number: 22540
Sample ID: SB-1-d16

Analysis	Result	Quantitation Limit	Method	Date and Time Test Started	Analyst
Organic Matter (Titration) , %	0.46		WALK-BLACK	03/02/2021 12:53	AAB

Method Reference:
Methods of Soil Analysis, Part 3 - Chemical Methods, 2nd Ed. Rev. Soil Science Society of America, Black, C.A et al. 1982, pages 995-996.
Comments:

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Report Date: 03/02/2021
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Watsonville, CA
Project #: 407-024

REPORT OF ANALYSIS

Lab Number: 22541
Sample ID: SB-1-d22

Analysis	Result	Quantitation Limit	Method	Date and Time Test Started	Analyst
Organic Matter (Titration) , %	0.27		WALK-BLACK	03/02/2021 12:53	AAB

Method Reference:
Methods of Soil Analysis, Part 3 - Chemical Methods, 2nd Ed. Rev. Soil Science Society of America, Black, C.A et al. 1982, pages 995-996.
Comments:

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Project #: 407-024

Report Date: 03/02/2021

Date Received: 02/26/2021

REPORT OF ANALYSIS

Date Sampled:

Lab Number: 22542

Sample ID: SB-2-d10

Analysis	Result	Quantitation Limit	Method	Date and Time Test Started	Analyst
Organic Matter (Titration) , %	1.89		WALK-BLACK	03/02/2021 12:53	AAB

Method Reference:
Methods of Soil Analysis, Part 3 - Chemical Methods, 2nd Ed. Rev. Soil Science Society of America, Black, C.A et al. 1982, pages 995-996.

Comments:

Report Number
21-057-0009

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Report Date: 03/02/2021

Date Received: 02/26/2021

Date Sampled:

Project: 510 Ohlone Parkway
Watsonville, CA
Project #: 407-024

REPORT OF ANALYSIS

Lab Number: 22543
Sample ID: SB-2-d15

Analysis	Result	Quantitation Limit	Method	Date and Time Test Started	Analyst
Organic Matter (Titration) , %	0.60		WALK-BLACK	03/02/2021 12:53	AAB

Method Reference:
Methods of Soil Analysis, Part 3 - Chemical Methods, 2nd Ed. Rev. Soil Science Society of America, Black, C.A et al. 1982, pages 995-996.
Comments:

Report Number
21-057-0009

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Report Date: 03/02/2021
Date Received: 02/26/2021
Date Sampled:

Project: 510 Ohlone Parkway
Watsonville, CA
Project #: 407-024

REPORT OF ANALYSIS

Lab Number: 22544
Sample ID: SB-2-d21

Analysis	Result	Quantitation Limit	Method	Date and Time Test Started	Analyst
Organic Matter (Titration) , %	0.71		WALK-BLACK	03/02/2021 12:53	AAB

Method Reference:
Methods of Soil Analysis, Part 3 - Chemical Methods, 2nd Ed. Rev. Soil Science Society of America, Black, C.A et al. 1982, pages 995-996.
Comments:

Report Number
21-057-0009

Account Number
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Purchase Order:
Report Date: 03/02/2021
Date Received: 02/26/2021
Date Sampled:

Project: 510 Ohlone Parkway
Watsonville, CA
Project #: 407-024

REPORT OF ANALYSIS

Lab Number: 22545
Sample ID: SB-3-d10

Analysis	Result	Quantitation Limit	Method	Date and Time Test Started	Analyst
Organic Matter (Titration) , %	0.80		WALK-BLACK	03/02/2021 12:53	AAB

Method Reference:
Methods of Soil Analysis, Part 3 - Chemical Methods, 2nd Ed. Rev. Soil Science Society of America, Black, C.A et al. 1982, pages 995-996.
Comments:

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Report Date: 03/02/2021
Date Received: 02/26/2021

Project: 510 Ohlone Parkway
Watsonville, CA
Project #: 407-024

REPORT OF ANALYSIS

Date Sampled:

Lab Number: 22546
Sample ID: SB-3-d15

Analysis	Result	Quantitation Limit	Method	Date and Time Test Started	Analyst
Organic Matter (Titration) , %	0.47		WALK-BLACK	03/02/2021 12:53	AAB

Method Reference:
Methods of Soil Analysis, Part 3 - Chemical Methods, 2nd Ed. Rev. Soil Science Society of America, Black, C.A et al. 1982, pages 995-996.
Comments:

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Report Date: 03/02/2021
Date Received: 02/26/2021

Project: 510 Ohlone Parkway
Watsonville, CA
Project #: 407-024

REPORT OF ANALYSIS

Date Sampled:

Lab Number: 22547
Sample ID: SB-3-d21

Analysis	Result	Quantitation Limit	Method	Date and Time Test Started	Analyst
Organic Matter (Titration) , %	0.75		WALK-BLACK	03/02/2021 12:53	AAB

Method Reference:
Methods of Soil Analysis, Part 3 - Chemical Methods, 2nd Ed. Rev. Soil Science Society of America, Black, C.A et al. 1982, pages 995-996.
Comments:

Report Number
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Report Date: 03/02/2021
Date Received: 02/26/2021
Date Sampled:

Project: 510 Ohlone Parkway
Watsonville, CA
Project #: 407-024

REPORT OF ANALYSIS

Lab Number: 22548
Sample ID: SB-4-d16

Analysis	Result	Quantitation Limit	Method	Date and Time Test Started	Analyst
Organic Matter (Titration) , %	0.18		WALK-BLACK	03/02/2021 12:53	AAB

Method Reference:
Methods of Soil Analysis, Part 3 - Chemical Methods, 2nd Ed. Rev. Soil Science Society of America, Black, C.A et al. 1982, pages 995-996.
Comments:

Report Number
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Purchase Order:
Report Date: 03/02/2021
Date Received: 02/26/2021
Date Sampled:

Project: 510 Ohlone Parkway
Watsonville, CA
Project #: 407-024

REPORT OF ANALYSIS

Lab Number: 22549
Sample ID: SB-4-d20

Analysis	Result	Quantitation Limit	Method	Date and Time Test Started	Analyst
Organic Matter (Titration) , %	0.25		WALK-BLACK	03/02/2021 12:53	AAB

Method Reference:
Methods of Soil Analysis, Part 3 - Chemical Methods, 2nd Ed. Rev. Soil Science Society of America, Black, C.A et al. 1982, pages 995-996.
Comments:

Report Number
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Purchase Order:
Report Date: 03/02/2021
Date Received: 02/26/2021
Date Sampled:

Project: 510 Ohlone Parkway
Watsonville, CA
Project #: 407-024

REPORT OF ANALYSIS

Lab Number: 22550
Sample ID: SB-4-d27

Analysis	Result	Quantitation Limit	Method	Date and Time Test Started	Analyst
Organic Matter (Titration) , %	0.23		WALK-BLACK	03/02/2021 12:53	AAB

Method Reference:
Methods of Soil Analysis, Part 3 - Chemical Methods, 2nd Ed. Rev. Soil Science Society of America, Black, C.A et al. 1982, pages 995-996.

Comments:

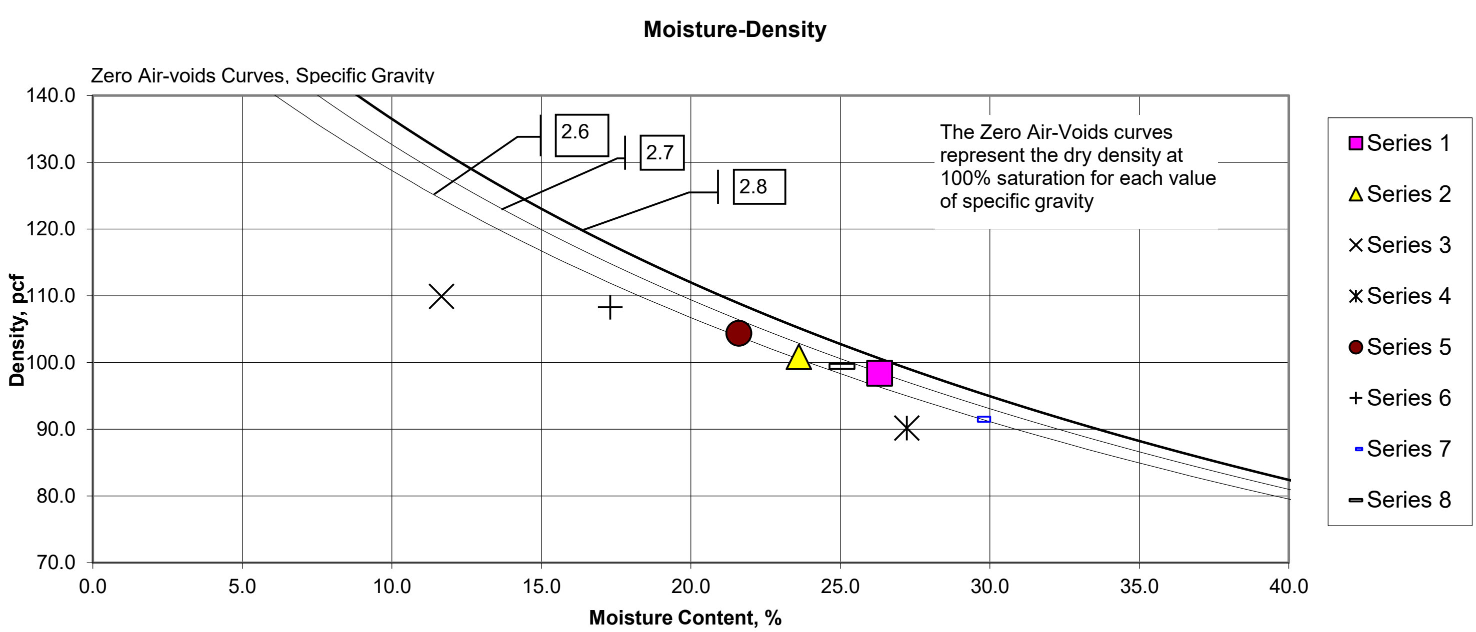
Moisture-Density-Porosity Report

Cooper Testing Labs, Inc. (ASTM D7263b)

CTL Job No:	407-024a	**Project No.**	2t038	**By:**	RU
Client:	Weber, Hayes & Associates	**Date:**	02/19/21		
Project Name:	510 Ohlone Parkway, Watsonville, CA.	**Remarks:**			

Boring:	SB-1-d11	SB-1-d16	SB-1-d22	SB-2-d10	SB-2-d15	SB-2-d21	SB-3-d10	SB-3-d15
Sample:								
Depth, ft:	11	16	22	10	15	21	10	15
Visual Description:	Olive Gray CLAY	Dark Yellowish Brown Sandy CLAY	Dark Yellowish Brown Silty SAND	Very dark Brown CLAY	Very Dark Grayish Brown CLAY	Dark Grayish Brown CLAY	Very Dark Grayish Brown CLAY	Dark Grayish Brown CLAY
Actual G_s	2.77	2.74	2.72	2.71	2.72	7.74	2.74	2.75
Assumed G_s								
Moisture, %	26.3	23.6	11.7	27.2	21.6	17.3	29.6	25.1
Wet Unit wt, pcf	124.3	124.7	122.7	114.7	126.9	127.0	118.6	124.4
Dry Unit wt, pcf	98.4	100.9	109.9	90.2	104.4	108.3	91.6	99.4
Dry Bulk Dens.pb, (g/cc)	1.58	1.62	1.76	1.44	1.67	1.73	1.47	1.59
Saturation, %	95.8	92.7	58.1	84.1	93.4	38.6	93.1	94.6
Total Porosity, %	43.2	41.1	35.3	46.7	38.6	77.6	46.6	42.2
Volumetric Water Cont,Θw,%	41.4	38.1	20.5	39.3	36.1	30.0	43.4	39.9
Volumetric Air Cont., Θa,%	1.8	3.0	14.8	7.4	2.5	47.6	3.2	2.3
Void Ratio	0.76	0.70	0.55	0.88	0.63	3.46	0.87	0.73
Series	1	2	3	4	5	6	7	8

Note: All reported parameters are from the as-received sample condition unless otherwise noted. If an assumed specific gravity (Gs) was used then the saturation, porosities, and void ratio should be considered approximate.



Moisture-Density Lab Worksheet

CTL Job No.:	407-024a				**Date:**	2/19/21		
Client:	Weber, Hayes & Associates				**By:**	RU		
Project Name:	510 Ohlone Parkway, Watsonville, CA							
Project No.:	2t038							
Boring:	SB-1-d11	SB-1-d16	SB-1-d22	SB-2-d10	SB-2-d15	SB-2-d21	SB-3-d10	SB-3-d15
Sample:								
Depth, ft.:	11	16	22	10	15	21	10	15
Density Data								
Height, in.:	2.96	2.97	2.98	2.96	2.96	2.96	2.97	2.96
Diameter, in.:	2.86	2.84	2.88	2.87	2.87	2.82	2.87	2.86
Determined Sp. Grav.:	2.774	2.743	2.719	2.709	2.723	7.737	2.744	2.753
Assumed Sp. Grav.:	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Total Wt of Soil& Tare, g:	888.63	884.17	893.76	844.95	906.36	884.64	866.65	889.05
Tare, g:	268.41	268.41	268.31	268.26	268.26	268.22	268.23	268.26
Total Wet Wt of Soil, g:	620.22	615.76	625.45	576.69	638.1	616.42	598.42	620.79
Moisture Content Data								
Tare No.:								
Wet Wt. Of Soil & Tare, g:	176.43	193	160.76	182.01	175.99	185.3	197.04	167.83
Dry Wt of Soil & Tare, g:	143.4	159.16	145.7	146.69	147.71	165.6	164.56	137.54
Tare, g:	17.9	15.86	16.61	16.98	16.86	51.75	54.82	16.66
Visual Classification:	Olive Gray CLAY	Dark Yellowish Brown Sandy CLAY	Dark Yellowish Brown Silty SAND	Very dark Brown CLAY	Very Dark Grayish Brown CLAY	Dark Grayish Brown CLAY	Very Dark Grayish Brown CLAY	Dark Grayish Brown CLAY

COOPER TESTING LABORATORY

The following information is intended to provide some more detailed information about each of the parameters presented in the accompanying report. For additional information on this subject we recommend a general soil mechanics text book.

SPECIFIC GRAVITY - The specific gravity is equivalent to the particle density. It is defined as the ratio of the density of the soil solids to the density of water at 20°C. It is used to calculate the phase relationships of soils, such as void ratio and degree of saturation. If a specific gravity test was not run on a sample then an assumed specific gravity value is used to calculate an estimated saturation.

MOISTURE CONTENT - The moisture content as reported here is based on a gravimetric measurement and not a volumetric measurement. The moisture content is defined as the weight of water in a specimen (g) divided by the oven-dry weight of the specimen (g) and expressed as a percentage.

WET UNIT WEIGHT - The wet unit weight is equivalent to the total unit weight or the wet bulk density and is typically reported in units of pounds per cubic foot (pcf) although it can also be reported in units of grams per cubic centimeter (g/cm^3). It is defined as the total wet weight of the sample (wt. of soil plus wt. of water) divided by the total volume (volume of solids plus the volume of voids).

DRY UNIT WEIGHT - The dry unit weight is equivalent to the dry bulk density and is typically reported in units of pounds per cubic foot (pcf) although it can also be reported in units of grams per cubic centimeter (g/cm^3). It is defined as the total dry weight of the sample divided by the total volume (volume of solids plus the volume of voids).

SATURATION - The degree of saturation (S) is defined as the ratio of the volume of water in a sample to the volume of voids (pore space). It can be expressed either as a percentage or as a decimal. A saturation of zero would indicate an oven-dry state. All of the voids are filled with air. A saturation of 100% would indicate that all of the voids in the sample are filled with water and there is no air in the soil. It is theoretically impossible to have saturation values greater than 100%. If a specific gravity test is not run on a sample then an assumed specific gravity value is used to calculate an estimated saturation.

TOTAL POROSITY - The total porosity is a measure of how porous the sample is or how much of the bulk sample volume is pore space. It is defined as the ratio of the volume of voids (pore space) to the total volume (volume of solids plus the volume of voids). It can be expressed either as a percentage or as a decimal. Interestingly, clays typically have a higher porosity than sands although the size of the voids tends to be much smaller in clays resulting in the typically very low hydraulic conductivity values for clays relative to sands

TOTAL POROSITY vs. EFFECTIVE POROSITY - While the total porosity is defined as the volume of voids/ the bulk volume of the sample(volume of voids plus volume of solids) not all of the void space contributes in a significant way to the flow of water. Some of the voids are isolated, are too small or are filled with water which is adsorbed to the clay minerals or other grains. Effective porosity is basically defined as the volume of voids that contribute in a significant way to the flow of water divided by the bulk volume of the soil. The effective porosity can approach the total porosity in the case of clean coarse sands and can approach zero in the case of clays but it is always less than the total porosity.

VOLUMETRIC WATER CONTENT - Volumetric Water Content (θw) is the same as Water-filled Porosity. It is defined simply as the percent of the total volume of the sample that is occupied by water.

VOLUMETRIC AIR CONTENT - Volumetric Air Content (θa) is the same as Air-filled Porosity. It is defined simply as the percent of the total volume of the sample that is occupied by air.

VOID RATIO - The void ratio is related to the porosity as a measure of how much void space is in the sample. It is defined as the ratio of the volume of void space in a sample to the total volume (volume of solids plus the volume of voids).

INITIAL and FINAL SAMPLE STATES - For some tests such as the hydraulic conductivity or triaxial shear tests the sample is saturated as part of the test procedure. The reports for these types of tests will provide results for sample parameters in both the "Initial" and "Final" sample conditions. These parameters include wet and dry densities, moisture contents, porosities etc. The "Initial" state is the as-received state. If the sample was undisturbed then the intitial sample parameters will reflect the condition of the in-situ condition of the soil. The "Final" state is the at-test state. In this state, water may have been added to the sample to saturate it. The sample may have also been consolidated as part of the test (hydraulic conductivity, air permeability and triaxial/direct shear strength testing only). This would cause an increase in sample density and related values from the as-received state. If the sample was consolidated the report would indicate this as well as the consolidation stress applied.

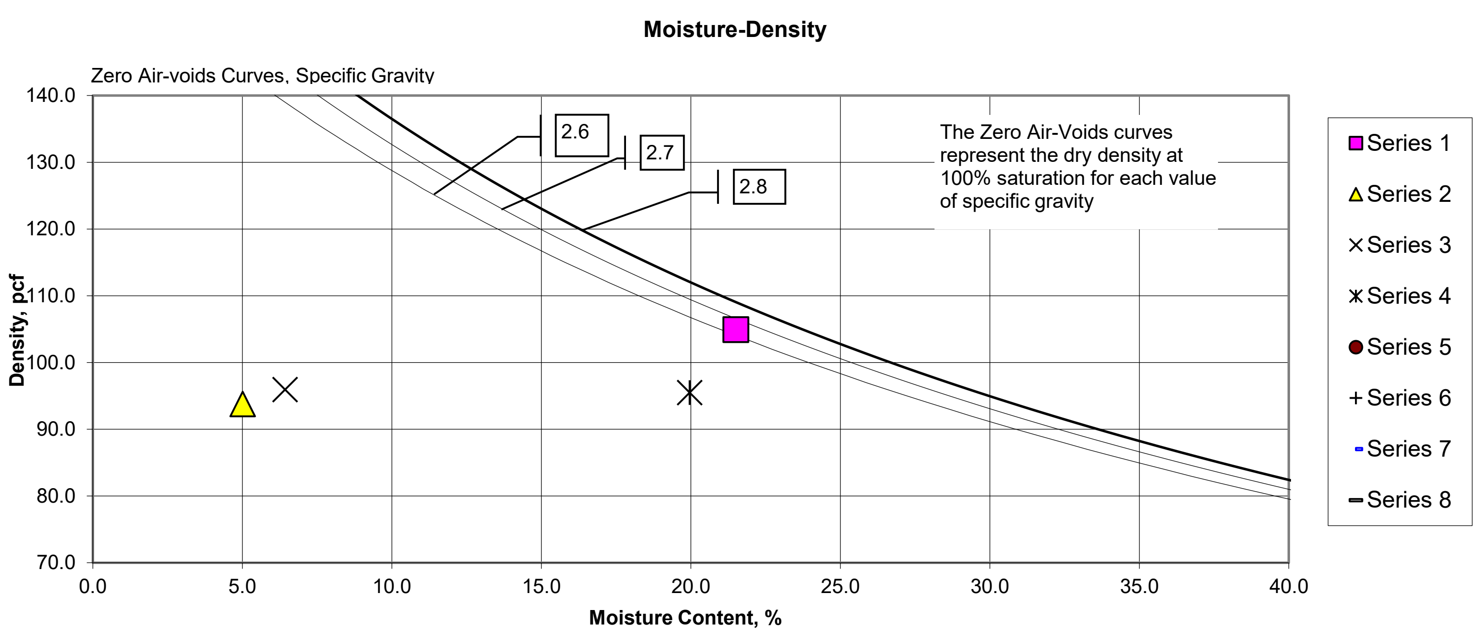
SAMPLE DISTURBANCE - Some soil parameters are significantly affected by the density and arragement of the soil particles. These parameters include density, porosity(total and effective), volumetric air and water contents, hydraulic conductivity, air permeability, strength, void ratio etc. For these analyses the goal is to test samples that are as representative of the in-situ soil conditions as possible. The way in which samples are collected determines the degree of disturbance the sample experiences. Typically, the larger the sample diameter the less disturbed the sample is and the more representative it is of the in-situ condition. Cooper Testing Labs recommends a minimum sample diameter of 2 inches for any testing that calls for undisturbed specimens such as those listed above. Although we recommend against using direct push sampling to obtain undisturbed samples we realize that there are time when there are no other options. In this case we recommend limiting the push length to a maximum of 12 inches when "undisturbed" samples are desired. This will help to minimize the sample disturbance.

Moisture-Density-Porosity Report
Cooper Testing Labs, Inc. (ASTM D7263b)

CTL Job No:	407-024b	**Project No.**	2t038	**By:**	RU
Client:	Weber, Hayes & Associates	**Date:**	02/19/21		
Project Name:	510 Ohlone Parkway, Watsonville, CA.	**Remarks:**			

Boring:	SB-3-d21	SB-4-d16	SB-4-d20	SB-4-d27				
Sample:								
Depth, ft:	21	16	20	27				
Visual Description:	Dark Brown CLAY	Dark Yellowish Brown Poorly Graded SAND w/ Silt	Dark Yellowish Brown Poorly Graded SAND	Dark Yellowish Brown Sandy SILT				
Actual G_s	2.71	2.71	2.75	2.70				
Assumed G_s								
Moisture, %	21.5	5.0	6.4	20.0				
Wet Unit wt, pcf	127.5	98.5	102.1	114.6				
Dry Unit wt, pcf	104.9	93.8	96.0	95.5				
Dry Bulk Dens.pb, (g/cc)	1.68	1.50	1.54	1.53				
Saturation, %	94.9	16.9	22.4	70.4				
Total Porosity, %	38.1	44.6	44.0	43.3				
Volumetric Water Cont,Θw,%	36.1	7.5	9.9	30.5				
Volumetric Air Cont., Θa,%	2.0	37.1	34.2	12.8				
Void Ratio	0.61	0.80	0.79	0.76				
Series	1	2	3	4	5	6	7	8

Note: All reported parameters are from the as-received sample condition unless otherwise noted. If an assumed specific gravity (Gs) was used then the saturation, porosities, and void ratio should be considered approximate.



Moisture-Density Lab Worksheet

CTL Job No.:	407-024b				**Date:**	2/19/21		
Client:	Weber, Hayes & Associates				**By:**	RU		
Project Name:	510 Ohlone Parkway, Watsonville, CA							
Project No.:	2t038							
Boring:	SB-3-d21	SB-4-d16	SB-4-d20	SB-4-d27				
Sample:								
Depth, ft.:	21	16	20	27				
Density Data								
Height, in.:	2.97	2.97	2.97	2.97				
Diameter, in.:	2.86	2.87	2.86	2.87				
Determined Sp. Grav.:	2.711	2.708	2.745	2.697				
Assumed Sp. Grav.:	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Total Wt of Soil& Tare, g:	906.59	764.84	779.71	846.02				
Tare, g:	268.22	268.22	268.22	268.19				
Total Wet Wt of Soil, g:	638.37	496.62	511.49	577.83				
Moisture Content Data								
Tare No.:								
Wet Wt. Of Soil & Tare, g:	145.76	203.54	135.19	194.37				
Dry Wt of Soil & Tare, g:	122.96	197.23	128.04	170.81				
Tare, g:	16.96	71.21	16.76	52.77				
Visual Classification:	Dark Brown CLAY	Dark Yellowish Brown Poorly Graded SAND w/ Silt	Dark Yellowish Brown Poorly Graded SAND	Dark Yellowish Brown Sandy SILT				

The following information is intended to provide some more detailed information about each of the parameters presented in the accompanying report. For additional information on this subject we recommend a general soil mechanics text book.

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TOTAL POROSITY - The total porosity is a measure of how porous the sample is or how much of the bulk sample volume is pore space. It is defined as the ratio of the volume of voids (pore space) to the total volume (volume of solids plus the volume of voids). It can be expressed either as a percentage or as a decimal. Interestingly, clays typically have a higher porosity than sands although the size of the voids tends to be much smaller in clays resulting in the typically very low hydraulic conductivity values for clays relative to sands

TOTAL POROSITY vs. EFFECTIVE POROSITY - While the total porosity is defined as the volume of voids/ the bulk volume of the sample(volume of voids plus volume of solids) not all of the void space contributes in a significant way to the flow of water. Some of the voids are isolated, are too small or are filled with water which is adsorbed to the clay minerals or other grains. Effective porosity is basically defined as the volume of voids that contribute in a significant way to the flow of water divided by the bulk volume of the soil. The effective porosity can approach the total porosity in the case of clean coarse sands and can approach zero in the case of clays but it is always less than the total porosity.

VOLUMETRIC WATER CONTENT - Volumetric Water Content (θw) is the same as Water-filled Porosity. It is defined simply as the percent of the total volume of the sample that is occupied by water.

VOLUMETRIC AIR CONTENT - Volumetric Air Content (θa) is the same as Air-filled Porosity. It is defined simply as the percent of the total volume of the sample that is occupied by air.

VOID RATIO - The void ratio is related to the porosity as a measure of how much void space is in the sample. It is defined as the ratio of the volume of void space in a sample to the total volume (volume of solids plus the volume of voids).

INITIAL and FINAL SAMPLE STATES - For some tests such as the hydraulic conductivity or triaxial shear tests the sample is saturated as part of the test procedure. The reports for these types of tests will provide results for sample parameters in both the "Initial" and "Final" sample conditions. These parameters include wet and dry densities, moisture contents, porosities etc. The "Initial" state is the as-received state. If the sample was undisturbed then the intitial sample parameters will reflect the condition of the in-situ condition of the soil. The "Final" state is the at-test state. In this state, water may have been added to the sample to saturate it. The sample may have also been consolidated as part of the test (hydraulic conductivity, air permeability and triaxial/direct shear strength testing only). This would cause an increase in sample density and related values from the as-received state. If the sample was consolidated the report would indicate this as well as the consolidation stress applied.

SAMPLE DISTURBANCE - Some soil parameters are significantly affected by the density and arragement of the soil particles. These parameters include density, porosity(total and effective), volumetric air and water contents, hydraulic conductivity, air permeability, strength, void ratio etc. For these analyses the goal is to test samples that are as representative of the in-situ soil conditions as possible. The way in which samples are collected determines the degree of disturbance the sample experiences. Typically, the larger the sample diameter the less disturbed the sample is and the more representative it is of the in-situ condition. Cooper Testing Labs recommends a minimum sample diameter of 2 inches for any testing that calls for undisturbed specimens such as those listed above. Although we recommend against using direct push sampling to obtain undisturbed samples we realize that there are time when there are no other options. In this case we recommend limiting the push length to a maximum of 12 inches when "undisturbed" samples are desired. This will help to minimize the sample disturbance.

COOPER TESTING LABORATORY

Specific Gravity by Pycnometer
ASTM D 854

CTL Job#:	407-024a	**Project Name:**	510 Ohlone Parkway, Watsonville, CA. 95076	**Date:**	02/24/21
Client:	Weber,Hayes & Associates	**Project No.:**	2t038	**Run By:**	MD
				Checked	DC

Boring:	SB-1-d11	SB-1-d16	SB-1-d22	SB-2-d10	SB-2-d15	SB-2-d21	SB-3-d10	SB-3-d15
Sample:								
Depth, ft.:	11	16	22	10	15	21	10	15
Pan No.:								
Soil Description (visual)	Olive Gray CLAY	Dark Yellowish Brown Sandy CLAY	Dark Yellowish Brown Silty SAND	Very Dark Brown CLAY	Very Dark Grayish Brown CLAY	Dark Grayish Brown CLAY	Very Dark Grayish Brown CLAY	Dark Grayish Brown CLAY
Pycnometer ID:	P02	P03	P02	P03	P04	P05	P02	P03
Mass of Clean, Dry Pycnometer (g):	158.06	158.92	158.06	158.92	158.78	155.02	158.06	158.92
Mass of Pycnometer, Soil, and Water (g):	723.85	728.18	719.78	721.42	721.42	716.34	722.94	720.48
Temperature of Slurry (°C):	19.2	19.2	20.8	20.8	20.8	20.8	20.2	20.2
Tare ID:								
Mass of Tare (g):	166.30	169.74	161.59	163.54	161.83	167.03	165.41	297.81
Mass of Dry Soil and Tare (g):	271.59	281.11	261.91	265.25	263.62	266.10	270.08	397.02
Mass of Dry Soil (g):	105.29	111.37	100.32	101.71	101.79	99.07	104.67	99.21
Mass of Pycnometer and Water at Test Temp (g):	656.52	657.42	656.35	657.25	657.01	653.47	656.41	657.31
Specific Gravity @ Test Temp:	2.774	2.743	2.719	2.709	2.723	2.737	2.744	2.753
Specific Gravity @ 20 °C:	**2.774**	**2.743**	**2.719**	**2.709**	**2.723**	**2.736**	**2.744**	**2.753**

COOPER TESTING LABORATORY

Specific Gravity by Pycnometer
ASTM D 854

CTL Job#:	407-024b	**Project Name:**	510 Ohlone Parkway, Watsonville, CA. 95076	**Date:**	02/25/21
Client:	Weber, Hayes & Associates	**Project No.:**	2t038	**Run By:**	MD
				Checked	DC

Boring:	SB-3-d21	SB-4-d16	SB-4-d20	SB-4-d27				
Sample:								
Depth, ft.:	21	16	20	27				
Pan No.:								
Soil Description (visual)	Dark Brown CLAY	Dark Yellowish Brown Poorly Graded SAND w/ Silt	Dark Yellowish Brown Poorly Graded SAND	Dark Yellowish Brown Sandy SILT				
Pycnometer ID:	P04	P05	P02	P03				
Mass of Clean, Dry Pycnometer (g):	158.78	155.02	158.06	158.92				
Mass of Pycnometer, Soil, and Water (g):	718.76	720.65	719.30	720.26				
Temperature of Slurry (°C):	20.2	20.2	21.1	21.1				
Tare ID:								
Mass of Tare (g):	165.05	163.83	165.54	161.62				
Mass of Dry Soil and Tare (g):	262.80	270.25	264.60	261.81				
Mass of Dry Soil (g):	97.75	106.42	99.06	100.19				
Mass of Pycnometer and Water at Test Temp (g):	657.07	653.53	656.32	657.22				
Specific Gravity @ Test Temp:	2.711	2.708	2.746	2.697				
Specific Gravity @ 20 °C:	**2.711**	**2.708**	**2.745**	**2.697**				

Corrosivity Tests

COOPER TESTING LABORATORY

CTL Job No:	407-024	**Project No.:**	2t038	IC Ions to test for:	Both
Client:	Weber, Hayes & Associates	**Date:**	2/17/2021		
Project Name:	510 Ohlone Parkway	**By:**	PJ		

Boring:	SB-3-d10	SB-3-d15	SB-3-d21	SB-4-d16	SB-4-d20	SB-27-d27
Sample:						
Depth, ft:	10	15	21	16	20	27
Soil Description:	Very Dark Grayish Brown CLAY	Dark Grayish Brown CLAY	Dark Brown CLAY	Dark Yellowish Brown Poorly Graded SAND w/ Silt	Dark Yellowish Brown Poorly Graded SAND	Dark Yellowish Brown Sandy SILT
EXTRACTION						
Extraction Flask No.						
Wt. of wet soil (g)						
Vol of water (ml)	300	300	300	300	300	300
% H_2O of Extracted Sample:						
Pan No.						
Pan wt. (g)						
Total wet wt. (g)						
Total dry wt (g)						
ORP / SULFIDE TESTS						
Beaker No.						
ORP, E_H (NHE) (Rmv)						
ORP Test Temp, ^{O}C						
Sulfide						
ASTM RESISTIVITY **- As Received**						
Small Dial Reading						
Large Dial Reading						
Temp. ^{o}C						
ASTM RESISTIVITY **- 100% Saturation**						
Bowl No.						
Small Dial Reading						
Large Dial Reading						
Temp. ^{o}C						
pH TEST						
pH measurement #1	7.26	7.27	7.38	7.53	7.27	7.54
pH measurement #2	7.25	7.32	7.41	7.61	7.34	7.51
pH measurement #3	7.25	7.43	7.39	7.61	7.41	7.48
CHLORIDE AND SULFATE TESTING						
IC Ions to test for:	Both	Both	Both	Both	Both	Both
Vial No.						
CHLORIDE						
Meas. conc(mg Cl^-/L)						
SULFATE						
Meas. conc(mg SO_4^{-2}/L)						
Comments:						

COOPER TESTING LABORATORY

Corrosivity Tests

CTL Job No:	407-024	**Project No.:**	2t038	IC Ions to test for:	Both
Client:	Weber, Hayes & Associates	**Date:**	2/17/2021		
Project Name:	510 Ohlone Parkway	**By:**	PJ		

Boring:	SB-1-d11	SB-1- d16	SB-1-d22	SB-2-d10	SB-2-d15	SB-2-d21
Sample:						
Depth, ft:	11	16	22	10	15	21
Soil Description:	Olive Gray CLAY	Dark Brown Sandy CLAY	Dark Yellowish Brown Silty SAND	Very Dark Brown CLAY	Very Dark Grayish Brown CLAY	Dark Grayish Brown CLAY
EXTRACTION						
Extraction Flask No.						
Wt. of wet soil (g)						
Vol of water (ml)	300	300	300	300	300	300
% H_2O of Extracted Sample:						
Pan No.						
Pan wt. (g)						
Total wet wt. (g)						
Total dry wt (g)						
ORP / SULFIDE TESTS						
Beaker No.						
ORP, E_H (NHE) (Rmv)						
ORP Test Temp, ^{O}C						
Sulfide						
ASTM RESISTIVITY **- As Received**						
Small Dial Reading						
Large Dial Reading						
Temp. ^{o}C						
ASTM RESISTIVITY **- 100% Saturation**						
Bowl No.						
Small Dial Reading						
Large Dial Reading						
Temp. ^{o}C						
pH TEST						
pH measurement #1	7.35	7.31	7.67	6.96	7.37	7.20
pH measurement #2	7.29	7.32	7.53	6.90	7.08	7.20
pH measurement #3	7.25	7.30	7.53	6.91	7.01	7.19
CHLORIDE AND SULFATE TESTING						
IC Ions to test for:	Both	Both	Both	Both	Both	Both
Vial No.						
CHLORIDE						
Meas. conc(mg **Cl^-**/L)						
SULFATE						
Meas. conc(mg **SO_4^{-2}**/L)						
Comments:						

COOPER
TESTING LABORATORY

Corrosivity Tests

CTL Job No:	407-024	**Project No.:**	2t038	IC Ions to test for:	Both
Client:	Weber, Hayes & Associates	**Date:**	2/17/2021		
Project Name:	510 Ohlone Parkway	**By:**	PJ		

Boring:						
Sample:						
Depth, ft:						
Soil Description:						
EXTRACTION						
Extraction Flask No.						
Wt. of wet soil (g)						
Vol of water (ml)	300	300	300	300	300	300
% H_2O of Extracted Sample:						
Pan No.						
Pan wt. (g)						
Total wet wt. (g)						
Total dry wt (g)						
ORP / SULFIDE TESTS						
Beaker No.						
ORP, E_H (NHE) (Rmv)						
ORP Test Temp, ^{O}C						
Sulfide						
ASTM RESISTIVITY **- As Received**						
Small Dial Reading						
Large Dial Reading						
Temp. ^{o}C						
ASTM RESISTIVITY **- 100% Saturation**						
Bowl No.						
Small Dial Reading						
Large Dial Reading						
Temp. ^{o}C						
pH TEST						
pH measurement #1						
pH measurement #2						
pH measurement #3						
CHLORIDE AND SULFATE TESTING						
IC Ions to test for:	Both	Both	Both	Both	Both	Both
Vial No.						
CHLORIDE						
Meas. conc(mg Cl^-/L)						
SULFATE						
Meas. conc(mg SO_4^{-2}/L)						
Comments:						

COOPER TESTING LABORATORY

Corrosivity Tests Summary

CTL # 407-024 **Date:** 2/19/2021 **Tested By:** PJ **Checked:** PJ

Client: Weber, Hayes & Associates **Project:** 510 Ohlone Parkway **Proj. No:** 2t038

Remarks:

Sample Location or ID			Resistivity @ 15.5 °C (Ohm-cm)			Chloride	Sulfate		pH	ORP		Sulfide	Moisture	Soil Visual Description
			As Rec.	Min	Sat.	mg/kg	mg/kg	%		(Redox)		Qualitative	At Test	
						Dry Wt.	Dry Wt.	Dry Wt.		E_H (mv)	At Test	by Lead	%	
Boring	Sample, No.	Depth, ft.	ASTM G57	Cal 643	ASTM G57	ASTM D4327	ASTM D4327	ASTM D4327	ASTM G51	ASTM G200	Temp °C	Acetate Paper	ASTM D2216	
SB-1-d11	-	11	-	-	-	-	-	-	7.3	-	-	-	-	Olive Gray CLAY
SB-1- d16	-	16	-	-	-	-	-	-	7.3	-	-	-	-	Dark Brown Sandy CLAY
SB-1-d22	-	22	-	-	-	-	-	-	7.6	-	-	-	-	Dark Yellowish Brown Silty SAND
SB-2-d10	-	10	-	-	-	-	-	-	6.9	-	-	-	-	Very Dark Brown CLAY
SB-2-d15	-	15	-	-	-	-	-	-	7.2	-	-	-	-	Very Dark Grayish Brown CLAY
SB-2-d21	-	21	-	-	-	-	-	-	7.2	-	-	-	-	Dark Grayish Brown CLAY
SB-3-d10	-	10	-	-	-	-	-	-	7.3	-	-	-	-	Very Dark Grayish Brown CLAY
SB-3-d15	-	15	-	-	-	-	-	-	7.3	-	-	-	-	Dark Grayish Brown CLAY
SB-3-d21	-	21	-	-	-	-	-	-	7.4	-	-	-	-	Dark Brown CLAY
SB-4-d16	-	16	-	-	-	-	-	-	7.6	-	-	-	-	Dark Yellowish Brown Poorly Graded SAND w/ Silt
SB-4-d20	-	20	-	-	-	-	-	-	7.3	-	-	-	-	Dark Yellowish Brown Poorly Graded SAND
SB-27-d27	-	27	-	-	-	-	-	-	7.5	-	-	-	-	Dark Yellowish Brown Sandy SILT

2/12

407-024

WHA
Weber, Hayes & Associates
120 Westgate Drive, Watsonville 95060
(831) 722-3580

Chain of Custody

Laboratory: Pace Analytical

Site Name & Location: 510 Ohlone Parkway, Watsonville, CA 95076
Geotracker ID: N/A
WHA Job #: 21038

Sampler Name: Ryan Nyberg

Email report to: Lab@weber-hayes.com
Also Email report to: ryan@weber-hayes.com ; pat@weber-hayes.com

Turnaround Time (work days: check one): O = NORMAL O = 1 Day RUSH O = 2 Day RUSH O = 3 Day RUSH

Analysis Requested (check those that apply)

Sample Identification WHA ID #	Sample Info: Depth (ft)	Date/Time	Matrix (Soil-GW-Air)	Sample Containers: Metal Liner	Shelby Tube	Glass Jar (8oz)	Vadose Zone Package 2 (Method: FOC by Walkley black)	pH (by ASTM G51/CT 643/AASHTOT289)						Notes To Lab
SB-1-d 11	11	2/12/2021	Soil		1		X	X						
SB-1-d 16	16	2/12/2021	Soil		1		X	X						
SB-1-d 22	22	2/12/2021	Soil		1		X	X						
SB-2-d 10	10	2/12/2021	Soil		1		X	X						
SB-2-d 15	15	2/12/2021	Soil		1		X	X						
SB-2-d 21	21	2/12/2021	Soil		1		X	X						
SB-3-d 10	10	2/12/2021	Soil		1		X	X						
SB-3-d 15	15	2/12/2021	Soil		1		X	X						
SB-3-d 21	21	2/12/2021	Soil		1		X	X						
SB-4-d 16	16	2/12/2021	Soil		1		X	X						
SB-4-d 20	20	2/12/2021	Soil		1		X	X						
SB-4-d 27	27	2/12/2021	Soil		1		X	X						

Released By: [signature] PRINT NAME: Ryan Nyberg — Date & Time: 2/12-2021 @ 1300 — SAMPLE CONDITION: AMBIENT / REFRIGERATED — Received By: PRINT NAME:

Released By: PRINT NAME: — Date & Time: — SAMPLE CONDITION: AMBIENT / REFRIGERATED — Received By: PRINT NAME:

Released By: PRINT NAME: — Date & Time: — SAMPLE CONDITION: AMBIENT / REFRIGERATED — Received By: PRINT NAME:

Additional Notes to Lab: Lab Manager instructed to specify FOC by Walkley black since the default organic test method is TOC by ASTM D2974.

Appendix C-2

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Response to Follow-up Technical Comments issued by SC-HSA's 3rd-Party Toxicologist

(agency comment letter dated December 5, 2017)

.

Source: **Thomas Harder & Company, April 19, 2018**

April 19, 2018

Mr. Pat Hoban, PG
Weber, Hayes & Associates
120 Westgate Drive
Watsonville, California 95076

Re: Response to Huntley review of TH&Co Response to Comments for:
***Remedial Action Plan (RAP)* dated September 13, 2017**
***Site Preparation Tasks for Redevelopment (SPTR)* dated July 13, 2017**
Former Clusters Storage Yard
511 Ohlone Parkway
Watsonville, California

Dear Mr. Hoban:

As you are aware, Thomas Harder & Company (TH&Co) provided responses to comments (RTCs) provided by Huntley Environmental (Huntley) to the Remedial Action Plan (RAP) and Site Preparation Tasks for Redevelopment (SPTR) for the Former Clusters Storage Yard located at 511 Ohlone Parkway in Watsonville, California. The TH&Co response to comment report is dated October 26, 2017. Huntley responded to this report via electronic mail (email) with three comments. As requested, this letter response addresses Comment 1 of the Huntley email which is as follows:

Huntley Comment 1: *I found no errors or concerns with the calculation of cumulative cancer risks and noncancer hazards (sum of hazard quotients [HQs]) as was done for TPH-diesel, TPH-motor oil, and naphthalene. I also agree with TH&Co that including lead in cumulative risk/hazard calculations would not be appropriate. I note that TH&Co indicated in the RTCs that comparison of lead concentrations to applicable ESLs were presented in Tables 3a and 3b, however, these tables were not provided in the RTCs.*[1] *Nevertheless, the lead data provided in "Enclosure A Table 2 from RAP", as included in the RTCs, were sufficient for my review. Cumulative risk and*

[1] **Table 3a** and **Table 3b** are included herein along with Table 1a, Table 1b, Table 2a, and Table 2b as provided in our October RTC report for the sake of completeness.

hazard calculations for arsenic, chromium VI, and nickel were not done as these three constituents were deferred to a supplemental site-specific background evaluation presented as Attachment 1 to the RTCs. It may be helpful to calculate cumulative risks and hazards using 95%UCL concentrations rather than individual sample concentrations. It appears that if 95%UCLs were used as the exposure point concentrations, then it is possible that individual COPC and cumulative HQs and risks for all COPCs (other than lead) may be within acceptable ranges. If risk estimates were further refined using 95%UCLs, it would still be important to evaluate potential hot spots, particularly for TPH-motor oil and lead. As indicated in my previous comments it will be important to clearly describe the basis for remediating soil to a depth of 2 ft in the revised RAP.

TH&Co Response to Huntley Comment 1

For purposes of discussion, Comment 1 is subdivided as two separate comments below.

95% UCL and hot spot comment

The COPCs evaluated in our October RTC report were:

- Total petroleum hydrocarbons as diesel (TPH-d);
- Total petroleum hydrocarbons as motor oil (TPH-mo);
- Naphthalene; and
- Lead.

Inspection of these the sample-specific risk tables (Table 1a, 1b, 2a, 2b, 3a, and 3b) reveals that TPH-d, TPH-mo, and lead exceed risk benchmark levels for some samples. The 95% UCLs (rounded to the nearest mg/kg) for these three COPCs using the method detection limits (MDLs) for 'non-detect' (ND) sample results[2] and including all results for non-log-transformed datasets are as follows (see **Attachment 2** for ProUCL[3] output):

- TPH-d: 98 mg/kg;
- TPH-mo: 5143 mg/kg; and
- Lead: 220 mg/kg.

Given the most stringent (residential) risk benchmark levels for these COPCs (230, 11000, and 80 mg/kg, respectively), lead is the only COPC with a 95% UCL that exceeds its risk benchmark as correctly stated in the Huntley comment. That is, use of a 95% UCL would eliminate risk concerns associated with TPH-d and TPH-mo.

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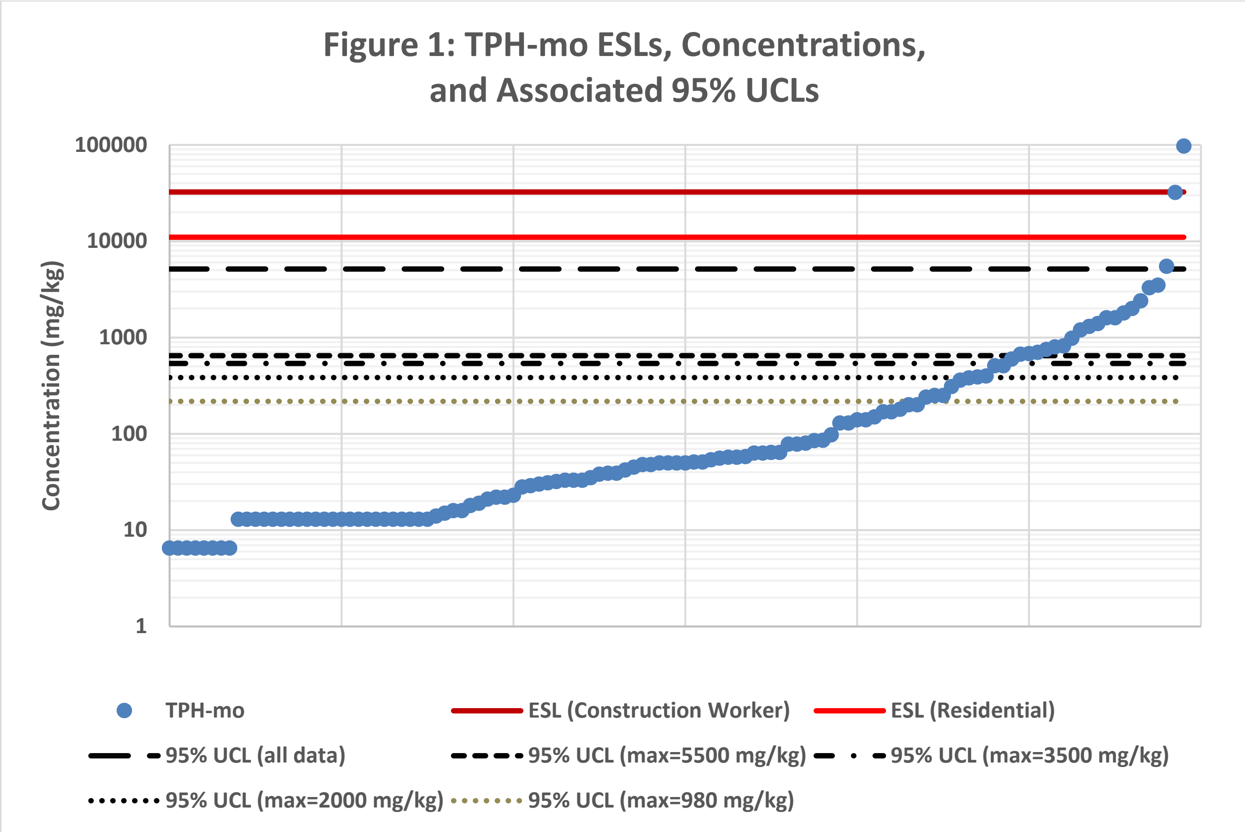
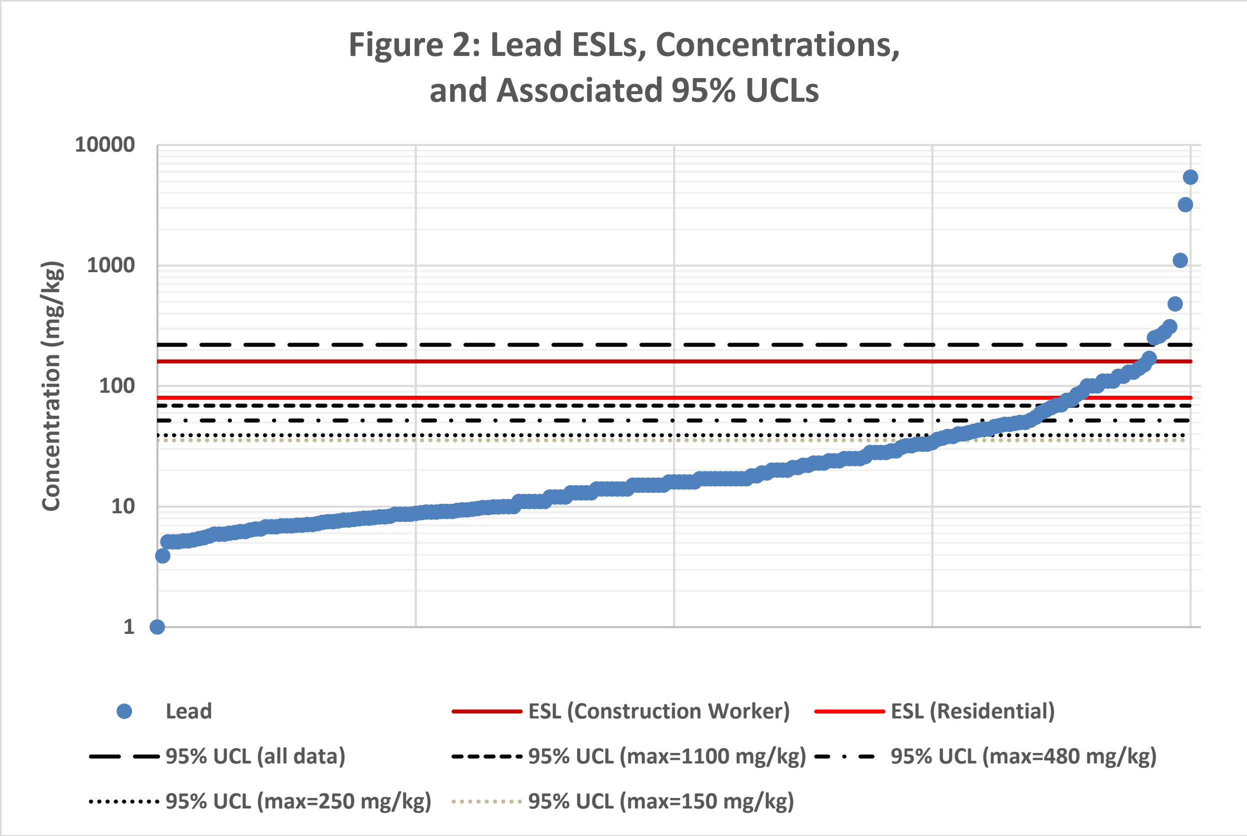
[2] A revised version of Table 4 from the RAP in which the "ND" designations" have been replaced with the MDLs is included as **Attachment 1**.

[3] U.S. Environmental Protection Agency, 2015 (Ashtok, A.S. and A.K. Singh). ProUCL Version 5.1.002 Technical Guide, Statistical Software for Environmental Applications for Data Sets With and Without Nondetect Observations. EPA/600/R-07/041. October.

To address the Huntley comment that hot spots be evaluated, particularly for TPH-mo and lead, the 95% UCLs associated with sequential elimination of the highest concentration samples are plotted as shown on the figures below.



The TPH-mo chart (**Figure 1**) shows that for the entire dataset (i.e., the case in which no hot spots are removed), the 95% UCL (5143 mg/kg) does not exceed either ESL as noted above. If the two highest TPH-mo concentrations are removed – both of which exceed the residential ESL – the resulting dataset has a maximum concentration of 5500 mg/kg and the 95% UCL decreases from 5143 to 648 mg/kg. Additional hot spot removals result in comparatively negligible decreases in the 95% UCL.



The lead chart (**Figure 2**) shows that for the entire dataset (i.e., the case in which no hot spots are removed), the 95% UCL (220 mg/kg) exceeds both ESLs as noted above. If the two highest lead concentrations are removed – 3200 and 5400 mg/kg – the resulting dataset has a maximum concentration of 1100 mg/kg and the 95% UCL decreases from 220 to 69 mg/kg, which is below both ESLs. Additional hot spot removals result in comparatively negligible decreases in the 95% UCL.

Remediation depth comment

The fact that the risk benchmark exceedances are limited to the upper 2 feet except for TPH-mo at 8 feet at T-16(t) at 97000 mg/kg and lead at 6 feet at T-11(t) at 3200 mg/kg provides the basis for the removal depth of 2 feet. As noted in our response to Huntley Comment 8 in our October RTC report, over-excavation and subsequent confirmation sampling will be conducted at those locations at which ESL exceedances were not vertically defined.

CLOSING

The analysis presented here indicates that some limited hot spot removal for lead may be warranted. If you have any questions, please contact me at the phone numbers or electronic mail address listed below.

Sincerely,

Jim Van de Water, P.G., C.HG.
Principal Hydrogeologist
949 795-0855 (cell)
949 779-3875 (office)
jimvdw@thomashardercompany.com

Agency final comments on Risk Assessment

Pat Hoban

From: Scott Carson <Scott.Carson@santacruzcounty.us>
Sent: Tuesday, December 05, 2017 5:13 PM
To: Pat Hoban
Cc: 'Steve Huntley'; '(Risk) Jim Van de Water'
Subject: RE: 511 OHLONE PARKWAY, WATSONVILLE, RTC
Attachments: 511OhlonePkwy.12.05.17.Huntley Initial Comments to RTC.pdf

Hello Pat,

As you know, I have not had a chance to review the Thomas Harder & Co. response dated October 26, 2017, to the Huntley comments dated September 29, 2017. However, I asked Steve Huntley to provide some initial feedback on the response (attached email dated December 5, 2017) to see if it appears to be on the right track and to assist you with preparing the requested redline/strikeout versions of the SPTR and RAP. I hope you will find Mr. Huntley's comments helpful. Please let me know if you have any questions.

Sincerely,

Scott E. Carson, PG, CEG
Professional Geologist
County of Santa Cruz Health Services Agency
Environmental Health Division
Site Mitigation Program
701 Ocean Street, Suite 312
Santa Cruz, CA 95060

Voice 831-454-2758, Fax 831-454-3128, Email Scott.Carson@santacruzcounty.us
County Main http://www.co.santa-cruz.ca.us/, EHS Home http://www.scceh.com/
Site Mitigation Home http://www.scceh.com/Home/Programs/SiteMitigation.aspx

Scott Carson

From: Steve Huntley <shuntley@huntleyenvironmental.com>
Sent: Tuesday, December 05, 2017 1:46 PM
To: Scott Carson
Subject: Re: 511 Ohlone Pkwy, Watsonville - Huntley review of TH&Co Response to Comments

Hi Scott,

Following are my initial comments on the TH&Co response to comments (RTCs).

1. 1. I found no errors or concerns with the calculation of cumulative cancer risks and noncancer hazards (sum of hazard quotients [HQs]) as was done for TPH-diesel, TPH-motor oil, and naphthalene. I also agree with TH&Co that including lead in cumulative risk/hazard calculations would not be appropriate. I note that TH&Co indicated in the RTCs that comparison of lead concentrations to applicable ESLs were presented in Tables 3a and 3b, however, these tables were not provided in the RTCs. Nevertheless, the lead data provided in "Enclosure A Table 2 from RAP", as included in the RTCs, were sufficient for my review. Cumulative risk and hazard calculations for arsenic, chromium VI, and nickel were not done as these three constituents were deferred to a supplemental site-specific background evaluation presented as Attachment 1 to the RTCs. It may be helpful to calculate cumulative risks and hazards using 95%UCL concentrations rather than individual sample concentrations. It appears that if 95%UCLs were used as the exposure point concentrations, then it is possible that individual COPC and cumulative HQs and risks for all COPCs (other than lead) may be within acceptable ranges. If risk estimates were further refined using 95%UCLs, it would still be important to evaluate potential hot spots, particularly for TPH-motor oil and lead. As indicated in my previous comments it will be important to clearly describe the basis for remediating soil to a depth of 2 ft in the revised RAP.
2. 2. TH&Co indicated that several minor errors identified in the Huntley Comments would be corrected in the revised RAP. I am in agreement.
3. 3. I concur with the results of the supplemental background evaluation presented in Attachment 1 of the RTCs, as follows:
    a. For the TH&Co evaluation of arsenic background, I concur with the statistical analyses and conclusion that there does not appear to have been an arsenic release at the site, and therefore, arsenic would not be classified as a COPC. The arsenic data appear to represent a single population ((e.g., background) as supported by the very low coefficient of variation (CV), absence of outliers, and graphical presentation of the data.
    b. For the same reasons stated above for arsenic, I also concur with the TH&Co evaluation of chromium VI background that the data appear to represent a single population and that there does not appear to have been a chromium VI release at the site.
    c. For the same reasons stated above for arsenic and chromium VI, I also concur with the TH&Co evaluation of nickel background that the data appear to represent a single population and that there does not appear to have been a nickel release at the site.

In summary, I concur that the site data do not support selecting arsenic, chromium VI, or nickel as COPCs since all three appear to be consistent with background conditions.

Please let me know if you have any questions.

Steve

--
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TABLES

Table 1a, Table 1b, Table 2a, and Table 2b are provided in the October Response to Comments

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The following Tables 3a & 3b are
Comparisons of Lead Concentrations to
Residential & Construction Worker ESL Values

TABLE 3a
Comparison of Lead Concentrations
to Residential ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID		Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-1(t)	TB-1		0.5	--	80	-	-
B-2(t)	TB-2		0.5	--	80	-	-
B-3(t)	TB-3		0.5	12	80	No	-
			1.5	140	80	Yes	1.5
			2.5	--	80	-	-
			4	--	80	-	-
B-4(t)	TB-4		0.5	--	80	-	-
B-5(t)	TB-5		0.5	--	80	-	-
B-6(t)	TB-6		0.75	--	80	-	-
B-7(t)	TB-7		0.5	--	80	-	-
B-8(t)	TB-8		0.5	23	80	No	-
			1.5	--	80	-	-
			2.5	--	80	-	-
			4	--	80	-	-
B-9(t)	TB-9		0.5	40	80	No	-
			1.5	--	80	-	-
			2.5	--	80	-	-
			4	--	80	-	-
T-1(t)	Area 1	T4	4	--	80	-	-
T-2(t)		T6	3.5	20	80	No	-
T-3(t)		T9	2	29	80	No	-
T-4(t)		T10	1	6.8	80	No	-
T-5(t)		T11	1.5	--	80	-	-
T-6(t)		T12	1	76	80	No	-
T-7(t)	Area 2	T6	1	8.6	80	No	-
T-8(t)		T12	2	22	80	No	-
T-9(t)		T15	2	55	80	No	-
T-10(t)	Area 3	T1	3	--	80	-	-
T-11(t)	Area 5	T1	6	3,200	80	Yes	6
T-12(t)		T3	2	1,100	80	Yes	2
T-13(t)		T5	3	--	80	-	-
T-14(t)		T10	4	16	80	No	-
T-15(t)	Area 6	T1	2	130	80	Yes	2
T-16(t)		T1*	8	310	80	Yes	8
T-17(t)	Area 8	T1	2	120	80	Yes	2
T-18(t)		Debris	--	50	80	No	-
B-10(w)	SB-1		0.5	63	80	No	-
			2	13	80	No	-
B-11(w)	SB-2		0.5	110	80	Yes	0.5
			2	9.9	80	No	-
B-12(w)	SB-3		0.5	250	80	Yes	0.5
			2	17	80	No	-
B-13(w)	SB-4		0.5	52	80	No	-
			2	14	80	No	-

TABLE 3a
Comparison of Lead Concentrations to Residential ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-14(w)	SB-5	0.5	23	80	No	-
		2	6.9	80	No	-
B-41(L)	R-2	0.5	6.9	80	No	-
		2	5.5	80	No	-
		3	5.2	80	No	-
B-42(L)	R-3	1	5.4	80	No	-
		3	5.9	80	No	-
B-43(L)	GZ-1	2	9.4	80	No	-
		3	5.1	80	No	-
B-44(L)	GZ-2	1	44	80	No	-
		3	9.8	80	No	-
B-45(L)	BC-1	3	13	80	No	-
		5	9	80	No	-
		7	33	80	No	-
B-46(L)	BC-2	3	21	80	No	-
		5	25	80	No	-
		7	8.9	80	No	-
B-47(L)	BC-3	3	11	80	No	-
		5	9.3	80	No	-
		7	17	80	No	-
B-48(L)	BC-4	3	17	80	No	-
		5	6.5	80	No	-
		7	7.6	80	No	-
B-49(L)	CZ-1	2	1	80	No	-
		4	10	80	No	-
B-50(L)	CZ-2	1	6.9	80	No	-
		3	6.8	80	No	-
		7	7.7	80	No	-
		11	7.9	80	No	-
B-51(L)	CZ-3	2	8.2	80	No	-
B-52(L)	G+G-1	2	8	80	No	-
		4	10	80	No	-
		6	77	80	No	-
B-53(L)	G+G-2	2	6.8	80	No	-
		4	6.5	80	No	-
		6	3.9	80	No	-
B-54(L)	G+G-3	0.5	7	80	No	-
		2	6.4	80	No	-
B-55(L)	G+G-4	0.5	24	80	No	-
		2	6	80	No	-
		3	9.1	80	No	-
B-56(L)	G+G-5	2	5.1	80	No	-
		4	5.1	80	No	-

TABLE 3a
Comparison of Lead Concentrations to Residential ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-57(L)	G+G-6	2	7.2	80	No	-
		4	5.3	80	No	-
B-69(w)	G&G# - 5a,5b,5c	0.5	32	80	No	-
		2	17	80	No	-
B-69a(w)	G&G 5a	0.5	37	80	No	-
B-69b(w)	G&G 5b	0.5	33	80	No	-
B-69c(w)	G&G 5c	0.5	69	80	No	-
B-72(w)	Gonzalez# - 1a, 1b, 1c	0.5	17	80	No	-
		2	14	80	No	-
B-73(w)	Gonzalez# - 2a, 2b, 2c	0.5	100	80	Yes	0.5
		2	16	80	No	-
B-73a(w)	Gonzalez 2a	0.5	33	80	No	-
B-73b(w)	Gonzalez 2b	0.5	120	80	Yes	0.5
B-73c(w)	Gonzalez 2c	0.5	85	80	Yes	0.5
B-74(w)	Clusters# - 1a,1b,1c	0.5	16	80	No	-
		2	20	80	No	-
B-75(w)	Clusters# - 2a,2b,2c	0.5	16	80	No	-
		2	17	80	No	-
B-76(w)	Clusters# - 3a,3b,3c	0.5	41	80	No	-
		2	31	80	No	-
B-77(w)	Chaz #- 1a,1b,1c	0.5	34	80	No	-
		2	100	80	Yes	2
B-77a(w)	Chaz 1a	2	280	80	Yes	2
B-77b(w)	Chaz 1b	2	36	80	No	-
B-77c(w)	Chaz 1c	2	19	80	No	-
B-78(w)	Chaz # - 2a,2b,2c	0.5	26	80	No	-
		2	38	80	No	-
B-79(w)	Gerrys #- 1a,1b,1c	0.5	29	80	No	-
		2	28	80	No	-
B-80(w)	Gerrys #- 2a,2b,2c	0.5	17	80	No	-
		2	21	80	No	-
B-81(w)	Gerrys # - 3a,3b,3c	0.5	130	80	Yes	0.5
		2	19	80	No	-
B-81a(w)	Gerrys 3a	0.5	46	80	No	-
		2	--	80	-	-
B-81b(w)	Gerrys 3b	0.5	110	80	Yes	0.5
		2	--	80	-	-
B-81c(w)	Gerrys 3c	0.5	15	80	No	-
		2	--	80	-	-
B-82(w)	Gerrys # - 4a,4b,4c	0.5	47	80	No	-
		2	20	80	No	-

TABLE 3a
Comparison of Lead Concentrations to Residential ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-82a(w)	Gerrys 4a	2	--	80	-	-
B-82b(w)	Gerrys 4b	2	--	80	-	-
B-82c(w)	Gerrys 4c	2	--	80	-	-
B-85(w)	JV # - 1a,1b,1c	0.5	60	80	No	-
		2	22	80	No	-
B-85a(w)	JV 1a	0.5	48	80	No	-
B-85b(w)	JV 1b	0.5	16	80	No	-
B-85c(w)	JV 1c	0.5	17	80	No	-
B-86(w)	Residence #- 1a,1b,1c	0.5	15	80	No	-
		2	18	80	No	-
B-88(w)	Bay City # - 1a,1b,1c	0.5	28	80	No	-
		2	18	80	No	-
B-89(w)	Bay City # - 2a,2b,2c	0.5	44	80	No	-
		2	48	80	No	-
B-15(w)	SB-6	0.5	32	80	No	-
		2	7.5	80	No	-
B-16(w)	SB-7	0.5	13	80	No	-
		2	11	80	No	-
B-17(w)	SB-8	0.5	17	80	No	-
		2	9.5	80	No	-
B-18(w)	SB-9	0.5	38	80	No	-
		2	8	80	No	-
B-19(w)	SB-10	0.5	15	80	No	-
		2	8.6	80	No	-
B-20(w)	SB-11	0.5	24	80	No	-
		2	12	80	No	-
B-21(w)	SB-12	0.5	25	80	No	-
		2	15	80	No	-
B-22(w)	SB-13	0.5	17	80	No	-
		2	8.3	80	No	-
B-23(w)	SB-14	0.5	12	80	No	-
		2	13	80	No	-
B-24(w)	SB-15	0.5	8.1	80	No	-
		2	9.6	80	No	-
B-25(w)	DP-1	2	9.1	80	No	-
B-26(w)	DP-2	2	9.4	80	No	-
B-27(w)	DP-4	2	9	80	No	-
B-28(w)	DP-5	2	5.9	80	No	-
B-29(w)	DP-6	2	7.5	80	No	-
B-30(w)	DP-7	2	8.8	80	No	-
B-31(w)	DP-8	2	23	80	No	-
B-32(w)	DP-9	2	14	80	No	-
B-33(L)	CL-1	1	9.9	80	No	-
		3	6.2	80	No	-

TABLE 3a
Comparison of Lead Concentrations to Residential ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-34(L)	CL-2	2	9.8	80	No	-
		3	7.7	80	No	-
B-35(L)	CL-3	2	5.7	80	No	-
		3	5.9	80	No	-
B-36(L)	CL-4	4	7.1	80	No	-
B-37(L)	CL-5	1	9.1	80	No	-
		3	7	80	No	-
B-38(L)	CL-6	1	8.6	80	No	-
		3	7.1	80	No	-
		5	12	80	No	-
		7	14	80	No	-
B-39(L)	CL-8	5	15	80	No	-
B-40(L)	R-1	0.5	8.6	80	No	-
		2	7.8	80	No	-
B-58(L)	G+G-7	2	8.2	80	No	-
		3.5	11	80	No	-
B-59(L)	G-1	2	42	80	No	-
		3	5.2	80	No	-
B-60(L)	G-2	2	14	80	No	-
		3	14	80	No	-
B-61(L)	G-3	0.5	11	80	No	-
		2	11	80	No	-
		3	13	80	No	-
B-62(L)	G-4	2	9	80	No	-
		3	7.4	80	No	-
B-63(L)	G-5	2	16	80	No	-
		4	15	80	No	-
		6	6.2	80	No	-
B-64(L)	G-6	2	6.1	80	No	-
		4	24	80	No	-
		6	10	80	No	-
SS-1(L)	SS-1	--	14	80	No	-
SS-2(L)	SS-2	--	28	80	No	-
SS-3(L)	SS-3	--	110	80	Yes	--
SS-4(L)	SS-4	--	15	80	No	-
SS-5(L)	SS-5	--	11	80	No	-
B-65(w)	G&G# - 1a,1b,1c	0.5	49	80	No	-
		2	70	80	No	-
B-65a(w)	G&G 1a	2	25	80	No	-
B-65b(w)	G&G 1b	2	89	80	Yes	2
B-65c(w)	G&G 1c	2	50	80	No	-

TABLE 3a
Comparison of Lead Concentrations to Residential ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-66(w)	G&G# - 2a,2b,2c	0.5	40	80	No	-
		2	43	80	No	-
B-67(w)	G&G# - 3a,3b,3c	0.5	28	80	No	-
		2	20	80	No	-
B-67a(w)	G&G 3a	2	--	80	-	-
B-67b(w)	G&G 3b	2	--	80	-	-
B-67c(w)	G&G 3c	2	--	80	-	-
B-68(w)	G&G# - 4a,4b,4c	0.5	5400	80	Yes	0.5
		2	66	80	No	-
B-68a(w)	G&G 4a	0.5	100	80	Yes	0.5
		2	260	80	Yes	2
B-68b(w)	G&G 4b	0.5	170	80	Yes	0.5
		2	150	80	Yes	2
B-68c(w)	G&G 4c	0.5	480	80	Yes	0.5
		2	25	80	No	-

TABLE 3b
Comparison of Lead Concentrations
to Construction Worker ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID		Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-1(t)	TB-1		0.5	--	160	-	-
B-2(t)	TB-2		0.5	--	160	-	-
B-3(t)	TB-3		0.5	12	160	No	-
			1.5	140	160	No	-
			2.5	--	160	-	-
			4	--	160	-	-
B-4(t)	TB-4		0.5	--	160	-	-
B-5(t)	TB-5		0.5	--	160	-	-
B-6(t)	TB-6		0.75	--	160	-	-
B-7(t)	TB-7		0.5	--	160	-	-
B-8(t)	TB-8		0.5	23	160	No	-
			1.5	--	160	-	-
			2.5	--	160	-	-
			4	--	160	-	-
B-9(t)	TB-9		0.5	40	160	No	-
			1.5	--	160	-	-
			2.5	--	160	-	-
			4	--	160	-	-
T-1(t)	Area 1	T4	4	--	160	-	-
T-2(t)		T6	3.5	20	160	No	-
T-3(t)		T9	2	29	160	No	-
T-4(t)		T10	1	6.8	160	No	-
T-5(t)		T11	1.5	--	160	-	-
T-6(t)		T12	1	76	160	No	-
T-7(t)	Area 2	T6	1	8.6	160	No	-
T-8(t)		T12	2	22	160	No	-
T-9(t)		T15	2	55	160	No	-
T-10(t)	Area 3	T1	3	--	160	-	-
T-11(t)	Area 5	T1	6	3,200	160	Yes	6
T-12(t)		T3	2	1,100	160	Yes	2
T-13(t)		T5	3	--	160	-	-
T-14(t)		T10	4	16	160	No	-
T-15(t)	Area 6	T1	2	130	160	No	-
T-16(t)		T1*	8	310	160	Yes	8
T-17(t)	Area 8	T1	2	120	160	No	-
T-18(t)		Debris	--	50	160	No	-
B-10(w)	SB-1		0.5	63	160	No	-
			2	13	160	No	-
B-11(w)	SB-2		0.5	110	160	No	-
			2	9.9	160	No	-
B-12(w)	SB-3		0.5	250	160	Yes	0.5
			2	17	160	No	-
B-13(w)	SB-4		0.5	52	160	No	-
			2	14	160	No	-

TABLE 3b
Comparison of Lead Concentrations to Construction Worker ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-14(w)	SB-5	0.5	23	160	No	-
		2	6.9	160	No	-
B-41(L)	R-2	0.5	6.9	160	No	-
		2	5.5	160	No	-
		3	5.2	160	No	-
B-42(L)	R-3	1	5.4	160	No	-
		3	5.9	160	No	-
B-43(L)	GZ-1	2	9.4	160	No	-
		3	5.1	160	No	-
B-44(L)	GZ-2	1	44	160	No	-
		3	9.8	160	No	-
B-45(L)	BC-1	3	13	160	No	-
		5	9	160	No	-
		7	33	160	No	-
B-46(L)	BC-2	3	21	160	No	-
		5	25	160	No	-
		7	8.9	160	No	-
B-47(L)	BC-3	3	11	160	No	-
		5	9.3	160	No	-
		7	17	160	No	-
B-48(L)	BC-4	3	17	160	No	-
		5	6.5	160	No	-
		7	7.6	160	No	-
B-49(L)	CZ-1	2	1	160	No	-
		4	10	160	No	-
B-50(L)	CZ-2	1	6.9	160	No	-
		3	6.8	160	No	-
		7	7.7	160	No	-
		11	7.9	160	No	-
B-51(L)	CZ-3	2	8.2	160	No	-
B-52(L)	G+G-1	2	8	160	No	-
		4	10	160	No	-
		6	77	160	No	-
B-53(L)	G+G-2	2	6.8	160	No	-
		4	6.5	160	No	-
		6	3.9	160	No	-
B-54(L)	G+G-3	0.5	7	160	No	-
		2	6.4	160	No	-
B-55(L)	G+G-4	0.5	24	160	No	-
		2	6	160	No	-
		3	9.1	160	No	-
B-56(L)	G+G-5	2	5.1	160	No	-
		4	5.1	160	No	-

TABLE 3b
Comparison of Lead Concentrations to Construction Worker ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-57(L)	G+G-6	2	7.2	160	No	-
		4	5.3	160	No	-
B-69(w)	G&G# - 5a,5b,5c	0.5	32	160	No	-
		2	17	160	No	-
B-69a(w)	G&G 5a	0.5	37	160	No	-
B-69b(w)	G&G 5b	0.5	33	160	No	-
B-69c(w)	G&G 5c	0.5	69	160	No	-
B-72(w)	Gonzalez# - 1a, 1b, 1c	0.5	17	160	No	-
		2	14	160	No	-
B-73(w)	Gonzalez# - 2a, 2b, 2c	0.5	100	160	No	-
		2	16	160	No	-
B-73a(w)	Gonzalez 2a	0.5	33	160	No	-
B-73b(w)	Gonzalez 2b	0.5	120	160	No	-
B-73c(w)	Gonzalez 2c	0.5	85	160	No	-
B-74(w)	Clusters# - 1a,1b,1c	0.5	16	160	No	-
		2	20	160	No	-
B-75(w)	Clusters# - 2a,2b,2c	0.5	16	160	No	-
		2	17	160	No	-
B-76(w)	Clusters# - 3a,3b,3c	0.5	41	160	No	-
		2	31	160	No	-
B-77(w)	Chaz #- 1a,1b,1c	0.5	34	160	No	-
		2	100	160	No	-
B-77a(w)	Chaz 1a	2	280	160	Yes	2
B-77b(w)	Chaz 1b	2	36	160	No	-
B-77c(w)	Chaz 1c	2	19	160	No	-
B-78(w)	Chaz # - 2a,2b,2c	0.5	26	160	No	-
		2	38	160	No	-
B-79(w)	Gerrys #- 1a,1b,1c	0.5	29	160	No	-
		2	28	160	No	-
B-80(w)	Gerrys #- 2a,2b,2c	0.5	17	160	No	-
		2	21	160	No	-
B-81(w)	Gerrys # - 3a,3b,3c	0.5	130	160	No	-
		2	19	160	No	-
B-81a(w)	Gerrys 3a	0.5	46	160	No	-
		2	--	160	-	-
B-81b(w)	Gerrys 3b	0.5	110	160	No	-
		2	--	160	-	-
B-81c(w)	Gerrys 3c	0.5	15	160	No	-
		2	--	160	-	-
B-82(w)	Gerrys # - 4a,4b,4c	0.5	47	160	No	-
		2	20	160	No	-

TABLE 3b
Comparison of Lead Concentrations
to Construction Worker ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-82a(w)	Gerrys 4a	2	--	160	-	-
B-82b(w)	Gerrys 4b	2	--	160	-	-
B-82c(w)	Gerrys 4c	2	--	160	-	-
B-85(w)	JV # - 1a,1b,1c	0.5	60	160	No	-
		2	22	160	No	-
B-85a(w)	JV 1a	0.5	48	160	No	-
B-85b(w)	JV 1b	0.5	16	160	No	-
B-85c(w)	JV 1c	0.5	17	160	No	-
B-86(w)	Residence #- 1a,1b,1c	0.5	15	160	No	-
		2	18	160	No	-
B-88(w)	Bay City # - 1a,1b,1c	0.5	28	160	No	-
		2	18	160	No	-
B-89(w)	Bay City # - 2a,2b,2c	0.5	44	160	No	-
		2	48	160	No	-
B-15(w)	SB-6	0.5	32	160	No	-
		2	7.5	160	No	-
B-16(w)	SB-7	0.5	13	160	No	-
		2	11	160	No	-
B-17(w)	SB-8	0.5	17	160	No	-
		2	9.5	160	No	-
B-18(w)	SB-9	0.5	38	160	No	-
		2	8	160	No	-
B-19(w)	SB-10	0.5	15	160	No	-
		2	8.6	160	No	-
B-20(w)	SB-11	0.5	24	160	No	-
		2	12	160	No	-
B-21(w)	SB-12	0.5	25	160	No	-
		2	15	160	No	-
B-22(w)	SB-13	0.5	17	160	No	-
		2	8.3	160	No	-
B-23(w)	SB-14	0.5	12	160	No	-
		2	13	160	No	-
B-24(w)	SB-15	0.5	8.1	160	No	-
		2	9.6	160	No	-
B-25(w)	DP-1	2	9.1	160	No	-
B-26(w)	DP-2	2	9.4	160	No	-
B-27(w)	DP-4	2	9	160	No	-
B-28(w)	DP-5	2	5.9	160	No	-
B-29(w)	DP-6	2	7.5	160	No	-
B-30(w)	DP-7	2	8.8	160	No	-
B-31(w)	DP-8	2	23	160	No	-
B-32(w)	DP-9	2	14	160	No	-
B-33(L)	CL-1	1	9.9	160	No	-
		3	6.2	160	No	-

TABLE 3b
Comparison of Lead Concentrations to Construction Worker ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-34(L)	CL-2	2	9.8	160	No	-
		3	7.7	160	No	-
B-35(L)	CL-3	2	5.7	160	No	-
		3	5.9	160	No	-
B-36(L)	CL-4	4	7.1	160	No	-
B-37(L)	CL-5	1	9.1	160	No	-
		3	7	160	No	-
B-38(L)	CL-6	1	8.6	160	No	-
		3	7.1	160	No	-
		5	12	160	No	-
		7	14	160	No	-
B-39(L)	CL-8	5	15	160	No	-
B-40(L)	R-1	0.5	8.6	160	No	-
		2	7.8	160	No	-
B-58(L)	G+G-7	2	8.2	160	No	-
		3.5	11	160	No	-
B-59(L)	G-1	2	42	160	No	-
		3	5.2	160	No	-
B-60(L)	G-2	2	14	160	No	-
		3	14	160	No	-
B-61(L)	G-3	0.5	11	160	No	-
		2	11	160	No	-
		3	13	160	No	-
B-62(L)	G-4	2	9	160	No	-
		3	7.4	160	No	-
B-63(L)	G-5	2	16	160	No	-
		4	15	160	No	-
		6	6.2	160	No	-
B-64(L)	G-6	2	6.1	160	No	-
		4	24	160	No	-
		6	10	160	No	-
SS-1(L)	SS-1	--	14	160	No	-
SS-2(L)	SS-2	--	28	160	No	-
SS-3(L)	SS-3	--	110	160	No	-
SS-4(L)	SS-4	--	15	160	No	-
SS-5(L)	SS-5	--	11	160	No	-
B-65(w)	G&G# - 1a,1b,1c	0.5	49	160	No	-
		2	70	160	No	-
B-65a(w)	G&G 1a	2	25	160	No	-
B-65b(w)	G&G 1b	2	89	160	No	-
B-65c(w)	G&G 1c	2	50	160	No	-

TABLE 3b
Comparison of Lead Concentrations to Construction Worker ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-66(w)	G&G# - 2a,2b,2c	0.5	40	160	No	-
		2	43	160	No	-
B-67(w)	G&G# - 3a,3b,3c	0.5	28	160	No	-
		2	20	160	No	-
B-67a(w)	G&G 3a	2	--	160	-	-
B-67b(w)	G&G 3b	2	--	160	-	-
B-67c(w)	G&G 3c	2	--	160	-	-
B-68(w)	G&G# - 4a,4b,4c	0.5	5400	160	Yes	0.5
		2	66	160	No	-
B-68a(w)	G&G 4a	0.5	100	160	No	-
		2	260	160	Yes	2
B-68b(w)	G&G 4b	0.5	170	160	Yes	0.5
		2	150	160	No	-
B-68c(w)	G&G 4c	0.5	480	160	Yes	0.5
		2	25	160	No	-

ATTACHMENT 1

Revised Table 4 of the RAP

Table 4

Additional Soil Sample Test Results: Volatile Organic Compounds & Fuel Fingerprint

511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Information					*Laboratory Analytical Results*						*Comments (& Co-Located Exceedences)*
					Fuel Fingerprint by EPA Method 6010B			*Volatile Organic Compounds (VOCs)* by EPA Method 8260B		*Semivolatile Organic Compounds (SVOCs)* by EPA 8270	
Sample Date	*UPDATED Sample ID*	*ORIGINAL Consultant ID*		*Depth*	*TPH as* **DIESEL**	*TPH as* **MOTOR OIL**	*TPH as* **Gasoline**	**Naphthalene**	**All other VOCs**		
October 2016 (sampled by Trinity Source Group)	**B-3(t)**	TB-3		0.5	< 30	3,500	< 120	< 0.0050 (ND) (0.31 by 8270C)	--	**Napthalene = 0.31** **Indeno (1,2,3-c,d) pyrene = 0.21** All Others = Trace Detections (3)	
				1.5	< 12	1,800	**220**	**0.036** (1.5 by 8270c)	--	**Napthalene = 1.5** All Others = Trace Detections (3)	Co-located Lead Exceedance
	B-8(t)	TB-8		0.5	< 120	**32,000**	< 500	0.013 (0.22 by 8270c)	--	**Napthalene = 0.22** All Others = Trace Detections (3)	
	B-9(t)	TB-9		0.5	--	--	--	--	--	**Napthalene = 0.067** **Benzo(a)pyrene = 0.12** Benzo(a)anthracene = 0.39 All Others = Trace Detections (3)	
	T-2(t)	Area 1	T6	3.5	< 1.2	85^	--	< 0.0050 (ND)	Freon 11 =.0019	Trace Detections (3)	
	T-3(t)		T9	2	94	240^	--	< 0.0050 (ND)	ND	Trace Detections (3)	
	T-4(t)		T10	1	< 1.2	32	--	< 0.0050 (ND)	ND	Trace Detections (3)	
	T-6(t)		T12	1	< 1.2	250^	--	< 0.0050 (ND)	ND	Trace Detections (3)	
	T-7(t)	Area 2	T6	1	< 1.2	< 6.5	--	< 0.0050 (ND)	ND	Trace Detections (3)	
	T-8(t)		T12	2	< 2.4	400	--	< 0.0050 (ND)	ND	Trace Detections (3)	
	T-9(t)		T15	2	< 2.4	510	--	< 0.0050 (ND)	ND	Trace Detections (3)	
	T-11(t)	Area 5	T1	6	< 6	680	--	< 0.0050 (ND)	ND	Trace Detections (3)	
	T-12(t)		T3	2	< 2.4	800	--	< 0.0050 (ND)	ND	**Napthalene = 0.043** All Others = Trace Detections (3)	Co-located Lead Exceedance
	T-14(t)		T10	4	< 1.2	18^	--	< 0.0050 (ND)	ND	Trace Detections (3)	
	T-15(t)	Area 6	T1	2	< 24	2,000	--	< 0.0050 (ND)	ND	Trace Detections (3)	
	T-16(t)		T1*	8	< 950	**97,000**	--	< 0.0050 (ND)	ND	**Napthalene = 0.28** All Others = Trace Detections (3)	Co-located Lead Exceedance
	T-17(t)	Area 8	T1	2	< 2.3	51^	--	< 0.0050 (ND)	ND	Trace Detections (3)	
	T-18(t)		Debris	--	< 24	1,600	--	< 0.0050 (ND)	ND	**Napthalene = 0.067** All Others = Trace Detections (3)	Co-located Lead & Arsenic Exceedance
Environmental Screening Levels (1) Residential					**230**	**5,100**	**100**	**0.033 (leaching)** **3.3 (human health)**	**Freon 11** = Not Established	**Napthalene =** **0.033 (leaching) & 3.3 (human health)** **Benzo(a)pyrene =** **0.016** **Benzo(a)anthracene = 1.6**	
US EPA RLs / DTSC-Modified SLs					**Not Established**			**3.8 / Not established**	**Freon 11** = 23,000 / 1,200	**Napthalene =** 0.067 / Not established **Benzo(a)pyrene =** 0.11 / Not established **Benzo(a)anthracene =** 1.1 / Not established	

Table 4

Additional Soil Sample Test Results: Volatile Organic Compounds & Fuel Fingerprint

511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Information				*Laboratory Analytical Results*						*Comments (& Co-Located Exceedences)*
				Fuel Fingerprint by EPA Method 6010B			*Volatile Organic Compounds (VOCs)* by EPA Method 8260B		*Semivolatile Organic Compounds (SVOCs)* by EPA 8270	
Sample Date	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	*TPH as DIESEL*	*TPH as MOTOR OIL*	*TPH as Gasoline*	*Naphthalene*	*All other VOCs*		
June 2016 (Sampled by Weber Hayes and Associates)	**B-10(w)**	SB-1	0.5	180*[J]	2,400	--	--	--	--	
			2	< 1.2	22	--	--	--	--	
	B-11(w)	SB-2	0.5	**670***	**5,500**	--	--	--	--	Co-located Lead Exceedance
			2	4.8*[J]	39	--	< 0.0050	ND	--	
	B-12(w)	SB-3	0.5	8.3*[J]	80	--	--	--	--	
			2	< 1.2	29	--	--	--	--	
	B-13(w)	SB-4	0.5	3.5*[J]	45	--	--	--	--	
			2	6.2*[J]	38	--	--	--	--	
	B-14(w)	SB-5	0.5	60*^	820^	--	--	--	--	
			2	8.9*[J]	63	--	--	--	--	
	B-15(w)	SB-6	0.5	15*	170	--	--	--	--	
			2	< 1.2	< 6.5	--	--	--	--	
	B-16(w)	SB-7	0.5	6.5*[J]	63	--	--	--	--	
			2	< 1.2	< 6.5	--	--	--	--	
	B-17(w)	SB-8	0.5	53*^	750^	--	--	--	--	
			2	4.9*[J]	51	--	--	--	--	
	B-18(w)	SB-9	0.5	110*[J]	1,300	--	--	--	--	
			2	10*	98	--	--	--	--	
	B-19(w)	SB-10	0.5	7.1*[J]	48	--	--	--	--	
			2	< 1.2	< 6.5	--	--	--	--	
	B-20(w)	SB-11	0.5	12*	150	--	--	--	--	
			2	< 1.2	21	--	--	--	--	
	B-21(w)	SB-12	0.5	33^[J]	380^	--	--	--	--	
			2	18*	78	--	--	--	--	
	B-22(w)	SB-13	0.5	7.1*[J]	64	--	--	--	--	
			2	< 1.2	19*[J]	--	--	--	--	
	B-23(w)	SB-14	0.5	150*[J]	1,600	--	--	--	--	
			2	< 1.2	< 6.5	--	--	--	--	
Environmental Screening Levels [(1)] Residential				**230**	**5,100**	**100**				
US EPA RLs / DTSC-Modified SLs				**Not Established**						

Table 4

Additional Soil Sample Test Results: Volatile Organic Compounds & Fuel Fingerprint

511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Information				*Laboratory Analytical Results*						*Comments (& Co-Located Exceedences)*
				Fuel Fingerprint by EPA Method 6010B			*Volatile Organic Compounds (VOCs)* by EPA Method 8260B		*Semivolatile Organic Compounds (SVOCs)* by EPA 8270	
Sample Date	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	TPH as **DIESEL**	TPH as **MOTOR OIL**	TPH as **Gasoline**	*Naphthalene*	*All other VOCs*		
Ju ne 20	**B-24(w)**	SB-15	0.5	10*	140	--	--	--	--	
			2	< 1.2	28	--	--	--	--	
	B-25(w)	DP-1	2	< 1.2	< 6.5	--	--	--	--	
	B-26(w)	DP-2	2	< 1.2	< 6.5	--	--	--	--	
	B-27(w)	DP-4	2	5.2^^{J}	14^^{J}	--	0.023	sec-Butylbenzene = 0.0017^{J} n-Propylbenzene = 0.0038^{J} 1,2,4-Trimethylbenzene = 0.025 1,3,5-Trimethylbenzene = 0.065	--	
			4	--	--	--	< 0.0050	sec-Butylbenzene = 0.0017^{J} n-Propylbenzene = 0.0038^{J} 1,2,4-Trimethylbenzene = 0.025 1,3,5-Trimethylbenzene = 0.065	--	
	B-28(w)	DP-5	2	< 1.2	< 6.5	--	--	--	--	
	B-29(w)	DP-6	2	5.6^^{J}	23^	--	< 0.0050	ND	--	
	B-30(w)	DP-7	2	7.3^^{J}	42^	--	--	--	--	
	B-31(w)	DP-8	2	5.8^^{J}	33^	--	--	--	--	
	B-32(w)	DP-9	2	43^	180^	--	--	--	--	
August 2004 (Sampled by Lowney Associates)	**B-52(L)**	G + G -1	2	< 1	< 50	--	--	--	--	
			4	< 1	< 50	--	--	--	--	
			6	160	1,200	--	--	--	--	
	B-55(L)	G + G -4	2	1.7	< 50	--	--	--	--	
			3	< 1	< 50	--	--	--	--	
December 2003 (Sampled by Weber Hayes and Associates)	**B-65(w)**	G&G# - 1a,1b,1c	0.5	68*	310	< 2.5	--	ND	--	
			2	< 1	< 13	< 2.5	--	ND	--	
	B-66(w)	G&G (2a,2b,2c)	0.5	25*	170	< 2.5	--	ND	--	
			2	110*	360	< 2.5	--	ND	--	
	B-66a(w)	G&G 2a	2	19*	78	---	--	---	--	
	B-66b(w)	G&G 2b	2	11*	33	---	--	---	--	
			4	3.6*	< 13	---	--	---	--	
	B-66c(w)	G&G 2c	2	21*	86	---	--	---	--	
Environmental Screening Levels [(1)] **Residential**				**230**	**5,100**	**100**	**0.033 (leaching)** **3.3 (human health)**	**sec-Butylbenzene = NE** **n-Propylbenzene = NE** **1,2,4-Trimethylbenzene = NE** **1,3,5-Trimethylbenzene = NE**	**Varies**	
US EPA RLs / DTSC-Modified SLs				**Not Established**			**3.8 / Not established**	**sec-Butylbenzene = 7,800 / NE** **n-Propylbenzene = 58/NE** **1,2,4-Trimethylbenzene = 58 /NE** **1,3,5-Trimethylbenzene = 780 /210**	**Varies**	

Table 4

Additional Soil Sample Test Results: Volatile Organic Compounds & Fuel Fingerprint

511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Information				Laboratory Analytical Results						Comments (& Co-Located Exceedences)
				Fuel Fingerprint by EPA Method 6010B			Volatile Organic Compounds (VOCs) by EPA Method 8260B		Semivolatile Organic Compounds (SVOCs) by EPA 8270	
Sample Date	UPDATED Sample ID	ORIGINAL Consultant ID	Depth	TPH as DIESEL	TPH as MOTOR OIL	TPH as Gasoline	Naphthalene	All other VOCs		
December 2003 (Sampled by Weber Hayes and Associates)	B-67(w)	G&G (#3a,3b,3c)	0.5	60*	700	< 2.5	--	ND	--	
			2	< 1	< 13	< 2.5	--	ND	--	
	B-68(w)	G&G (#4a,4b,4c)	0.5	**620***	3,300	8.6*	--	**Toluene= 0.085** **Ethylbenzene= 0.12** **Xylene= 0.82**	--	Co-located with Lead Exceedance
			2	< 1	< 13	< 2.5	--	ND	--	
	B-69(w)	G&G (#5a,5b,5c)	0.5	< 1	< 13	---	--	---	--	
			2	< 1	< 13	---	--	---	--	
	B-70(w)	G&G (Discrete #1)	0.5	110*	510	< 2.5	--	ND	--	
			2	130*	980	< 2.5	--	ND	--	
			4	1.5*	< 13	---	--	---	--	
	B-71(w)	EB-1	20	< 1	< 13	---	--	---	--	
			40	1.1	< 13	---	--	---	--	
	B-72(w)	Gonzalez (# 1a, 1b, 1c)	0.5	6.1*	30	---	--	---	--	
			2	1.6*	< 13	---	--	---	--	
	B-73(w)	Gonzalez (#2a, 2b, 2c)	0.5	8.8*	58	< 2.5	--	ND	--	
			2	1.6*	< 13	< 2.5	--	ND	--	
	B-74(w)	Clusters (#1a,1b,1c)	0.5	< 1	< 13	---	--	---	--	
			2	6.4*	31	---	--	---	--	
	B-75(w)	Clusters (# 2a,2b,2c)	0.5	3.2*	16	---	--	---	--	
			2	< 1	< 13	---	--	---	--	
	B-76(w)	Clusters (#3a,3b,3c)	0.5	5.6*	57	---	--	---	--	
			2	4.0*	39	---	--	---	--	
	B-77(w)	Chaz (#1a,1b,1c)		31*	250	---	--	---	--	
			2	4.5*	35	---	--	---	--	
	B-78(w)	Chaz (#2a,2b,2c)	0.5	15*	130	---	--	---	--	
			2	5.3*	48	---	--	---	--	
Environmental Screening Levels [1] **Residential**				**230**	**5,100**	**100**	**0.033 (leaching)** **3.3 (human health)**	**Toluene= 2.9 (leaching)/970 (human health)** **Ethylbenzene= 1.4 (leaching)/5.1 (human health)** **Xylene=.= 2.3 (leaching)/5.6 (human health)**	Varies	
US EPA RLs / DTSC-Modified SLs				**Not Established**			**3.8 /Not established**	**Toluene = 4,900 / 1,100** **n-Ethylbenzene = 5.8/not established** **Xylenes = 580 /not established**	Varies	

Table 4

Additional Soil Sample Test Results: Volatile Organic Compounds & Fuel Fingerprint

511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Information				*Laboratory Analytical Results*						*Comments (& Co-Located Exceedences)*
				Fuel Fingerprint by EPA Method 6010B			*Volatile Organic Compounds (VOCs)* by EPA Method 8260B		*Semivolatile Organic Compounds (SVOCs)* by EPA 8270	
Sample Date	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	*TPH as DIESEL*	*TPH as MOTOR OIL*	*TPH as Gasoline*	*Naphthalene*	*All other VOCs*		
December 2003 (Sampled by Weber Hayes and Associates)	**B-79(w)**	Gerrys (1a,1b,1c)	0.5	45*	200	< 2.5	--	ND	--	
			2	12*	57	< 2.5	--	ND	--	
	B-80(w)	Gerrys (#2a,2b,2c)	0.5	< 1	< 13	< 2.5	--	ND	--	
			2	62*	200	< 2.5	--	ND	--	
	B-80a(w)	Gerrys 2a	2	< 1	< 13	---	--	---	--	
	B-80b(w)	Gerrys 2b	2	190*	600	---	--	---	--	
			4	2.0*	< 13	---	--	---	--	
	B-80c(w)	Gerrys 2c	2	3.2*	16	---	--	---	--	
	B-81(w)	Gerrys (#3a,3b,3c)	0.5	170*	670	---	--	---	--	
			2	< 1	< 13	---	--	---	--	
	B-82(w)	Gerrys (#4a,4b,4c)	0.5	33*	130	---	--	---	--	
			2	< 1	< 13	---	--	---	--	
	B-83(w)	Gerrys (Discrete)	0.5	1.7*	< 13	< 2.5	--	ND	--	
			2	110	390	8.9	--	**Toluene= 0.51 Ethylbenzene= 0.19 Xylene= 0.99**	--	
			4	4.5*	< 13	---	--	---	--	
	B-85(w)	JV (1a,1b,1c)	0.5	8.6*	< 13	---	--	---	--	
			2	2.1*	< 13	---	--	---	--	
	B-86(w)	Residence (1a,1b,1c)	0.5	12*	56	---	--	---	--	
			2	34*	140	---	--	---	--	
	B-87(w)	Residence (#1, discrete)	0.5	14*	22*	< 2.5	--	ND	--	
			2	**500***	1,400*	< 2.5	--	ND	--	
			4	1.5*[6]	< 13	---	--	---	--	
	B-88(w)	Bay City (#1a,1b,1c)	0.5	6.3*	33	---	--	---	--	
			2	1.5*	15	---	--	---	--	
	B-89(w)	Bay City (2a,2b,2c)	0.5	8.9*	54	---	--	---	--	
			2	9.4*	64	---	--	---	--	
RWQCB Environmental Screening Levels [1] **(Residential Land Use)**				**230**	**5,100**	**100**	**0.033 (leaching) 3.3 (human health)**	**Toluene= 2.9 (leaching)/970 (human health) Ethylbenzene= 1.4 (leaching)/5.1 (human health) Xylene=.= 2.3 (leaching)/5.6 (human health)**	**Varies**	
US EPA RLs / DTSC-Modified SLs [2] **(Residential Land Use)**				**Not Established**			**3.8 /Not established**	**Toluene = 4,900 / 1,100 n-Ethylbenzene = 5.8/not established Xylenes = 580 /not established**	**Varies**	

Table 4

Additional Soil Sample Test Results: Volatile Organic Compounds & Fuel Fingerprint

511 Ohlone Parkway, Watsonville

Notes

1 = **E<u>nvironmental Screening Levels</u> (ESLs): F**rom the Regional Water Quality Control Board (San Francisco Bay Region) guideline document: *Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater* (Final version, 2016). The ESLs are agency-stablished threshold concentrations intended to provide quantitative risk-based guidance on whether further assessment or remediation of contamination is warranted based on risk pathways (protection of human heath, groundwater and/or ecological
<http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/ESL/ESL%20Workbook_ESLs_Interim%20Final_22Feb16_Rev3_PDF.pdf >

2 = **CA DTSC Modified Soil Screening Levels (DTSC-SLs):** These are human health, risk-based values established by the California Department of Toxic Substances Control (DTSC), Office of Human and Ecological Risk (HERO), Human Health Risk Assessment (HHRA) Note Number 3, Table 1 , Jan-2016. <http://www.dtsc.ca.gov/AssessingRisk/upload/HHRA-Note-3-January-2018.pdf >. Note that for those chemicals not posted on the Note 3 website, DTSC-HERO endorses the soil thesholds established on the USEPAs *<u>Regional Screening Levels</u>* (USEPA-RSLs) website: (http://www.epa.gov/region9/superfund/prg/, updated May 2018). Both thresholds are listed for transparancy, but generally speaking, California uses a more conservative toxicity evaluation for a select number of urban chemicals. This assessment uses the lowest (most conservative theshold as a cleanup goal).

3 = Trace concentrations of semi-volatile compounds detected, but all well below agency threshold. See Appendix A for sampling results. Semi-Volatile compounds detected(at treace levels) included : (Anthracene, Benzo(a)anthracene, Benzo(b)flouranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Benzo(g,h,l,)perylene, Chrysene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, Pyrene)

**= Note individual metals having DTSC-modified SL are identified by ** (All others are based on USEPA RSL's)
ND = Analyte not detected above the laboratory Method Detection Limit (MDL).
-- = Sample was not analyzed for this constituent
B = The same analyte is found in the associated blank.
J = Laboratory reports that the detection value is between MDL and PQL, and should be considered an
^ = Detection and Quantitation Limits are raised due to sample dilution
* = Chromatograph is not typical of Diesel/Motor Oil
BOLD = Analytical result above Residential ESL.
BOLD = Indicates deepest sample has exceedence (Confirmation sample required at this location)

Freon 11 = Trichlorofluoromethane

Exhibit B

Weber, Hayes and Associates

ATTACHMENT 2

ProUCL Output

UCL Statistics for Uncensored Full Data Sets				
User Selected Options				
Date/Time of Computation	ProUCL 5.14/18/2018 1:36:42 PM			
From File	WorkSheet.xls			
Full Precision	OFF			
Confidence Coefficient	95%			
Number of Bootstrap Operations	2000			
TPH-d				
General Statistics				
Total Number of Observations	119		Number of Distinct Observations	67
			Number of Missing Observations	0
Minimum	1		Mean	45.52
Maximum	950		Median	5.8
SD	130.4		Std. Error of Mean	11.95
Coefficient of Variation	2.865		Skewness	4.948
Normal GOF Test				
Shapiro Wilk Test Statistic	0.385	Shapiro Wilk GOF Test		
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level		
Lilliefors Test Statistic	0.366	Lilliefors GOF Test		
5% Lilliefors Critical Value	0.0816	Data Not Normal at 5% Significance Level		
Data Not Normal at 5% Significance Level				
Assuming Normal Distribution				
95% Normal UCL		95% UCLs (Adjusted for Skewness)		
95% Student's-t UCL	65.34		95% Adjusted-CLT UCL (Chen-1995)	70.98
			95% Modified-t UCL (Johnson-1978)	66.24
Gamma GOF Test				
A-D Test Statistic	9.386	Anderson-Darling Gamma GOF Test		
5% A-D Critical Value	0.852	Data Not Gamma Distributed at 5% Significance Level		
K-S Test Statistic	0.222	Kolmogorov-Smirnov Gamma GOF Test		
5% K-S Critical Value	0.091	Data Not Gamma Distributed at 5% Significance Level		
Data Not Gamma Distributed at 5% Significance Level				
Gamma Statistics				
k hat (MLE)	0.364		k star (bias corrected MLE)	0.36
Theta hat (MLE)	125.1		Theta star (bias corrected MLE)	126.4
nu hat (MLE)	86.57		nu star (bias corrected)	85.72
MLE Mean (bias corrected)	45.52		MLE Sd (bias corrected)	75.85
			Approximate Chi Square Value (0.05)	65.38
Adjusted Level of Significance	0.048		Adjusted Chi Square Value	65.16
Assuming Gamma Distribution				
95% Approximate Gamma UCL (use when n>=50))	59.68		95% Adjusted Gamma UCL (use when n<50)	59.88

	A	B	C	D	E	F	G	H	I	J	K	L
51	**Lognormal GOF Test**											
52					Shapiro Wilk Test Statistic	0.886	**Shapiro Wilk Lognormal GOF Test**					
53					5% Shapiro Wilk P Value	3.320E-13	Data Not Lognormal at 5% Significance Level					
54					Lilliefors Test Statistic	0.135	**Lilliefors Lognormal GOF Test**					
55					5% Lilliefors Critical Value	0.0816	Data Not Lognormal at 5% Significance Level					
56	**Data Not Lognormal at 5% Significance Level**											
57												
58	**Lognormal Statistics**											
59					Minimum of Logged Data	0					Mean of logged Data	1.981
60					Maximum of Logged Data	6.856					SD of logged Data	1.795
61												
62	**Assuming Lognormal Distribution**											
63					95% H-UCL	60.52					90% Chebyshev (MVUE) UCL	61.42
64					95% Chebyshev (MVUE) UCL	73.33					97.5% Chebyshev (MVUE) UCL	89.87
65					99% Chebyshev (MVUE) UCL	122.3						
66												
67	**Nonparametric Distribution Free UCL Statistics**											
68	**Data do not follow a Discernible Distribution (0.05)**											
69												
70	**Nonparametric Distribution Free UCLs**											
71					95% CLT UCL	65.18					95% Jackknife UCL	65.34
72					95% Standard Bootstrap UCL	65.26					95% Bootstrap-t UCL	76.39
73					95% Hall's Bootstrap UCL	70.56					95% Percentile Bootstrap UCL	67.16
74					95% BCA Bootstrap UCL	73.23						
75					90% Chebyshev(Mean, Sd) UCL	81.38					95% Chebyshev(Mean, Sd) UCL	97.62
76					97.5% Chebyshev(Mean, Sd) UCL	120.2					99% Chebyshev(Mean, Sd) UCL	164.5
77												
78	**Suggested UCL to Use**											
79					95% Chebyshev (Mean, Sd) UCL	97.62						
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	Recommendations are based upon data size, data distribution, and skewness.											
83	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
84	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
85												
86												

	A	B	C	D	E	F	G	H	I	J	K	L
87	TPH-mo											
88												
89	General Statistics											
90	Total Number of Observations					119	Number of Distinct Observations					69
91							Number of Missing Observations					0
92	Minimum					6.5	Mean					1414
93	Maximum					97000	Median					50
94	SD					9333	Std. Error of Mean					855.5
95	Coefficient of Variation					6.6	Skewness					9.562
96												
97	Normal GOF Test											
98	Shapiro Wilk Test Statistic					0.158	Shapiro Wilk GOF Test					
99	5% Shapiro Wilk P Value					0	Data Not Normal at 5% Significance Level					
100	Lilliefors Test Statistic					0.44	Lilliefors GOF Test					
101	5% Lilliefors Critical Value					0.0816	Data Not Normal at 5% Significance Level					
102	Data Not Normal at 5% Significance Level											
103												
104	Assuming Normal Distribution											
105	95% Normal UCL						95% UCLs (Adjusted for Skewness)					
106	95% Student's-t UCL					2832	95% Adjusted-CLT UCL (Chen-1995)					3623
107							95% Modified-t UCL (Johnson-1978)					2957
108												
109	Gamma GOF Test											
110	A-D Test Statistic					16.46	Anderson-Darling Gamma GOF Test					
111	5% A-D Critical Value					0.896	Data Not Gamma Distributed at 5% Significance Level					
112	K-S Test Statistic					0.258	Kolmogorov-Smirnov Gamma GOF Test					
113	5% K-S Critical Value					0.093	Data Not Gamma Distributed at 5% Significance Level					
114	Data Not Gamma Distributed at 5% Significance Level											
115												
116	Gamma Statistics											
117	k hat (MLE)					0.244	k star (bias corrected MLE)					0.243
118	Theta hat (MLE)					5800	Theta star (bias corrected MLE)					5813
119	nu hat (MLE)					58.03	nu star (bias corrected)					57.9
120	MLE Mean (bias corrected)					1414	MLE Sd (bias corrected)					2867
121							Approximate Chi Square Value (0.05)					41.4
122	Adjusted Level of Significance					0.048	Adjusted Chi Square Value					41.23
123												
124	Assuming Gamma Distribution											
125	95% Approximate Gamma UCL (use when n>=50))					1977	95% Adjusted Gamma UCL (use when n<50)					1985
126												
127	Lognormal GOF Test											
128	Shapiro Wilk Test Statistic					0.902	Shapiro Wilk Lognormal GOF Test					
129	5% Shapiro Wilk P Value					9.886E-11	Data Not Lognormal at 5% Significance Level					
130	Lilliefors Test Statistic					0.14	Lilliefors Lognormal GOF Test					
131	5% Lilliefors Critical Value					0.0816	Data Not Lognormal at 5% Significance Level					
132	Data Not Lognormal at 5% Significance Level											
133												
134	Lognormal Statistics											
135	Minimum of Logged Data					1.872	Mean of logged Data					4.329
136	Maximum of Logged Data					11.48	SD of logged Data					1.916
137												

	A–E	F	G–K	L
138	**Assuming Lognormal Distribution**			
139	95% H-UCL	841.2	90% Chebyshev (MVUE) UCL	832.2
140	95% Chebyshev (MVUE) UCL	1003	97.5% Chebyshev (MVUE) UCL	1239
141	99% Chebyshev (MVUE) UCL	1704		
142				
143	**Nonparametric Distribution Free UCL Statistics**			
144	**Data do not follow a Discernible Distribution (0.05)**			
145				
146	**Nonparametric Distribution Free UCLs**			
147	95% CLT UCL	2821	95% Jackknife UCL	2832
148	95% Standard Bootstrap UCL	2792	95% Bootstrap-t UCL	15124
149	95% Hall's Bootstrap UCL	9323	95% Percentile Bootstrap UCL	3042
150	95% BCA Bootstrap UCL	4315		
151	90% Chebyshev(Mean, Sd) UCL	3981	95% Chebyshev(Mean, Sd) UCL	5143
152	97.5% Chebyshev(Mean, Sd) UCL	6757	99% Chebyshev(Mean, Sd) UCL	9927
153				
154	**Suggested UCL to Use**			
155	95% Chebyshev (Mean, Sd) UCL	5143		
156				
157	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
158	Recommendations are based upon data size, data distribution, and skewness.			
159	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
160	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
161				
162				

	A	B	C	D	E	F	G	H	I	J	K	L
163	Pb											
164												
165	General Statistics											
166	Total Number of Observations					201	Number of Distinct Observations					102
167							Number of Missing Observations					0
168	Minimum					1	Mean					82.04
169	Maximum					5400	Median					16
170	SD					447.9	Std. Error of Mean					31.59
171	Coefficient of Variation					5.459	Skewness					10.22
172												
173	Normal GOF Test											
174	Shapiro Wilk Test Statistic					0.168	Shapiro Wilk GOF Test					
175	5% Shapiro Wilk P Value					0	Data Not Normal at 5% Significance Level					
176	Lilliefors Test Statistic					0.428	Lilliefors GOF Test					
177	5% Lilliefors Critical Value					0.0629	Data Not Normal at 5% Significance Level					
178	Data Not Normal at 5% Significance Level											
179												
180	Assuming Normal Distribution											
181	95% Normal UCL						95% UCLs (Adjusted for Skewness)					
182	95% Student's-t UCL					134.2	95% Adjusted-CLT UCL (Chen-1995)					158.3
183							95% Modified-t UCL (Johnson-1978)					138
184												
185	Gamma GOF Test											
186	A-D Test Statistic					27.11	Anderson-Darling Gamma GOF Test					
187	5% A-D Critical Value					0.831	Data Not Gamma Distributed at 5% Significance Level					
188	K-S Test Statistic					0.262	Kolmogorov-Smirnov Gamma GOF Test					
189	5% K-S Critical Value					0.0676	Data Not Gamma Distributed at 5% Significance Level					
190	Data Not Gamma Distributed at 5% Significance Level											
191												
192	Gamma Statistics											
193	k hat (MLE)					0.456	k star (bias corrected MLE)					0.453
194	Theta hat (MLE)					179.8	Theta star (bias corrected MLE)					181.2
195	nu hat (MLE)					183.4	nu star (bias corrected)					182
196	MLE Mean (bias corrected)					82.04	MLE Sd (bias corrected)					121.9
197							Approximate Chi Square Value (0.05)					151.8
198	Adjusted Level of Significance					0.0488	Adjusted Chi Square Value					151.6
199												
200	Assuming Gamma Distribution											
201	95% Approximate Gamma UCL (use when n>=50))					98.36	95% Adjusted Gamma UCL (use when n<50)					98.49
202												
203	Lognormal GOF Test											
204	Shapiro Wilk Test Statistic					0.897	Shapiro Wilk Lognormal GOF Test					
205	5% Shapiro Wilk P Value					0	Data Not Lognormal at 5% Significance Level					
206	Lilliefors Test Statistic					0.128	Lilliefors Lognormal GOF Test					
207	5% Lilliefors Critical Value					0.0629	Data Not Lognormal at 5% Significance Level					
208	Data Not Lognormal at 5% Significance Level											
209												
210	Lognormal Statistics											
211	Minimum of Logged Data					0	Mean of logged Data					2.995
212	Maximum of Logged Data					8.594	SD of logged Data					1.162
213												

	A	B	C	D	E	F	G	H	I	J	K	L
214	**Assuming Lognormal Distribution**											
215					95% H-UCL	47.36					90% Chebyshev (MVUE) UCL	51.29
216					95% Chebyshev (MVUE) UCL	56.83					97.5% Chebyshev (MVUE) UCL	64.53
217					99% Chebyshev (MVUE) UCL	79.65						
218												
219	**Nonparametric Distribution Free UCL Statistics**											
220	**Data do not follow a Discernible Distribution (0.05)**											
221												
222	**Nonparametric Distribution Free UCLs**											
223					95% CLT UCL	134					95% Jackknife UCL	134.2
224					95% Standard Bootstrap UCL	133.7					95% Bootstrap-t UCL	336.7
225					95% Hall's Bootstrap UCL	318					95% Percentile Bootstrap UCL	135.7
226					95% BCA Bootstrap UCL	174.5						
227					90% Chebyshev(Mean, Sd) UCL	176.8					95% Chebyshev(Mean, Sd) UCL	219.7
228					97.5% Chebyshev(Mean, Sd) UCL	279.3					99% Chebyshev(Mean, Sd) UCL	396.4
229												
230	**Suggested UCL to Use**											
231					95% Chebyshev (Mean, Sd) UCL	219.7						
232												
233	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
234	Recommendations are based upon data size, data distribution, and skewness.											
235	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
236	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											

Feb. 2016 (Rev. 3)

Summary of Soil ESLs (mg/kg)

Chemicals	CAS No.	Direct Exposure Human Health Risk Levels (Table S-1)			Leaching to Groundwater Levels (Table S-2)		Gross Contamination Levels (Table S-3)	Odor Nuisance Levels (Table S-4)			Soil Tier 1 ESL	Basis
		Res: Shallow Soil Exposure	Com/Ind: Shallow Soil Exposure	Any Land Use/ Any Depth Soil Expsoure: Construction Worker	Drinking Water	Nondrinking Water		Res: Shallow Soil Exposure	Com/Ind: Shallow Soil Exposure	Any Land Use: Deep Soil Exposure (CW)		
Acenaphthene	83-32-9	3.6E+03	4.5E+04	1.0E+04	1.6E+01	1.9E+01	1.3E+02	1.0E+03	2.5E+03	2.5E+03	1.6E+01	Leaching
Acenaphthylene	208-96-8	--	--	--	1.3E+01	1.3E+01	5.9E+01	5.0E+02	1.0E+03	1.0E+03	1.3E+01	Leaching
Acetone	67-64-1	5.9E+04	6.3E+05	2.6E+05	5.0E-01	5.0E-01	1.0E+05	5.0E+02	1.0E+03	1.0E+03	5.0E-01	Leaching
Aldrin	309-00-2	3.6E-02	1.6E-01	1.0E+00	5.0E+00	5.0E+00	5.0E+00	1.0E+03	2.5E+03	2.5E+03	3.6E-02	Dir Exp
Anthracene	120-12-7	1.8E+04	2.3E+05	5.0E+04	2.8E+00	2.8E+00	6.1E+00	5.0E+02	1.0E+03	1.0E+03	2.8E+00	Leaching
Antimony	7440-36-0	3.1E+01	4.7E+02	1.4E+02	--	--	--	--	--	--	3.1E+01	Dir Exp
Arsenic	7440-38-2	6.7E-02	3.1E-01	9.8E-01	--	--	--	--	--	--	6.7E-02	Dir Exp
Barium	7440-39-3	1.5E+04	2.2E+05	3.0E+03	--	--	--	--	--	--	3.0E+03	Dir Exp
Benzene	71-43-2	2.3E-01	1.0E+00	2.4E+01	4.4E-02	4.9E-02	8.7E+02	5.0E+02	1.0E+03	1.0E+03	4.4E-02	Leaching
Benz(a)anthracene	56-55-3	1.6E-01	2.9E+00	1.6E+01	1.2E+01	1.2E+01	1.2E+01	5.0E+02	1.0E+03	1.0E+03	1.6E-01	Dir Exp
Benzo(b)fluoranthene	205-99-2	1.6E-01	2.9E+00	1.6E+01	4.6E+01	6.4E+02	4.6E+01	5.0E+02	1.0E+03	1.0E+03	1.6E-01	Dir Exp
Benzo(k)fluoranthene	207-08-9	1.6E+00	2.9E+01	1.5E+02	2.6E+00	3.7E+01	2.6E+00	5.0E+02	1.0E+03	1.0E+03	1.6E+00	Dir Exp
Benzo(g,h,i)perylene	191-24-2	--	--	--	2.7E+01	2.7E+01	2.5E+00	5.0E+02	1.0E+03	1.0E+03	2.5E+00	Gross Contam
Benzo(a)pyrene	50-32-8	1.6E-02	2.9E-01	1.6E+00	1.3E+02	1.3E+02	1.3E+02	5.0E+02	1.0E+03	1.0E+03	1.6E-02	Dir Exp
Beryllium	7440-41-7	1.5E+02	2.2E+03	4.2E+01	--	--	--	--	--	--	4.2E+01	Dir Exp
1,1-Biphenyl	92-52-4	6.4E+01	2.7E+02	2.4E+02	6.5E-01	6.5E+00	3.5E+02	5.0E+02	1.0E+03	1.0E+03	6.5E-01	Leaching
Bis(2-chloroethyl) ether	111-44-4	1.2E-01	5.3E-01	6.8E+00	8.0E-05	7.8E-01	9.6E+03	5.0E+02	1.0E+03	1.0E+03	8.0E-05	Leaching
Bis(2-chloroisopropyl) ether	108-60-1	3.6E+00	1.6E+01	2.2E+02	3.9E-03	6.6E-01	7.9E+02	5.0E+02	1.0E+03	1.0E+03	3.9E-03	Leaching
Bis(2-ethylhexyl) phthalate	117-81-7	3.9E+01	1.6E+02	9.5E+02	7.8E+02	7.8E+02	7.8E+02	5.0E+02	1.0E+03	1.0E+03	3.9E+01	Dir Exp
Boron	7440-42-8	1.6E+04	2.3E+05	4.5E+04	--	--	--	--	--	--	1.6E+04	Dir Exp
Bromodichloromethane	75-27-4	5.2E-01	2.3E+00	4.7E+01	1.5E+00	2.1E+01	3.0E+03	1.0E+03	2.5E+03	2.5E+03	5.2E-01	Dir Exp
Bromoform (Tribromomethane)	75-25-2	6.3E+01	3.0E+02	2.2E+03	1.7E+00	2.4E+01	2.4E+03	5.0E+02	1.0E+03	1.0E+03	1.7E+00	Leaching
Bromomethane	74-83-9	8.0E+00	3.6E+01	3.4E+01	3.0E-01	1.5E+00	3.1E+03	5.0E+02	1.0E+03	1.0E+03	3.0E-01	Leaching
Cadmium (soil)	7440-43-9	3.9E+01	5.8E+02	4.3E+01	--	--	--	--	--	--	3.9E+01	Dir Exp
Carbon tetrachloride	56-23-5	1.2E-01	5.4E-01	1.3E+01	4.8E-02	4.8E-02	1.1E+03	5.0E+02	1.0E+03	1.0E+03	4.8E-02	Leaching
Chlordane	57-74-9	4.8E-01	2.2E+00	1.4E+01	1.5E+01	1.5E+01	1.5E+01	1.0E+03	2.5E+03	2.5E+03	4.8E-01	Dir Exp
p-Chloroaniline	106-47-8	3.5E+00	1.6E+01	1.2E+02	3.9E-03	5.3E-02	1.3E+03	5.0E+02	1.0E+03	1.0E+03	3.9E-03	Leaching
Chlorobenzene	108-90-7	2.5E+02	1.2E+03	1.1E+03	1.5E+00	1.5E+00	6.8E+02	5.0E+02	1.0E+03	1.0E+03	1.5E+00	Leaching
Chloroethane	75-00-3	1.3E+04	5.3E+04	5.3E+04	1.1E+00	1.1E+01	1.6E+03	5.0E+02	1.0E+03	1.0E+03	1.1E+00	Leaching
Chloroform	67-66-3	3.0E-01	1.3E+00	3.2E+01	6.8E-02	6.8E-02	2.9E+03	5.0E+02	1.0E+03	1.0E+03	6.8E-02	Leaching
Chloromethane	74-87-3	1.0E+02	4.3E+02	4.3E+02	2.9E+01	6.8E+01	4.1E+03	1.0E+02	5.0E+02	5.0E+02	2.9E+01	Leaching

Summary of Soil ESLs (mg/kg)

Chemicals	CAS No.	Direct Exposure Human Health Risk Levels (Table S-1): Res: Shallow Soil Exposure	Direct Exposure Human Health Risk Levels (Table S-1): Com/Ind: Shallow Soil Exposure	Direct Exposure Human Health Risk Levels (Table S-1): Any Land Use/ Any Depth Soil Expsoure: Construction Worker	Leaching to Groundwater Levels (Table S-2): Drinking Water	Leaching to Groundwater Levels (Table S-2): Nondrinking Water	Gross Contamination Levels (Table S-3)	Odor Nuisance Levels (Table S-4): Res: Shallow Soil Exposure	Odor Nuisance Levels (Table S-4): Com/Ind: Shallow Soil Exposure	Odor Nuisance Levels (Table S-4): Any Land Use: Deep Soil Exposure (CW)	Soil Tier 1 ESL	Basis
2-Chlorophenol	95-57-8	3.9E+02	5.8E+03	1.8E+03	1.2E-02	1.2E-01	5.5E+04	1.0E+02	5.0E+02	5.0E+02	1.2E-02	Leaching
Chromium (total)	7440-47-3	--	--	--	--	--	--	--	--	--	--	--
Chromium III	16065-83-1	1.2E+05	1.8E+06	5.3E+05	--	--	--	--	--	--	1.2E+05	Dir Exp
Chromium VI	18540-29-9	3.0E-01	6.2E+00	2.8E+00	--	--	--	--	--	--	3.0E-01	Dir Exp
Chrysene	218-01-9	1.5E+01	2.6E+02	1.5E+03	3.8E+00	2.3E+01	3.8E+00	5.0E+02	1.0E+03	1.0E+03	3.8E+00	Gross Contam
Cobalt	7440-48-4	2.3E+01	3.5E+02	2.8E+01	--	--	--	--	--	--	2.3E+01	Dir Exp
Copper	7440-50-8	3.1E+03	4.7E+04	1.4E+04	--	--	--	--	--	--	3.1E+03	Dir Exp
Cyanide	57-12-5	5.3E+00	2.4E+01	2.1E+01	3.6E-03	3.6E-03	2.0E+05	1.0E+02	5.0E+02	5.0E+02	3.6E-03	Leaching
Dibenz(a,h)anthracene	53-70-3	1.6E-02	2.9E-01	1.6E+00	9.9E+00	1.4E+02	9.9E+00	5.0E+02	1.0E+03	1.0E+03	1.6E-02	Dir Exp
Dibromochloromethane	124-48-1	8.3E+00	3.9E+01	2.9E+02	3.8E+00	9.1E+01	1.3E+04	1.0E+02	5.0E+02	5.0E+02	3.8E+00	Leaching
1,2-dibromo-3-chloropropane	96-12-8	5.3E-03	7.2E-02	1.3E+00	4.5E-03	2.2E+00	1.1E+03	5.0E+02	1.0E+03	1.0E+03	4.5E-03	Leaching
1,2-Dibromoethane	106-93-4	3.6E-02	1.6E-01	3.2E+00	3.3E-04	5.7E-03	9.2E+02	5.0E+02	1.0E+03	1.0E+03	3.3E-04	Leaching
1,2-Dichlorobenzene	95-50-1	2.0E+03	1.1E+04	8.5E+03	1.6E+00	1.6E+00	6.0E+02	1.0E+03	2.5E+03	2.5E+03	1.6E+00	Leaching
1,3-Dichlorobenzene	541-73-1	--	--	--	7.4E+00	7.4E+00	6.0E+02	1.0E+02	5.0E+02	5.0E+02	7.4E+00	Leaching
1,4-Dichlorobenzene	106-46-7	3.0E+00	1.3E+01	3.1E+02	5.9E-01	1.4E+00	2.8E+02	5.0E+02	1.0E+03	1.0E+03	5.9E-01	Leaching
3,3-Dichlorobenzidine	91-94-1	5.8E-01	2.7E+00	2.0E+01	1.2E-02	6.6E+01	3.0E+01	5.0E+02	1.0E+03	1.0E+03	1.2E-02	Leaching
Dichlorodiphenyldichloroethane (	72-54-8	2.7E+00	1.2E+01	8.1E+01	7.5E+02	7.5E+02	7.5E+02	5.0E+02	1.0E+03	1.0E+03	2.7E+00	Dir Exp
Dichlorodiphenyldichloroethene (	72-55-9	1.9E+00	8.5E+00	5.7E+01	1.1E+03	1.1E+03	1.1E+03	5.0E+02	1.0E+03	1.0E+03	1.9E+00	Dir Exp
Dichlorodiphenyltrichloroethane (	50-29-3	1.9E+00	8.5E+00	5.7E+01	4.3E+00	4.3E+00	4.3E+00	5.0E+02	1.0E+03	1.0E+03	1.9E+00	Dir Exp
1,1-Dichloroethane	75-34-3	3.8E+00	1.7E+01	3.9E+02	2.0E-01	8.1E-01	1.7E+03	5.0E+02	1.0E+03	1.0E+03	2.0E-01	Leaching
1,2-Dichloroethane	107-06-2	3.7E-01	1.6E+00	3.7E+01	4.5E-03	5.4E-02	1.8E+03	1.0E+02	5.0E+02	5.0E+02	4.5E-03	Leaching
1,1-Dichloroethene	75-35-4	9.4E+01	4.0E+02	3.9E+02	5.5E-01	4.3E+00	1.5E+03	5.0E+02	1.0E+03	1.0E+03	5.5E-01	Leaching
cis-1,2-Dichloroethene	156-59-2	1.9E+01	9.0E+01	8.2E+01	1.9E-01	3.5E+00	1.2E+03	1.0E+02	5.0E+02	5.0E+02	1.9E-01	Leaching
trans-1,2-Dichloroethene	156-60-5	1.6E+02	7.3E+02	6.8E+02	6.7E-01	3.9E+01	3.1E+03	5.0E+02	1.0E+03	1.0E+03	6.7E-01	Leaching
2,4-Dichlorophenol	120-83-2	2.3E+02	3.5E+03	1.1E+03	3.0E-01	3.0E+00	1.6E+05	5.0E+02	1.0E+03	1.0E+03	3.0E-01	Leaching
1,2-Dichloropropane	78-87-5	8.8E-01	3.9E+00	5.8E+01	1.2E-01	1.9E-01	1.1E+03	1.0E+02	5.0E+02	5.0E+02	1.2E-01	Leaching
1,3-Dichloropropene	542-75-6	2.8E-01	1.2E+00	2.9E+01	5.9E-02	4.4E-01	1.4E+03	5.0E+02	1.0E+03	1.0E+03	5.9E-02	Leaching
Dieldrin	60-57-1	3.8E-02	1.7E-01	1.1E+00	1.7E-04	2.3E-03	8.3E+00	5.0E+02	1.0E+03	1.0E+03	1.7E-04	Leaching
Diethyl phthalate	84-66-2	5.1E+04	6.6E+05	1.5E+05	3.5E-02	3.5E-02	8.4E+02	5.0E+02	1.0E+03	1.0E+03	3.5E-02	Leaching
Dimethyl phthalate	131-11-3	--	--	--	3.5E-02	3.5E-02	4.7E+03	5.0E+02	1.0E+03	1.0E+03	3.5E-02	Leaching
2,4-Dimethylphenol	105-67-9	1.6E+03	2.3E+04	7.1E+03	6.7E-01	7.4E-01	2.7E+03	1.0E+02	5.0E+02	5.0E+02	6.7E-01	Leaching

Feb. 2016 (Rev. 3)		Summary of Soil ESLs (mg/kg)										
Chemicals	CAS No.	Direct Exposure Human Health Risk Levels (Table S-1)			Leaching to Groundwater Levels (Table S-2)		Gross Contamination Levels (Table S-3)	Odor Nuisance Levels (Table S-4)			Soil Tier 1 ESL	Basis
		Res: Shallow Soil Exposure	Com/Ind: Shallow Soil Exposure	Any Land Use/ Any Depth Soil Expsoure: Construction Worker	Drinking Water	Nondrinking Water		Res: Shallow Soil Exposure	Com/Ind: Shallow Soil Exposure	Any Land Use: Deep Soil Exposure (CW)		
2,4-Dinitrophenol	51-28-5	1.6E+02	2.3E+03	7.1E+02	1.1E-01	2.1E-01	1.1E+03	5.0E+02	1.0E+03	1.0E+03	1.1E-01	Leaching
2,4-Dinitrotoluene	121-14-2	2.2E+00	1.1E+01	7.9E+01	1.8E-03	8.6E-01	1.0E+02	5.0E+02	1.0E+03	1.0E+03	1.8E-03	Leaching
1,4-Dioxane	123-91-1	7.0E+00	3.3E+01	2.5E+02	2.3E-04	3.0E+01	1.2E+05	5.0E+02	1.0E+03	1.0E+03	2.3E-04	Leaching
Dioxin (2,3,7,8-TCDD)	1746-01-6	4.9E-06	2.2E-05	1.5E-04	1.1E+06	1.1E+06	1.1E+06	1.0E+02	5.0E+02	5.0E+02	4.9E-06	Dir Exp
Endosulfan	115-29-7	4.2E+02	5.8E+03	1.5E+03	4.6E-03	4.6E-03	2.9E+00	5.0E+02	1.0E+03	1.0E+03	4.6E-03	Leaching
Endrin	72-20-8	2.1E+01	2.9E+02	7.4E+01	6.5E-04	6.5E-04	2.7E+00	5.0E+02	1.0E+03	1.0E+03	6.5E-04	Leaching
Ethylbenzene	100-41-4	5.1E+00	2.2E+01	4.8E+02	1.4E+00	1.4E+00	4.0E+02	5.0E+02	1.0E+03	1.0E+03	1.4E+00	Leaching
Fluoranthene	206-44-0	2.4E+03	3.0E+04	6.7E+03	6.0E+01	6.0E+01	6.0E+01	5.0E+02	1.0E+03	1.0E+03	6.0E+01	Gross Contam
Fluorene	86-73-7	2.4E+03	3.0E+04	6.7E+03	8.9E+00	8.9E+00	1.6E+02	5.0E+02	1.0E+03	1.0E+03	8.9E+00	Leaching
Heptachlor	76-44-8	1.4E-01	6.0E-01	3.8E+00	7.7E-04	1.3E-02	7.4E+00	1.0E+03	2.5E+03	2.5E+03	7.7E-04	Leaching
Heptachlor epoxide	1024-57-3	6.7E-02	3.0E-01	1.9E+00	4.2E-04	1.4E-02	4.8E+01	1.0E+03	2.5E+03	2.5E+03	4.2E-04	Leaching
Hexachlorobenzene	118-74-1	3.4E-01	1.5E+00	9.5E+00	7.9E+02	7.9E+02	7.9E+02	5.0E+02	1.0E+03	1.0E+03	3.4E-01	Dir Exp
Hexachlorobutadiene	87-68-3	8.9E+00	4.2E+01	3.1E+02	6.8E-01	1.6E+01	3.5E+02	5.0E+02	1.0E+03	1.0E+03	6.8E-01	Leaching
γ-Hexachlorocyclohexane (Lindar	58-89-9	5.5E-01	2.5E+00	1.6E+01	9.8E-03	9.8E-03	1.6E+02	5.0E+02	1.0E+03	1.0E+03	9.8E-03	Leaching
Hexachloroethane	67-72-1	1.4E+01	5.7E+01	1.3E+02	1.1E+00	4.1E+01	6.0E+03	5.0E+02	1.0E+03	1.0E+03	1.1E+00	Leaching
Indeno(1,2,3-c,d)pyrene	193-39-5	1.6E-01	2.9E+00	1.6E+01	9.1E+00	7.0E+01	5.1E+00	5.0E+02	1.0E+03	1.0E+03	1.6E-01	Dir Exp
Lead	7439-92-1	8.0E+01	3.2E+02	1.6E+02	--	--	--	--	--	--	8.0E+01	Dir Exp
Mercury (elemental)	7439-97-6	1.3E+01	1.9E+02	4.4E+01	--	--	--	5.0E+02	1.0E+03	1.0E+03	1.3E+01	Dir Exp
Methoxychlor	72-43-5	3.5E+02	4.8E+03	1.2E+03	1.9E+01	1.9E+01	1.9E+01	5.0E+02	1.0E+03	1.0E+03	1.9E+01	Gross Contam
Methylene chloride	75-09-2	1.9E+00	2.5E+01	5.0E+02	7.7E-02	7.3E-01	2.4E+03	5.0E+02	1.0E+03	1.0E+03	7.7E-02	Leaching
Methyl ethyl ketone	78-93-3	3.1E+04	2.5E+05	1.4E+05	5.1E+00	1.3E+01	3.4E+04	5.0E+02	1.0E+03	1.0E+03	5.1E+00	Leaching
Methyl isobutyl ketone	108-10-1	5.8E+03	7.1E+04	2.6E+04	2.8E+00	3.9E+00	1.7E+04	1.0E+02	5.0E+02	5.0E+02	2.8E+00	Leaching
Methyl mercury	22967-92-6	6.3E+00	8.2E+01	1.9E+01	--	--	--	1.0E+02	5.0E+02	5.0E+02	6.3E+00	Dir Exp
2-Methylnaphthalene	91-57-6	2.4E+02	3.0E+03	6.7E+02	2.5E-01	2.5E-01	1.1E+02	5.0E+02	1.0E+03	1.0E+03	2.5E-01	Leaching
Methyl tertiary butyl ether (MTBE	1634-04-4	4.2E+01	1.8E+02	3.7E+03	2.3E-02	8.4E-01	2.1E+04	1.0E+02	5.0E+02	5.0E+02	2.3E-02	Leaching
Molybdenum	7439-98-7	3.9E+02	5.8E+03	1.8E+03	--	--	--	--	--	--	3.9E+02	Dir Exp
Naphthalene	91-20-3	3.3E+00	1.4E+01	3.5E+02	3.3E-02	3.9E+00	2.2E+02	5.0E+02	1.0E+03	1.0E+03	3.3E-02	Leaching
Nickel	7440-02-0	8.2E+02	1.1E+04	8.6E+01	--	--	--	--	--	--	8.6E+01	Dir Exp
Pentachlorophenol	87-86-5	1.0E+00	4.0E+00	2.0E+01	2.7E+06	2.7E+06	2.7E+06	5.0E+02	1.0E+03	1.0E+03	1.0E+00	Dir Exp
Perchlorate	7790-98-9	5.5E+01	8.2E+02	2.5E+02	--	--	--	--	--	--	5.5E+01	Dir Exp
Phenanthrene	85-01-8	--	--	--	1.1E+01	1.1E+01	6.9E+01	5.0E+02	1.0E+03	1.0E+03	1.1E+01	Leaching

Feb. 2016 (Rev. 3)		Summary of Soil ESLs (mg/kg)										
Chemicals	CAS No.	Direct Exposure Human Health Risk Levels (Table S-1)			Leaching to Groundwater Levels (Table S-2)		Gross Contamination Levels (Table S-3)	Odor Nuisance Levels (Table S-4)			Soil Tier 1 ESL	Basis
		Res: Shallow Soil Exposure	Com/Ind: Shallow Soil Exposure	Any Land Use/ Any Depth Soil Expsoure: Construction Worker	Drinking Water	Nondrinking Water		Res: Shallow Soil Exposure	Com/Ind: Shallow Soil Exposure	Any Land Use: Deep Soil Exposure (CW)		
Phenol	108-95-2	2.3E+04	3.5E+05	9.8E+04	7.6E-02	8.8E+00	5.2E+04	5.0E+02	1.0E+03	1.0E+03	7.6E-02	Leaching
Polychlorinated biphenyls (PCBs)	1336-36-3	2.5E-01	1.0E+00	5.6E+00	6.3E+00	6.3E+00	6.3E+00	5.0E+02	1.0E+03	1.0E+03	2.5E-01	Dir Exp
Pyrene	129-00-0	1.8E+03	2.3E+04	5.0E+03	8.5E+01	8.5E+01	8.5E+01	5.0E+02	1.0E+03	1.0E+03	8.5E+01	Gross Contam
Selenium	7782-49-2	3.9E+02	5.8E+03	1.7E+03	--	--	--	--	--	--	3.9E+02	Dir Exp
Silver	7440-22-4	3.9E+02	5.8E+03	1.8E+03	--	--	--	--	--	--	3.9E+02	Dir Exp
Styrene	100-42-5	6.6E+03	4.0E+04	2.9E+04	1.5E+00	1.6E+01	1.5E+03	5.0E+02	1.0E+03	1.0E+03	1.5E+00	Leaching
tert-Butyl alcohol	75-65-0	--	--	--	7.5E-02	1.1E+02	3.2E+05	1.0E+02	5.0E+02	5.0E+02	7.5E-02	Leaching
1,1,1,2-Tetrachloroethane	630-20-6	4.2E+00	1.8E+01	3.4E+02	1.0E-02	1.6E+01	2.0E+03	1.0E+02	5.0E+02	5.0E+02	1.0E-02	Leaching
1,1,2,2-Tetrachloroethane	79-34-5	5.3E-01	2.3E+00	4.4E+01	1.8E-02	7.4E+00	2.0E+03	5.0E+02	1.0E+03	1.0E+03	1.8E-02	Leaching
Tetrachloroethene	127-18-4	6.0E-01	2.7E+00	3.3E+01	4.2E-01	4.2E-01	2.3E+02	5.0E+02	1.0E+03	1.0E+03	4.2E-01	Leaching
Thallium	7440-28-0	7.8E-01	1.2E+01	3.5E+00	--	--	--	--	--	--	7.8E-01	Dir Exp
Toluene	108-88-3	9.7E+02	4.6E+03	4.1E+03	2.9E+00	9.3E+00	6.5E+02	5.0E+02	1.0E+03	1.0E+03	2.9E+00	Leaching
Toxaphene	8001-35-2	5.1E-01	2.2E+00	1.4E+01	4.2E-04	4.2E-04	9.3E+01	5.0E+02	1.0E+03	1.0E+03	4.2E-04	Leaching
TPH gasoline	--	7.4E+02	3.9E+03	2.8E+03	7.7E+02	3.4E+03	1.0E+03	1.0E+02	5.0E+02	5.0E+02	1.0E+02	Nuis/Odor
TPH Stoddard solvent	--	1.6E+02	8.2E+02	6.3E+02	1.0E+03	6.5E+03	2.3E+03	1.0E+02	5.0E+02	5.0E+02	1.0E+02	Nuis/Odor
TPH diesel	--	2.3E+02	1.1E+03	8.8E+02	5.7E+02	3.6E+03	2.3E+03	5.0E+02	1.0E+03	1.0E+03	2.3E+02	Dir Exp
TPH motor oil	--	1.1E+04	1.4E+05	3.2E+04	--	--	5.1E+03	--	--	--	5.1E+03	Gross Contam
1,2,4-Trichlorobenzene	120-82-1	2.4E+01	1.1E+02	3.1E+02	1.5E+00	7.6E+00	3.2E+03	1.0E+03	2.5E+03	2.5E+03	1.5E+00	Leaching
1,1,1-Trichloroethane	71-55-6	2.1E+03	8.9E+03	8.8E+03	7.8E+00	7.8E+00	1.2E+03	5.0E+02	1.0E+03	1.0E+03	7.8E+00	Leaching
1,1,2-Trichloroethane	79-00-5	9.6E-01	4.2E+00	5.2E+00	7.0E-02	6.6E+01	1.8E+03	1.0E+02	5.0E+02	5.0E+02	7.0E-02	Leaching
Trichloroethene	79-01-6	1.2E+00	8.0E+00	2.3E+01	4.6E-01	5.1E-01	1.3E+03	5.0E+02	1.0E+03	1.0E+03	4.6E-01	Leaching
2,4,5-Trichlorophenol	95-95-4	7.8E+03	1.2E+05	3.5E+04	1.8E-01	1.8E-01	7.6E+02	1.0E+02	5.0E+02	5.0E+02	1.8E-01	Leaching
2,4,6-Trichlorophenol	88-06-2	9.9E+00	4.7E+01	3.5E+02	2.1E-01	1.6E+02	9.7E+03	1.0E+02	5.0E+02	5.0E+02	2.1E-01	Leaching
Vanadium	7440-62-2	3.9E+02	5.8E+03	4.7E+02	--	--	--	--	--	--	3.9E+02	Dir Exp
Vinyl chloride	75-01-4	8.2E-03	1.5E-01	3.4E+00	1.0E-02	1.0E-02	1.2E+03	5.0E+02	1.0E+03	1.0E+03	8.2E-03	Dir Exp
Xylenes	1330-20-7	5.6E+02	2.4E+03	2.4E+03	2.3E+00	1.1E+01	4.2E+02	5.0E+02	1.0E+03	1.0E+03	2.3E+00	Leaching
Zinc	7440-66-6	2.3E+04	3.5E+05	1.1E+05	--	--	--	--	--	--	2.3E+04	Dir Exp

Notes:
Res. - Residential
Com/Ind - Commercial/Industrial
CW - Construction Worker
Exp - Exposure

Appendix C-3

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Response to Initial Technical Comments issued by SC-HSA's 3rd-Party Toxicologist
(agency comment letter dated September 29th)

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Source: **Thomas Harder & Company, October 26, 2017**

Thomas Harder & Co.
Groundwater Consulting

October 26, 2017

Mr. Pat Hoban, PG
Weber, Hayes & Associates
120 Westgate Drive
Watsonville, California 95076

Re: Response to September 29, 2017 Huntley Environmental Comments 2 through 12 to:
***Remedial Action Plan (RAP)* dated September 13, 2017**
***Site Preparation Tasks for Redevelopment (SPTR)* dated July 13, 2017**
Former Clusters Storage Yard
511 Ohlone Parkway
Watsonville, California

Dear Mr. Hoban:

As you requested, this letter provides Thomas Harder & Company's (TH&Co's) responses to Comment 2 through Comment 12 provided by Huntley Environmental (Huntley) to the Remedial Action Plan (RAP) and Site Preparation Tasks for Redevelopment (SPTR) for the Former Clusters Storage Yard located at 511 Ohlone Parkway in Watsonville, California. Both documents were prepared by Weber, Hayes & Associates (WHA) and submitted to the Santa Cruz County Environmental Health Service (SCCEHS). Our responses immediately follow each of the Huntley comments, which are shown in italics and were copied and pasted directly from the electronic portable document file (pdf) provided to TH&Co by WHA via electronic mail on October 2, 2017.

Huntley Comment 2: *The basis for making the decision to remediate soils to 2 ft is not clear in the RAP. Potential health risks in soils at 0-2 ft are not presented in the RAP for the COPCs identified. Moreover, cumulative noncancer and cancer risks are not presented in the RAP as the basis for remediating the upper 2 ft of soil or leaving soil deeper than 2 ft in place. While the decision to remediate soils to a depth of 2 ft can be made based on COPC exceedances of ESLs, the decision to leave soils in place at 2 ft and deeper should be supported by calculated cumulative noncancer and cancer risks, noting that four carcinogens (arsenic, hexavalent chromium, naphthalene, and nickel) were identified as COPCs. I would recommend that estimated cumulative noncancer and*

Pat Hoban

From: Scott Carson <Scott.Carson@santacruzcounty.us>
Sent: Tuesday, December 05, 2017 5:13 PM
To: Pat Hoban
Cc: 'Steve Huntley'; '(Risk) Jim Van de Water'
Subject: RE: 511 OHLONE PARKWAY, WATSONVILLE, RTC
Attachments: 511OhlonePkwy.12.05.17.Huntley Initial Comments to RTC.pdf

Hello Pat,

As you know, I have not had a chance to review the Thomas Harder & Co. response dated October 26, 2017, to the Huntley comments dated September 29, 2017. However, I asked Steve Huntley to provide some initial feedback on the response (attached email dated December 5, 2017) to see if it appears to be on the right track and to assist you with preparing the requested redline/strikeout versions of the SPTR and RAP. I hope you will find Mr. Huntley's comments helpful. Please let me know if you have any questions.

Sincerely,

Scott E. Carson, PG, CEG
Professional Geologist
County of Santa Cruz Health Services Agency
Environmental Health Division
Site Mitigation Program
701 Ocean Street, Suite 312
Santa Cruz, CA 95060

Voice 831-454-2758, Fax 831-454-3128, Email Scott.Carson@santacruzcounty.us
County Main http://www.co.santa-cruz.ca.us/, EHS Home http://www.scceh.com/
Site Mitigation Home http://www.scceh.com/Home/Programs/SiteMitigation.aspx

Scott Carson

From: Steve Huntley <shuntley@huntleyenvironmental.com>
Sent: Tuesday, December 05, 2017 1:46 PM
To: Scott Carson
Subject: Re: 511 Ohlone Pkwy, Watsonville - Huntley review of TH&Co Response to Comments

Hi Scott,

Following are my initial comments on the TH&Co response to comments (RTCs).

1. 1. I found no errors or concerns with the calculation of cumulative cancer risks and noncancer hazards (sum of hazard quotients [HQs]) as was done for TPH-diesel, TPH-motor oil, and naphthalene. I also agree with TH&Co that including lead in cumulative risk/hazard calculations would not be appropriate. I note that TH&Co indicated in the RTCs that comparison of lead concentrations to applicable ESLs were presented in Tables 3a and 3b, however, these tables were not provided in the RTCs. Nevertheless, the lead data provided in "Enclosure A Table 2 from RAP", as included in the RTCs, were sufficient for my review. Cumulative risk and hazard calculations for arsenic, chromium VI, and nickel were not done as these three constituents were deferred to a supplemental site-specific background evaluation presented as Attachment 1 to the RTCs. It may be helpful to calculate cumulative risks and hazards using 95%UCL concentrations rather than individual sample concentrations. It appears that if 95%UCLs were used as the exposure point concentrations, then it is possible that individual COPC and cumulative HQs and risks for all COPCs (other than lead) may be within acceptable ranges. If risk estimates were further refined using 95%UCLs, it would still be important to evaluate potential hot spots, particularly for TPH-motor oil and lead. As indicated in my previous comments it will be important to clearly describe the basis for remediating soil to a depth of 2 ft in the revised RAP.
2. 2. TH&Co indicated that several minor errors identified in the Huntley Comments would be corrected in the revised RAP. I am in agreement.
3. 3. I concur with the results of the supplemental background evaluation presented in Attachment 1 of the RTCs, as follows:
   a. For the TH&Co evaluation of arsenic background, I concur with the statistical analyses and conclusion that there does not appear to have been an arsenic release at the site, and therefore, arsenic would not be classified as a COPC. The arsenic data appear to represent a single population ((e.g., background) as supported by the very low coefficient of variation (CV), absence of outliers, and graphical presentation of the data.
   b. For the same reasons stated above for arsenic, I also concur with the TH&Co evaluation of chromium VI background that the data appear to represent a single population and that there does not appear to have been a chromium VI release at the site.
   c. For the same reasons stated above for arsenic and chromium VI, I also concur with the TH&Co evaluation of nickel background that the data appear to represent a single population and that there does not appear to have been a nickel release at the site.

In summary, I concur that the site data do not support selecting arsenic, chromium VI, or nickel as COPCs since all three appear to be consistent with background conditions.

Please let me know if you have any questions.

Steve

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cancer risks for residential and construction worker exposures to post-remediation residual soils be included in the RAP to ensure that the planned remediation is adequate to protect human health.

TH&Co Response to Huntley Comment 2

The requested cumulative noncancer and cancer risks for the residential receptor are provided in **Table 1a** and **Table 1b**, respectively, whereas the cumulative noncancer and cancer risks for the construction worker receptor are provided in **Table 2a** and **Table 2b**, respectively. It is noted that the risk values provided in this attachment are based on:

- total petroleum hydrocarbons as diesel (TPH-diesel), total petroleum hydrocarbons as motor oil (TPH-motor oil), and naphthalene as the only COPCs for which cumulative risk values are calculated for the residential and construction worker receptors in accordance with RWQCB guidance; and
- comparison tables for lead for the residential and construction worker receptors are included as **Table 3a** and **Table 3b**, respectively.

We also note that, where two concentration values are reported for a given COPC (e.g., B-3(t) and B-8(t) for naphthalene), the higher value is used to provide a conservative analysis. Finally, all qualified ("flagged") and non-qualified values as noted in the summary tables provided in the RAP are included in the risk estimates provided herein.

(In addition to the COPCs listed in the above bullet items, arsenic, hexavalent chromium, and nickel were also identified as COPCs in the RAP. The exclusion of these three metals as COPCs through statistical analysis is presented as **Attachment 1** to this response letter.)

Residential Receptor (TPH-diesel, TPH-motor oil, and naphthalene risk values)

The residential environmental screening levels (ESLs) for TPH-diesel, TPH-motor oil, and naphthalene are the those associated with direct soil exposure (i.e., via incidental ingestion, dermal contact, and particulate inhalation) as listed in Table S-1 of the February 2016 ESL guidance as posted at https://www.waterboards.ca.gov/rwqcb2/water_issues/programs/esl.html and are as follows:

COPC	Residential RSL (mg/kg)	
	Noncancer	Cancer
TPH-diesel	2.3×10^{2}	Non-carcinogenic
TPH-motor oil	1.1×10^{4}	Non-carcinogenic
Naphthalene	1.1×10^{2}	3.3×10^{0}

As shown in **Table 1a**, there are six instances in which the HI value exceeds 1.0.[1] As shown in **Table 1b**, the maximum ILCR value (5 x 10^{-7}) is less than the *de minimis* level of 1 x 10^{-6}.

<u>*Construction Worker Receptor (TPH-diesel, TPH-motor oil, and naphthalene risk values)*</u>
The construction worker environmental screening levels (ESLs) for TPH-diesel, TPH-motor oil, and naphthalene are the those associated with direct soil exposure (i.e., via incidental ingestion, dermal contact, and particulate inhalation) as listed in Table S-1 of the February 2016 ESL guidance as posted at https://www.waterboards.ca.gov/rwqcb2/water_issues/programs/esl.html and are as follows:

COPC	**Construction Worker RSL (mg/kg)**	
	Noncancer	**Cancer**
TPH-diesel	8.8 x 10^{2}	Non-carcinogenic
TPH-motor oil	3.2 x 10^{4}	Non-carcinogenic
Naphthalene	4.4 x 10^{2}	3.5 x 10^{2}

As shown in **Table 2a**, the HI value exceeds 1.0 at one location (T-16(t)). Given the HQ values at this location is driven by TPH-motor oil, segregation of the HI values by target organs was not warranted. The risk-driving exposure pathways for TPH-motor oil are soil ingestion and dermal contact. As such, precautionary measures associated with these pathways near this locations may be warranted. As shown in **Table 2b**, the maximum ILCR value (4 x 10^{-9}) is less than the *de minimis* level of 1 x 10^{-6}. An ILCR value less than the *de minimis* level is generally considered to be without potential adverse health effects.

<u>*Lead*</u>
The residential and construction worker ESLs for lead (80 and 160 mg/kg, respectively) are associated with blood lead levels calculated using a blood lead model developed by the California Environmental Protection Agency Office of Environmental Health Hazard Assessment (CalEPA/OEHHA) and the Department of Toxic Substances Control (CalEPA/DTSC) LeadSpread Model rather than the standard USEPA algorithms. As such, the risk values associated with lead are neither calculated nor combined with that for the other COPCs but, rather, a direct comparison to the ESLs is conducted as shown in **Table 3a** and **Table 3b** for the residential and construction worker receptor, respectively.

The fact that the vast majority of the TPH/naphthalene- and lead-impacted soil is confined within the upper 2 feet provides the basis for the removal depth of 2 feet. As noted in our response to

[1] One of these 6 samples (B-10(w) at 0.5 feet) has HQ values less than 1.0 for both TPH fractions and, as such, a target organ analysis may reveal that this sample would not result in an adverse noncancer health effect. Given that the HI for the underlying sample at 2 feet is less than 1.0 and soils will be removed to a depth of 2 feet, a target organ analysis is not presented here.

Huntley Comment 8 below, over-excavation and subsequent confirmation sampling will be conducted at those locations at which ESL exceedances were not vertically defined.

Huntley Comment 3: *At the bottom of Section 3.9 on pg. 13, the RAP states that the screening level for cadmium is 5.2 mg/kg. However, the lowest ESL (e.g., the Tier 1 ESL) for cadmium is 39 mg/kg which is equal to the residential ESL. I recommend that this apparent error should be corrected in a revised RAP.*

TH&Co Response to Huntley Comment 3

The error will be corrected in the revised RAP to the Tier 1 ESL for cadmium (39 mg/kg). (It is noted that the screening level noted in the RAP [5.2 mg/kg] is the California Environmental Protection Agency Department of Toxic Substances Control [CalEPA/DTSC] residential soil screening level.)

Huntley Comment 4: *On pg. 14 of the RAP, reference is made to a 2003 background study for soil arsenic and based on that study the 95% UCL for arsenic is 7.48 mg/kg. No reference is given here for the background study. At the end of the arsenic discussion it states, "This site-specific, UCL-95% derived concentration of 7.27 mg/kg is in very close magnitude to the background Arsenic concentration established for the Watsonville area, is therefore assumed to be ambient/naturally occurring. Therefore, use of the site-specific, UCL-95% of 7.27 mg/kg appears to be a justifiable clean-up goal." As discussed on pg. 14 and shown on the table on pg. 14 the background threshold value (BTV) for arsenic is 7.48 mg/kg, not 7.27 mg/kg. Note that on pg. 18, the RAP correctly identifies 7.48 mg/kg as the Remedial Criteria for soils. I recommend that this apparent error should be corrected in a revised RAP. After reading a similar discussion regarding hexavalent chromium, I am not sure this was an error, but it is likely incorrect. See Huntley Comment 6 regarding hexavalent chromium. Assuming that arsenic was handled in the same manner, then I recommend that the RAP be revised accordingly following the applicable regulatory guidance.*

TH&Co Response to Huntley Comment 4

See response to Huntley Comment 2 above and **Attachment 1**. As noted in our response and associated attachment, it is recommended that arsenic, along with hexavalent chromium and nickel, be eliminated as COPCs.

Huntley Comment 5: *In the second paragraph of pg. 14 of the RAP, it states, "Simply stated, the 95% UCL is an upper bound estimate of the representative soil chemical concentration found at the Site." And, in footnote 10 on the same page, it states, "A 95th percentile upper-confidence limit (UCL-95%) is a risk based calculation establishing the upper (maximum) concentration that will be encountered within a sampling footprint, 95% of the time." Both these definitions are incorrect. The 95%UCL is an upperbound estimate of the average concentration. By definition,* *the 95%UCL is a value for which there is only a five percent chance that the true average (mean) concentration would exceed that value. This concept is explained in detail in USEPA (2002a) as referenced at the end of this memo. I recommend that the definition of the 95%UCL be corrected in a revised RAP.*

TH&Co Response to Huntley Comment 5

The definition will be corrected in the revised RAP.

Huntley Comment 6: *At the end of the discussion of hexavalent chromium on pg. 15, it states, "As noted, the site-specific, UCL-95% Hex-Chrome concentration of 2.2 mg/kg is lower than the background concentration obtained at a nearby agricultural parcel. This indicates that use of the site-specific, UCL- 95% of 2.2 mg/kg appears to be a justifiable clean-up goal." I do not understand the logic of why the site 95%UCL for hexavalent chromium of 2.2 mg/kg, if less than the "background" concentration of 2.34 mg/kg, is a "justifiable cleanup goal". The cleanup goal should be the upper-bound background concentration as determined following DTSC (1997) and USEPA (2002) guidance. I recommend that the RAP be revised accordingly. Additional comments regarding background are provided below in Huntley Comments 10 through 12.*

TH&Co Response to Huntley Comment 6

See responses to Huntley Comments 2 and 4 above.

Huntley Comment 7: *At the bottom of pg. 15 of the RAP, the point is made that the maximum detected nickel concentration of 150 mg/kg is below the residential ESL of 820 mg/kg but exceeds the construction worker ESL of 86 mg/kg. The RAP then discusses that the 95%UCL value for nickel in soil at 2 ft and below is 86.02 mg/kg, essentially the same value as the construction worker ESL which is also the Tier 1 ESL. I concur with the analysis, that is, the 95%UCL is the appropriate metric for comparison to the ESLs. The fact that 95%UCL is equal to the lowest ESL (e.g., the construction worker ESL) indicates that nickel should not pose an unacceptable risk to any receptors exposed to soil currently at 2 ft and below. However, please see Huntley Comment 2, above, regarding cumulative risks.*

TH&Co Response to Huntley Comment 7

See responses to Huntley Comments 2 and 4 above.

Huntley Comment 8: *Over-excavation and confirmation sampling are discussed at the bottom of pg. 19 and at the bottom pg. 21. Currently, there appear to be numerous sampling locations shallower than 2 ft with COPC concentrations exceeding ESLs, but no deeper samples to confirm that concentrations at or below 2 ft are less than ESLs. I would recommend that in all cases where there is the absence of a sample deeper than the deepest sample with an ESL exceedance within the 0-2 ft interval that a discreet confirmation sample should be collected following excavation. If* *there is sample-specific justification for not collecting a discreet confirmation sample at a particular location with these conditions, then I would recommend that the consultant communicate such justification to SCCEHS and receive approval before proceeding. I would also recommend that an excavation plan (figure) be included in the RAP to show where over-excavation is planned based on ESL exceedances of deeper soils.*

TH&Co Response to Huntley Comment 8

See response to Huntley Comment 2 above. The RAP will be revised to clarify that over-excavation and subsequent confirmation sampling will be conducted at those locations in which impacts were not vertically delineated in accordance with the reviewer's comment.

Huntley Comment 9: *With respect to the 4-point composite samples discussed at the top of pg. 22, I would recommend that if the resulting composite sample COPC concentration exceeds ¼ the value of applicable ESL, then each of the four discreet samples comprising that composite sample would also need to be independently analyzed. I recommend that the RAP be revised accordingly.*

TH&Co Response to Huntley Comment 9

The RAP will be revised in accordance with the reviewer's comment.

Huntley Comments on RAP Appendix C, Background Evaluation

Note that cleanup criteria for arsenic and hexavalent chromium are based on background. Cleanup criteria for all other COPCs are based on ESLs.

Huntley Comment 10: *The reference for the soil arsenic background study used to derive a soil arsenic background benchmark for use at the site is "Remedial Investigation Report: Watsonville 2 Former Manufactured Gas Plant Site, 11 Walker Street, Watsonville, Uribe and Associates, dated September 4, 2003." This study is not provided in the RAP and the RAP provided no information on the background study design or methods or whether it was approved by SCCEHS. I cannot determine if these background Watsonville data are representative of the subject site. I recommend that the study report be added as an appendix to the RAP, and a discussion be included in the body of the RAP explaining why these background data should be considered representative of background conditions at the 511 Ohlone Pkwy site. If this is not possible, then I would suggest that DTSC (1997) guidance may be followed to derive a site-specific background soil arsenic benchmark.*

TH&Co Response to Huntley Comment 10

Based on our review, the applicability of the Uribe and Associates background dataset to the Site is uncertain. Given this uncertainty, the analysis included as **Attachment 1** herein prepared in response to Huntley Comment 2 above does not rely on the Uribe and Associates background dataset.

Huntley Comment 11: *There are only 14 samples in the background dataset for arsenic. This is a relatively small sample size. Based on the data provided in Appendix C of the RAP I was able to verify that the 95%UCL for this background data set is 7.48 mg/kg as stated in the RAP. However, I also note that use of the 95%UCL background concentration as a remedial goal or cleanup level is highly unusual and inconsistent with the key regulatory guidance documents (DTSC 1997 and USEPA 2002b) that present the methods and rationale for the derivation and application of background benchmarks. Following these guidelines, the soil background benchmark is intended to be an upper-bound estimate, generally within the range of the 90th to the 99th percentiles of the background data distribution. For a small sample size such as 14 samples, DTSC (1997) would recommend using the lower value in this range (e.g., the 90th percentile concentration). I calculated the 90th percentile concentration of the Watsonville background data set to be 10.0 mg/kg. Use of the 95%UCL background value of 7.48 to cleanup all site soils is very conservative (assuming that the use of the Watsonville background data set is appropriate for this site). However, because it is more conservative and more health protective than the 90th percentile value and is well below the typical range of upper-bound background soil arsenic concentrations in California of about 11 to 12 mg/kg, as noted in the RAP, I don't necessarily recommend that use of the 95%UCL value be changed in the RAP. However, I believe the RAP should be revised to clarify these points and definitions, and most importantly, justification needs to be provided in the body of the RAP that shows that the background dataset is representative of 511 Ohlone Pkwy site conditions.*

TH&Co Response to Huntley Comment 11

See response to Huntley Comment 2 above.

Huntley Comment 12: *The background soil hexavalent chromium concentration proposed as the cleanup criteria is 2.34 mg/kg based on a "Local Site Confirmation Testing to Receive Surplus Soils" apparently conducted in July 2017. No report reference is given for this study. No information is provided about the study design or methods employed or the basis for assuming these data are representative of background conditions for the 511 Ohlone Pkwy site. I recommend that the hexavalent chromium soil background study report be included in the RAP as an appendix, and most importantly, justification needs to be provided in the body of the RAP that shows that the background dataset is representative of 511 Ohlone Pkwy site conditions.*

TH&Co Response to Huntley Comment 12

See response to Huntley Comment 2 above.

Closing

The most common issue in the comments addressed herein is associated with the calculation of metals background concentrations. Based on the attached statistical analysis, arsenic, hexavalent chromium, and nickel are not COPCs. If you have any questions, please contact me on my cellphone at 949 795-0855 via text or voice, my office telephone at 714 779-3875, or via electronic mail at jimvdw@thomashardercompany.com.

Sincerely,

Jim Van de Water

Jim Van de Water, P.G., C.HG.
Principal Hydrogeologist
949 795-0855 (cell)
949 779-3875 (office)
jimvdw@thomashardercompany.com

TABLES

TABLE 1a

Hazard Quotient (HQ) and Hazard Index (HI) Values

~ Default Residential Receptor ~

UPDATED Sample ID	ORIGINAL Consultant ID		Depth	Concentrations (in mg/kg) TPH as DIESEL	Concentrations (in mg/kg) TPH as MOTOR OIL	Concentrations (in mg/kg) Naphthalene	Residential ESLs for Noncancer Endpoint (in mg/kg) TPH as DIESEL	Residential ESLs for Noncancer Endpoint (in mg/kg) TPH as MOTOR OIL	Residential ESLs for Noncancer Endpoint (in mg/kg) Naphthalene	HQ Values (unitless) TPH as DIESEL	HQ Values (unitless) TPH as MOTOR OIL	HQ Values (unitless) Naphthalene	Σ HQ = HI
B-3(t)	TB-3		0.5	ND	3,500	0.31	2.3E+02	1.1E+04	1.1E+02	-	3E-01	3E-03	**3E-01**
			1.5	ND	1,800	1.50	2.3E+02	1.1E+04	1.1E+02	-	2E-01	1E-02	**2E-01**
B-8(t)	TB-8		0.5	ND	32,000	0.22	2.3E+02	1.1E+04	1.1E+02	-	3E+00	2E-03	**3E+00**
B-9(t)	TB-9		0.5	--	--	0.067	2.3E+02	1.1E+04	1.1E+02	-	-	6E-04	**6E-04**
T-2(t)	Area 1	T6	3.5	ND	85	0.016	2.3E+02	1.1E+04	1.1E+02	-	8E-03	1E-04	**8E-03**
T-3(t)		T9	2	94	240	0.017	2.3E+02	1.1E+04	1.1E+02	4E-01	2E-02	2E-04	**4E-01**
T-4(t)		T10	1	ND	32	ND	2.3E+02	1.1E+04	1.1E+02	-	3E-03	-	**3E-03**
T-6(t)		T12	1	ND	250	ND	2.3E+02	1.1E+04	1.1E+02	-	2E-02	-	**2E-02**
T-7(t)	Area 2	T6	1	ND	ND	ND	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
T-8(t)		T12	2	ND	400	ND	2.3E+02	1.1E+04	1.1E+02	-	4E-02	-	**4E-02**
T-9(t)		T15	2	ND	510	0.02	2.3E+02	1.1E+04	1.1E+02	-	5E-02	2E-04	**5E-02**
T-11(t)	Area 5	T1	6	ND	680	0.018	2.3E+02	1.1E+04	1.1E+02	-	6E-02	2E-04	**6E-02**
T-12(t)		T3	2	ND	800	0.043	2.3E+02	1.1E+04	1.1E+02	-	7E-02	4E-04	**7E-02**
T-14(t)		T10	4	ND	18	ND	2.3E+02	1.1E+04	1.1E+02	-	2E-03	-	**2E-03**
T-15(t)	Area 6	T1	2	ND	2,000	0.018	2.3E+02	1.1E+04	1.1E+02	-	2E-01	2E-04	**2E-01**
T-16(t)		T1	8	ND	97,000	0.28	2.3E+02	1.1E+04	1.1E+02	-	9E+00	2E-03	**9E+00**
T-17(t)	Area 8	T1	2	ND	51	ND	2.3E+02	1.1E+04	1.1E+02	-	5E-03	-	**5E-03**
T-18(t)		Debris	--	ND	1,600	0.067	2.3E+02	1.1E+04	1.1E+02	-	1E-01	6E-04	**1E-01**
B-10(w)	SB-1		0.5	180	2,400	--	2.3E+02	1.1E+04	1.1E+02	8E-01	2E-01	-	**1E+00**
			2	ND	22	--	2.3E+02	1.1E+04	1.1E+02	-	2E-03	-	**2E-03**
B-11(w)	SB-2		0.5	670	5,500	--	2.3E+02	1.1E+04	1.1E+02	3E+00	5E-01	-	**3E+00**
			2	4.8	39	ND	2.3E+02	1.1E+04	1.1E+02	2E-02	4E-03	-	**2E-02**
B-12(w)	SB-3		0.5	8.3	80	--	2.3E+02	1.1E+04	1.1E+02	4E-02	7E-03	-	**4E-02**
			2	ND	29	--	2.3E+02	1.1E+04	1.1E+02	-	3E-03	-	**3E-03**
B-13(w)	SB-4		0.5	3.5	45	--	2.3E+02	1.1E+04	1.1E+02	2E-02	4E-03	-	**2E-02**
			2	6.2	38	--	2.3E+02	1.1E+04	1.1E+02	3E-02	4E-03	-	**3E-02**
B-14(w)	SB-5		0.5	60	820	--	2.3E+02	1.1E+04	1.1E+02	3E-01	8E-02	-	**3E-01**
			2	8.9	63	--	2.3E+02	1.1E+04	1.1E+02	4E-02	6E-03	-	**5E-02**
B-15(w)	SB-6		0.5	15	170	--	2.3E+02	1.1E+04	1.1E+02	7E-02	2E-02	-	**8E-02**
			2	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
B-16(w)	SB-7		0.5	6.5	63	--	2.3E+02	1.1E+04	1.1E+02	3E-02	6E-03	-	**3E-02**
			2	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
B-17(w)	SB-8		0.5	53	750	--	2.3E+02	1.1E+04	1.1E+02	2E-01	7E-02	-	**3E-01**
			2	4.9	51	--	2.3E+02	1.1E+04	1.1E+02	2E-02	5E-03	-	**3E-02**
B-18(w)	SB-9		0.5	110	1,300	--	2.3E+02	1.1E+04	1.1E+02	5E-01	1E-01	-	**6E-01**
			2	10	98	--	2.3E+02	1.1E+04	1.1E+02	4E-02	9E-03	-	**5E-02**
B-19(w)	SB-10		0.5	7.1	48	--	2.3E+02	1.1E+04	1.1E+02	3E-02	4E-03	-	**4E-02**
			2	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
B-20(w)	SB-11		0.5	12	150	--	2.3E+02	1.1E+04	1.1E+02	5E-02	1E-02	-	**7E-02**
			2	ND	21	--	2.3E+02	1.1E+04	1.1E+02	-	2E-03	-	**2E-03**

TABLE 1a

Hazard Quotient (HQ) and Hazard Index (HI) Values

~ Default Residential Receptor ~

			Concentrations (in mg/kg)			Residential ESLs for Noncancer Endpoint (in mg/kg)			HQ Values (unitless)			
UPDATED Sample ID	ORIGINAL Consultant ID	Depth	TPH as DIESEL	TPH as MOTOR OIL	Naphthalene	TPH as DIESEL	TPH as MOTOR OIL	Naphthalene	TPH as DIESEL	TPH as MOTOR OIL	Naphthalene	Σ HQ = HI
B-21(w)	SB-12	0.5	33	380	--	2.3E+02	1.1E+04	1.1E+02	1E-01	4E-02	-	**2E-01**
		2	18	78	--	2.3E+02	1.1E+04	1.1E+02	8E-02	7E-03	-	**9E-02**
B-22(w)	SB-13	0.5	7.1	64	--	2.3E+02	1.1E+04	1.1E+02	3E-02	6E-03	-	**4E-02**
		2	ND	19	--	2.3E+02	1.1E+04	1.1E+02	-	2E-03	-	**2E-03**
B-23(w)	SB-14	0.5	150	1,600	--	2.3E+02	1.1E+04	1.1E+02	7E-01	1E-01	-	**8E-01**
		2	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
B-24(w)	SB-15	0.5	10	140	--	2.3E+02	1.1E+04	1.1E+02	4E-02	1E-02	-	**6E-02**
		2	ND	28	--	2.3E+02	1.1E+04	1.1E+02	-	3E-03	-	**3E-03**
B-25(w)	DP-1	2	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
B-26(w)	DP-2	2	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
B-27(w)	DP-4	2	5.2	14	0.023	2.3E+02	1.1E+04	1.1E+02	2E-02	1E-03	2E-04	**2E-02**
B-28(w)	DP-5	2	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
B-29(w)	DP-6	2	5.6	23	ND	2.3E+02	1.1E+04	1.1E+02	2E-02	2E-03	-	**3E-02**
B-30(w)	DP-7	2	7.3	42	--	2.3E+02	1.1E+04	1.1E+02	3E-02	4E-03	-	**4E-02**
B-31(w)	DP-8	2	5.8	33	--	2.3E+02	1.1E+04	1.1E+02	3E-02	3E-03	-	**3E-02**
B-32(w)	DP-9	2	43	180	--	2.3E+02	1.1E+04	1.1E+02	2E-01	2E-02	-	**2E-01**
B-52(L)	G + G -1	2	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
		4	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
		6	160	1,200	--	2.3E+02	1.1E+04	1.1E+02	7E-01	1E-01	-	**8E-01**
B-55(L)	G + G -4	2	1.7	ND	--	2.3E+02	1.1E+04	1.1E+02	8E-03	-	-	**8E-03**
		3	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
B-65(w)	G&G# - 1a,1b,1c	0.5	68	310	--	2.3E+02	1.1E+04	1.1E+02	3E-01	3E-02	-	**3E-01**
		2	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
B-66(w)	G&G# - 2a,2b,2c	0.5	25	170	--	2.3E+02	1.1E+04	1.1E+02	1E-01	2E-02	-	**1E-01**
		2	110	360	--	2.3E+02	1.1E+04	1.1E+02	5E-01	3E-02	-	**5E-01**
B-66a(w)	G&G 2a	2	19	78	--	2.3E+02	1.1E+04	1.1E+02	8E-02	7E-03	-	**9E-02**
B-66b(w)	G&G 2b	2	11	33	--	2.3E+02	1.1E+04	1.1E+02	5E-02	3E-03	-	**5E-02**
		4	3.6	ND	--	2.3E+02	1.1E+04	1.1E+02	2E-02	-	-	**2E-02**
B-66c(w)	G&G 2c	2	21	86	--	2.3E+02	1.1E+04	1.1E+02	9E-02	8E-03	-	**1E-01**
B-67(w)	G&G# - 3a,3b,3c	0.5	60	700	--	2.3E+02	1.1E+04	1.1E+02	3E-01	7E-02	-	**3E-01**
		2	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
B-68(w)	G&G# - 4a,4b,4c	0.5	620	3,300	--	2.3E+02	1.1E+04	1.1E+02	3E+00	3E-01	-	**3E+00**
		2	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
B-69(w)	G&G# - 5a,5b,5c	0.5	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
		2	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
B-70(w)	G&G Discrete #1	0.5	110	510	--	2.3E+02	1.1E+04	1.1E+02	5E-01	5E-02	-	**5E-01**
		2	130	980	--	2.3E+02	1.1E+04	1.1E+02	6E-01	9E-02	-	**7E-01**
		4	1.5	ND	--	2.3E+02	1.1E+04	1.1E+02	7E-03	-	-	**7E-03**
B-71(w)	EB-1	20	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
		40	1.1	ND	--	2.3E+02	1.1E+04	1.1E+02	5E-03	-	-	**5E-03**

TABLE 1a

Hazard Quotient (HQ) and Hazard Index (HI) Values

~ Default Residential Receptor ~

UPDATED Sample ID	ORIGINAL Consultant ID	Depth	Concentrations (in mg/kg) TPH as DIESEL	TPH as MOTOR OIL	Naphthalene	Residential ESLs for Noncancer Endpoint (in mg/kg) TPH as DIESEL	TPH as MOTOR OIL	Naphthalene	HQ Values (unitless) TPH as DIESEL	TPH as MOTOR OIL	Naphthalene	Σ HQ = HI
B-72(w)	Gonzalez# - 1a, 1b, 1c	0.5	6.1	30	--	2.3E+02	1.1E+04	1.1E+02	3E-02	3E-03	-	**3E-02**
		2	1.6	ND	--	2.3E+02	1.1E+04	1.1E+02	7E-03	-	-	**7E-03**
B-73(w)	Gonzalez# - 2a, 2b, 2c	0.5	8.8	58	--	2.3E+02	1.1E+04	1.1E+02	4E-02	5E-03	-	**4E-02**
		2	1.6	ND	--	2.3E+02	1.1E+04	1.1E+02	7E-03	-	-	**7E-03**
B-74(w)	Clusters# - 1a,1b,1c	0.5	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
		2	6.4	31	--	2.3E+02	1.1E+04	1.1E+02	3E-02	3E-03	-	**3E-02**
B-75(w)	Clusters# - 2a,2b,2c	0.5	3.2	16	--	2.3E+02	1.1E+04	1.1E+02	1E-02	1E-03	-	**2E-02**
		2	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
B-76(w)	Clusters# - 3a,3b,3c	0.5	5.6	57	--	2.3E+02	1.1E+04	1.1E+02	2E-02	5E-03	-	**3E-02**
		2	4	39	--	2.3E+02	1.1E+04	1.1E+02	2E-02	4E-03	-	**2E-02**
B-77(w)	Chaz #- 1a,1b,1c	0.5	31	250	--	2.3E+02	1.1E+04	1.1E+02	1E-01	2E-02	-	**2E-01**
		2	4.5	35	--	2.3E+02	1.1E+04	1.1E+02	2E-02	3E-03	-	**2E-02**
B-78(w)	Chaz # - 2a,2b,2c	0.5	15	130	--	2.3E+02	1.1E+04	1.1E+02	7E-02	1E-02	-	**8E-02**
		2	5.3	48	--	2.3E+02	1.1E+04	1.1E+02	2E-02	4E-03	-	**3E-02**
B-79(w)	Gerrys #- 1a,1b,1c	0.5	45	200	--	2.3E+02	1.1E+04	1.1E+02	2E-01	2E-02	-	**2E-01**
		2	12	57	--	2.3E+02	1.1E+04	1.1E+02	5E-02	5E-03	-	**6E-02**
B-80(w)	Gerrys #- 2a,2b,2c	0.5	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
		2	62	200	--	2.3E+02	1.1E+04	1.1E+02	3E-01	2E-02	-	**3E-01**
B-80a(w)	Gerrys 2a	2	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
B-80b(w)	Gerrys 2b	2	190	600	--	2.3E+02	1.1E+04	1.1E+02	8E-01	6E-02	-	**9E-01**
		4	2	ND	--	2.3E+02	1.1E+04	1.1E+02	9E-03	-	-	**9E-03**
B-80c(w)	Gerrys 2c	2	3.2	16	--	2.3E+02	1.1E+04	1.1E+02	1E-02	1E-03	-	**2E-02**
B-81(w)	Gerrys # - 3a,3b,3c	0.5	170	670	--	2.3E+02	1.1E+04	1.1E+02	8E-01	6E-02	-	**8E-01**
		2	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
B-82(w)	Gerrys # - 4a,4b,4c	0.5	33	130	--	2.3E+02	1.1E+04	1.1E+02	1E-01	1E-02	-	**2E-01**
		2	ND	ND	--	2.3E+02	1.1E+04	1.1E+02	-	-	-	**0E+00**
B-83(w)	Gerrys Discrete	0.5	1.7	ND	--	2.3E+02	1.1E+04	1.1E+02	8E-03	-	-	**8E-03**
		2	110	390	--	2.3E+02	1.1E+04	1.1E+02	5E-01	4E-02	-	**5E-01**
		4	4.5	ND	--	2.3E+02	1.1E+04	1.1E+02	2E-02	-	-	**2E-02**
B-85(w)	JV # - 1a,1b,1c	0.5	8.6	ND	--	2.3E+02	1.1E+04	1.1E+02	4E-02	-	-	**4E-02**
		2	2.1	ND	--	2.3E+02	1.1E+04	1.1E+02	9E-03	-	-	**9E-03**
B-86(w)	Residence #- 1a,1b,1c	0.5	12	56	--	2.3E+02	1.1E+04	1.1E+02	5E-02	5E-03	-	**6E-02**
		2	34	140	--	2.3E+02	1.1E+04	1.1E+02	2E-01	1E-02	-	**2E-01**
B-87(w)	Residence #1 (discrete)	0.5	14	22	--	2.3E+02	1.1E+04	1.1E+02	6E-02	2E-03	-	**6E-02**
		2	500	1,400	--	2.3E+02	1.1E+04	1.1E+02	2E+00	1E-01	-	**2E+00**
		4	1.5	ND	--	2.3E+02	1.1E+04	1.1E+02	7E-03	-	-	**7E-03**
B-88(w)	Bay City # - 1a,1b,1c	0.5	6.3	33	--	2.3E+02	1.1E+04	1.1E+02	3E-02	3E-03	-	**3E-02**
		2	1.5	15	--	2.3E+02	1.1E+04	1.1E+02	7E-03	1E-03	-	**8E-03**
B-89(w)	Bay City # - 2a,2b,2c	0.5	8.9	54	--	2.3E+02	1.1E+04	1.1E+02	4E-02	5E-03	-	**4E-02**
		2	9.4	64	--	2.3E+02	1.1E+04	1.1E+02	4E-02	6E-03	-	**5E-02**

Maximum HI => 9E+00

Thomas Harder & Co.
Groundwater Consulting

TABLE 1b

Incremental Lifetime Cancer Risk (ILCR) Values

~ Default Residential Receptor ~

UPDATED Sample ID	ORIGINAL Consultant ID		Depth	Concentrations (in mg/kg) TPH as DIESEL	TPH as MOTOR OIL	Naphthalene	Residential ESLs for Cancer Endpoint (in mg/kg) TPH as DIESEL	TPH as MOTOR OIL	Naphthalene	ILCR Values (unitless) TPH as DIESEL	TPH as MOTOR OIL	Naphthalene	Σ ILCR = $ILCR_{total}$
B-3(t)	TB-3		0.5	ND	3,500	0.31	NC	NC	3.3E+00	NC	NC	9E-08	**9E-08**
			1.5	ND	1,800	1.50	NC	NC	3.3E+00	NC	NC	5E-07	**5E-07**
B-8(t)	TB-8		0.5	ND	32,000	0.22	NC	NC	3.3E+00	NC	NC	7E-08	**7E-08**
B-9(t)	TB-9		0.5	--	--	0.067	NC	NC	3.3E+00	NC	NC	2E-08	**2E-08**
T-2(t)	Area 1	T6	3.5	ND	85	0.016	NC	NC	3.3E+00	NC	NC	5E-09	**5E-09**
T-3(t)		T9	2	94	240	0.017	NC	NC	3.3E+00	NC	NC	5E-09	**5E-09**
T-4(t)		T10	1	ND	32	ND	NC	NC	3.3E+00	NC	NC	-	**0E+00**
T-6(t)		T12	1	ND	250	ND	NC	NC	3.3E+00	NC	NC	-	**0E+00**
T-7(t)	Area 2	T6	1	ND	ND	ND	NC	NC	3.3E+00	NC	NC	-	**0E+00**
T-8(t)		T12	2	ND	400	ND	NC	NC	3.3E+00	NC	NC	-	**0E+00**
T-9(t)		T15	2	ND	510	0.02	NC	NC	3.3E+00	NC	NC	6E-09	**6E-09**
T-11(t)	Area 5	T1	6	ND	680	0.018	NC	NC	3.3E+00	NC	NC	5E-09	**5E-09**
T-12(t)		T3	2	ND	800	0.043	NC	NC	3.3E+00	NC	NC	1E-08	**1E-08**
T-14(t)		T10	4	ND	18	ND	NC	NC	3.3E+00	NC	NC	-	**0E+00**
T-15(t)	Area 6	T1	2	ND	2,000	0.018	NC	NC	3.3E+00	NC	NC	5E-09	**5E-09**
T-16(t)		T1	8	ND	97,000	0.28	NC	NC	3.3E+00	NC	NC	9E-08	**9E-08**
T-17(t)	Area 8	T1	2	ND	51	ND	NC	NC	3.3E+00	NC	NC	-	**0E+00**
T-18(t)		Debris	--	ND	1,600	0.067	NC	NC	3.3E+00	NC	NC	2E-08	**2E-08**
B-10(w)	SB-1		0.5	180	2,400	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
			2	ND	22	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-11(w)	SB-2		0.5	670	5,500	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
			2	4.8	39	ND	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-12(w)	SB-3		0.5	8.3	80	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
			2	ND	29	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-13(w)	SB-4		0.5	3.5	45	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
			2	6.2	38	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-14(w)	SB-5		0.5	60	820	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
			2	8.9	63	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-15(w)	SB-6		0.5	15	170	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
			2	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-16(w)	SB-7		0.5	6.5	63	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
			2	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-17(w)	SB-8		0.5	53	750	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
			2	4.9	51	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-18(w)	SB-9		0.5	110	1,300	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
			2	10	98	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-19(w)	SB-10		0.5	7.1	48	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
			2	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-20(w)	SB-11		0.5	12	150	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
			2	ND	21	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**

TABLE 1b

Incremental Lifetime Cancer Risk (ILCR) Values

~ Default Residential Receptor ~

UPDATED Sample ID	ORIGINAL Consultant ID	Depth	Concentrations (in mg/kg)			Residential ESLs for Cancer Endpoint (in mg/kg)			ILCR Values (unitless)			
			TPH as DIESEL	TPH as MOTOR OIL	Naphthalene	TPH as DIESEL	TPH as MOTOR OIL	Naphthalene	TPH as DIESEL	TPH as MOTOR OIL	Naphthalene	Σ ILCR = $ILCR_{total}$
B-21(w)	SB-12	0.5	33	380	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	18	78	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-22(w)	SB-13	0.5	7.1	64	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	ND	19	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-23(w)	SB-14	0.5	150	1,600	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-24(w)	SB-15	0.5	10	140	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	ND	28	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-25(w)	DP-1	2	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-26(w)	DP-2	2	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-27(w)	DP-4	2	5.2	14	0.023	NC	NC	3.3E+00	NC	NC	7E-09	**7E-09**
B-28(w)	DP-5	2	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-29(w)	DP-6	2	5.6	23	ND	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-30(w)	DP-7	2	7.3	42	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-31(w)	DP-8	2	5.8	33	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-32(w)	DP-9	2	43	180	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-52(L)	G + G -1	2	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		4	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		6	160	1,200	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-55(L)	G + G -4	2	1.7	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		3	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-65(w)	G&G# - 1a,1b,1c	0.5	68	310	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-66(w)	G&G# - 2a,2b,2c	0.5	25	170	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	110	360	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-66a(w)	G&G 2a	2	19	78	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-66b(w)	G&G 2b	2	11	33	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		4	3.6	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-66c(w)	G&G 2c	2	21	86	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-67(w)	G&G# - 3a,3b,3c	0.5	60	700	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-68(w)	G&G# - 4a,4b,4c	0.5	620	3,300	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-69(w)	G&G# - 5a,5b,5c	0.5	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-70(w)	G&G Discrete #1	0.5	110	510	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	130	980	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		4	1.5	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-71(w)	EB-1	20	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		40	1.1	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**

TABLE 1b

Incremental Lifetime Cancer Risk (ILCR) Values

~ Default Residential Receptor ~

			Concentrations (in mg/kg)			Residential ESLs for Cancer Endpoint (in mg/kg)			ILCR Values (unitless)			
UPDATED Sample ID	**ORIGINAL Consultant ID**	**Depth**	**TPH as DIESEL**	**TPH as MOTOR OIL**	**Naphthalene**	**TPH as DIESEL**	**TPH as MOTOR OIL**	**Naphthalene**	**TPH as DIESEL**	**TPH as MOTOR OIL**	**Naphthalene**	**Σ ILCR = $ILCR_{total}$**
B-72(w)	Gonzalez# - 1a, 1b, 1c	0.5	6.1	30	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	1.6	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-73(w)	Gonzalez# - 2a, 2b, 2c	0.5	8.8	58	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	1.6	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-74(w)	Clusters# - 1a,1b,1c	0.5	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	6.4	31	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-75(w)	Clusters# - 2a,2b,2c	0.5	3.2	16	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-76(w)	Clusters# - 3a,3b,3c	0.5	5.6	57	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	4	39	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-77(w)	Chaz #- 1a,1b,1c	0.5	31	250	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	4.5	35	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-78(w)	Chaz # - 2a,2b,2c	0.5	15	130	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	5.3	48	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-79(w)	Gerrys #- 1a,1b,1c	0.5	45	200	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	12	57	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-80(w)	Gerrys #- 2a,2b,2c	0.5	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	62	200	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-80a(w)	Gerrys 2a	2	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-80b(w)	Gerrys 2b	2	190	600	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		4	2	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-80c(w)	Gerrys 2c	2	3.2	16	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-81(w)	Gerrys # - 3a,3b,3c	0.5	170	670	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-82(w)	Gerrys # - 4a,4b,4c	0.5	33	130	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	ND	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-83(w)	Gerrys Discrete	0.5	1.7	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	110	390	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		4	4.5	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-85(w)	JV # - 1a,1b,1c	0.5	8.6	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	2.1	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-86(w)	Residence #- 1a,1b,1c	0.5	12	56	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	34	140	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-87(w)	Residence #1 (discrete)	0.5	14	22	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	500	1,400	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		4	1.5	ND	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-88(w)	Bay City # - 1a,1b,1c	0.5	6.3	33	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	1.5	15	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
B-89(w)	Bay City # - 2a,2b,2c	0.5	8.9	54	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**
		2	9.4	64	--	NC	NC	3.3E+00	NC	NC	-	**0E+00**

Maximum $ILCR_{total}$ => **5E-07**

TABLE 2a

Hazard Quotient (HQ) and Hazard Index (HI) Values

~ Default Construction Worker Receptor ~

UPDATED Sample ID	ORIGINAL Consultant ID		Depth	Concentrations (in mg/kg) TPH as DIESEL	Concentrations (in mg/kg) TPH as MOTOR OIL	Concentrations (in mg/kg) Naphthalene	Construction Worker ESLs for Noncancer Endpoint (in mg/kg) TPH as DIESEL	Construction Worker ESLs for Noncancer Endpoint (in mg/kg) TPH as MOTOR OIL	Construction Worker ESLs for Noncancer Endpoint (in mg/kg) Naphthalene	HQ Values (unitless) TPH as DIESEL	HQ Values (unitless) TPH as MOTOR OIL	HQ Values (unitless) Naphthalene	Σ HQ = HI
B-3(t)	TB-3		0.5	ND	3,500	0.31	8.8E+02	3.2E+04	4.4E+02	-	1E-01	7E-04	**1E-01**
			1.5	ND	1,800	1.50	8.8E+02	3.2E+04	4.4E+02	-	6E-02	3E-03	**6E-02**
B-8(t)	TB-8		0.5	ND	32,000	0.22	8.8E+02	3.2E+04	4.4E+02	-	1E+00	5E-04	**1E+00**
B-9(t)	TB-9		0.5	--	--	0.067	8.8E+02	3.2E+04	4.4E+02	-	-	2E-04	**2E-04**
T-2(t)	Area 1	T6	3.5	ND	85	0.016	8.8E+02	3.2E+04	4.4E+02	-	3E-03	4E-05	**3E-03**
T-3(t)		T9	2	94	240	0.017	8.8E+02	3.2E+04	4.4E+02	1E-01	7E-03	4E-05	**1E-01**
T-4(t)		T10	1	ND	32	ND	8.8E+02	3.2E+04	4.4E+02	-	1E-03	-	**1E-03**
T-6(t)		T12	1	ND	250	ND	8.8E+02	3.2E+04	4.4E+02	-	8E-03	-	**8E-03**
T-7(t)	Area 2	T6	1	ND	ND	ND	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
T-8(t)		T12	2	ND	400	ND	8.8E+02	3.2E+04	4.4E+02	-	1E-02	-	**1E-02**
T-9(t)		T15	2	ND	510	0.02	8.8E+02	3.2E+04	4.4E+02	-	2E-02	5E-05	**2E-02**
T-11(t)	Area 5	T1	6	ND	680	0.018	8.8E+02	3.2E+04	4.4E+02	-	2E-02	4E-05	**2E-02**
T-12(t)		T3	2	ND	800	0.043	8.8E+02	3.2E+04	4.4E+02	-	2E-02	1E-04	**2E-02**
T-14(t)		T10	4	ND	18	ND	8.8E+02	3.2E+04	4.4E+02	-	6E-04	-	**6E-04**
T-15(t)	Area 6	T1	2	ND	2,000	0.018	8.8E+02	3.2E+04	4.4E+02	-	6E-02	4E-05	**6E-02**
T-16(t)		T1	8	ND	97,000	0.28	8.8E+02	3.2E+04	4.4E+02	-	3E+00	6E-04	**3E+00**
T-17(t)	Area 8	T1	2	ND	51	ND	8.8E+02	3.2E+04	4.4E+02	-	2E-03	-	**2E-03**
T-18(t)		Debris	--	ND	1,600	0.067	8.8E+02	3.2E+04	4.4E+02	-	5E-02	2E-04	**5E-02**
B-10(w)	SB-1		0.5	180	2,400	--	8.8E+02	3.2E+04	4.4E+02	2E-01	7E-02	-	**3E-01**
			2	ND	22	--	8.8E+02	3.2E+04	4.4E+02	-	7E-04	-	**7E-04**
B-11(w)	SB-2		0.5	670	5,500	--	8.8E+02	3.2E+04	4.4E+02	8E-01	2E-01	-	**9E-01**
			2	4.8	39	ND	8.8E+02	3.2E+04	4.4E+02	5E-03	1E-03	-	**7E-03**
B-12(w)	SB-3		0.5	8.3	80	--	8.8E+02	3.2E+04	4.4E+02	9E-03	2E-03	-	**1E-02**
			2	ND	29	--	8.8E+02	3.2E+04	4.4E+02	-	9E-04	-	**9E-04**
B-13(w)	SB-4		0.5	3.5	45	--	8.8E+02	3.2E+04	4.4E+02	4E-03	1E-03	-	**5E-03**
			2	6.2	38	--	8.8E+02	3.2E+04	4.4E+02	7E-03	1E-03	-	**8E-03**
B-14(w)	SB-5		0.5	60	820	--	8.8E+02	3.2E+04	4.4E+02	7E-02	3E-02	-	**9E-02**
			2	8.9	63	--	8.8E+02	3.2E+04	4.4E+02	1E-02	2E-03	-	**1E-02**
B-15(w)	SB-6		0.5	15	170	--	8.8E+02	3.2E+04	4.4E+02	2E-02	5E-03	-	**2E-02**
			2	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
B-16(w)	SB-7		0.5	6.5	63	--	8.8E+02	3.2E+04	4.4E+02	7E-03	2E-03	-	**9E-03**
			2	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
B-17(w)	SB-8		0.5	53	750	--	8.8E+02	3.2E+04	4.4E+02	6E-02	2E-02	-	**8E-02**
			2	4.9	51	--	8.8E+02	3.2E+04	4.4E+02	6E-03	2E-03	-	**7E-03**
B-18(w)	SB-9		0.5	110	1,300	--	8.8E+02	3.2E+04	4.4E+02	1E-01	4E-02	-	**2E-01**
			2	10	98	--	8.8E+02	3.2E+04	4.4E+02	1E-02	3E-03	-	**1E-02**
B-19(w)	SB-10		0.5	7.1	48	--	8.8E+02	3.2E+04	4.4E+02	8E-03	1E-03	-	**1E-02**
			2	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
B-20(w)	SB-11		0.5	12	150	--	8.8E+02	3.2E+04	4.4E+02	1E-02	5E-03	-	**2E-02**
			2	ND	21	--	8.8E+02	3.2E+04	4.4E+02	-	6E-04	-	**6E-04**

TABLE 2a

Hazard Quotient (HQ) and Hazard Index (HI) Values

~ Default Construction Worker Receptor ~

			Concentrations (in mg/kg)			Construction Worker ESLs for Noncancer Endpoint (in mg/kg)			HQ Values (unitless)			
UPDATED Sample ID	ORIGINAL Consultant ID	Depth	TPH as DIESEL	TPH as MOTOR OIL	Naphthalene	TPH as DIESEL	TPH as MOTOR OIL	Naphthalene	TPH as DIESEL	TPH as MOTOR OIL	Naphthalene	Σ HQ = HI
B-21(w)	SB-12	0.5	33	380	--	8.8E+02	3.2E+04	4.4E+02	4E-02	1E-02	-	**5E-02**
		2	18	78	--	8.8E+02	3.2E+04	4.4E+02	2E-02	2E-03	-	**2E-02**
B-22(w)	SB-13	0.5	7.1	64	--	8.8E+02	3.2E+04	4.4E+02	8E-03	2E-03	-	**1E-02**
		2	ND	19	--	8.8E+02	3.2E+04	4.4E+02	-	6E-04	-	**6E-04**
B-23(w)	SB-14	0.5	150	1,600	--	8.8E+02	3.2E+04	4.4E+02	2E-01	5E-02	-	**2E-01**
		2	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
B-24(w)	SB-15	0.5	10	140	--	8.8E+02	3.2E+04	4.4E+02	1E-02	4E-03	-	**2E-02**
		2	ND	28	--	8.8E+02	3.2E+04	4.4E+02	-	9E-04	-	**9E-04**
B-25(w)	DP-1	2	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
B-26(w)	DP-2	2	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
B-27(w)	DP-4	2	5.2	14	0.023	8.8E+02	3.2E+04	4.4E+02	6E-03	4E-04	5E-05	**6E-03**
B-28(w)	DP-5	2	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
B-29(w)	DP-6	2	5.6	23	ND	8.8E+02	3.2E+04	4.4E+02	6E-03	7E-04	-	**7E-03**
B-30(w)	DP-7	2	7.3	42	--	8.8E+02	3.2E+04	4.4E+02	8E-03	1E-03	-	**1E-02**
B-31(w)	DP-8	2	5.8	33	--	8.8E+02	3.2E+04	4.4E+02	7E-03	1E-03	-	**8E-03**
B-32(w)	DP-9	2	43	180	--	8.8E+02	3.2E+04	4.4E+02	5E-02	6E-03	-	**5E-02**
B-52(L)	G + G -1	2	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
		4	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
		6	160	1,200	--	8.8E+02	3.2E+04	4.4E+02	2E-01	4E-02	-	**2E-01**
B-55(L)	G + G -4	2	1.7	ND	--	8.8E+02	3.2E+04	4.4E+02	2E-03	-	-	**2E-03**
		3	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
B-65(w)	G&G# - 1a,1b,1c	0.5	68	310	--	8.8E+02	3.2E+04	4.4E+02	8E-02	1E-02	-	**9E-02**
		2	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
B-66(w)	G&G# - 2a,2b,2c	0.5	25	170	--	8.8E+02	3.2E+04	4.4E+02	3E-02	5E-03	-	**3E-02**
		2	110	360	--	8.8E+02	3.2E+04	4.4E+02	1E-01	1E-02	-	**1E-01**
B-66a(w)	G&G 2a	2	19	78	--	8.8E+02	3.2E+04	4.4E+02	2E-02	2E-03	-	**2E-02**
B-66b(w)	G&G 2b	2	11	33	--	8.8E+02	3.2E+04	4.4E+02	1E-02	1E-03	-	**1E-02**
		4	3.6	ND	--	8.8E+02	3.2E+04	4.4E+02	4E-03	-	-	**4E-03**
B-66c(w)	G&G 2c	2	21	86	--	8.8E+02	3.2E+04	4.4E+02	2E-02	3E-03	-	**3E-02**
B-67(w)	G&G# - 3a,3b,3c	0.5	60	700	--	8.8E+02	3.2E+04	4.4E+02	7E-02	2E-02	-	**9E-02**
		2	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
B-68(w)	G&G# - 4a,4b,4c	0.5	620	3,300	--	8.8E+02	3.2E+04	4.4E+02	7E-01	1E-01	-	**8E-01**
		2	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
B-69(w)	G&G# - 5a,5b,5c	0.5	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
		2	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
B-70(w)	G&G Discrete #1	0.5	110	510	--	8.8E+02	3.2E+04	4.4E+02	1E-01	2E-02	-	**1E-01**
		2	130	980	--	8.8E+02	3.2E+04	4.4E+02	1E-01	3E-02	-	**2E-01**
		4	1.5	ND	--	8.8E+02	3.2E+04	4.4E+02	2E-03	-	-	**2E-03**
B-71(w)	EB-1	20	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
		40	1.1	ND	--	8.8E+02	3.2E+04	4.4E+02	1E-03	-	-	**1E-03**

TABLE 2a

Hazard Quotient (HQ) and Hazard Index (HI) Values

~ Default Construction Worker Receptor ~

			Concentrations (in mg/kg)			Construction Worker ESLs for Noncancer Endpoint (in mg/kg)			HQ Values (unitless)			
UPDATED Sample ID	ORIGINAL Consultant ID	Depth	TPH as DIESEL	TPH as MOTOR OIL	Naphthalene	TPH as DIESEL	TPH as MOTOR OIL	Naphthalene	TPH as DIESEL	TPH as MOTOR OIL	Naphthalene	Σ HQ = HI
B-72(w)	Gonzalez# - 1a, 1b, 1c	0.5	6.1	30	--	8.8E+02	3.2E+04	4.4E+02	7E-03	9E-04	-	**8E-03**
		2	1.6	ND	--	8.8E+02	3.2E+04	4.4E+02	2E-03	-	-	**2E-03**
B-73(w)	Gonzalez# - 2a, 2b, 2c	0.5	8.8	58	--	8.8E+02	3.2E+04	4.4E+02	1E-02	2E-03	-	**1E-02**
		2	1.6	ND	--	8.8E+02	3.2E+04	4.4E+02	2E-03	-	-	**2E-03**
B-74(w)	Clusters# - 1a,1b,1c	0.5	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
		2	6.4	31	--	8.8E+02	3.2E+04	4.4E+02	7E-03	1E-03	-	**8E-03**
B-75(w)	Clusters# - 2a,2b,2c	0.5	3.2	16	--	8.8E+02	3.2E+04	4.4E+02	4E-03	5E-04	-	**4E-03**
		2	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
B-76(w)	Clusters# - 3a,3b,3c	0.5	5.6	57	--	8.8E+02	3.2E+04	4.4E+02	6E-03	2E-03	-	**8E-03**
		2	4	39	--	8.8E+02	3.2E+04	4.4E+02	5E-03	1E-03	-	**6E-03**
B-77(w)	Chaz #- 1a,1b,1c	0.5	31	250	--	8.8E+02	3.2E+04	4.4E+02	4E-02	8E-03	-	**4E-02**
		2	4.5	35	--	8.8E+02	3.2E+04	4.4E+02	5E-03	1E-03	-	**6E-03**
B-78(w)	Chaz # - 2a,2b,2c	0.5	15	130	--	8.8E+02	3.2E+04	4.4E+02	2E-02	4E-03	-	**2E-02**
		2	5.3	48	--	8.8E+02	3.2E+04	4.4E+02	6E-03	1E-03	-	**7E-03**
B-79(w)	Gerrys #- 1a,1b,1c	0.5	45	200	--	8.8E+02	3.2E+04	4.4E+02	5E-02	6E-03	-	**6E-02**
		2	12	57	--	8.8E+02	3.2E+04	4.4E+02	1E-02	2E-03	-	**2E-02**
B-80(w)	Gerrys #- 2a,2b,2c	0.5	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
		2	62	200	--	8.8E+02	3.2E+04	4.4E+02	7E-02	6E-03	-	**8E-02**
B-80a(w)	Gerrys 2a	2	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
B-80b(w)	Gerrys 2b	2	190	600	--	8.8E+02	3.2E+04	4.4E+02	2E-01	2E-02	-	**2E-01**
		4	2	ND	--	8.8E+02	3.2E+04	4.4E+02	2E-03	-	-	**2E-03**
B-80c(w)	Gerrys 2c	2	3.2	16	--	8.8E+02	3.2E+04	4.4E+02	4E-03	5E-04	-	**4E-03**
B-81(w)	Gerrys # - 3a,3b,3c	0.5	170	670	--	8.8E+02	3.2E+04	4.4E+02	2E-01	2E-02	-	**2E-01**
		2	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
B-82(w)	Gerrys # - 4a,4b,4c	0.5	33	130	--	8.8E+02	3.2E+04	4.4E+02	4E-02	4E-03	-	**4E-02**
		2	ND	ND	--	8.8E+02	3.2E+04	4.4E+02	-	-	-	**0E+00**
B-83(w)	Gerrys Discrete	0.5	1.7	ND	--	8.8E+02	3.2E+04	4.4E+02	2E-03	-	-	**2E-03**
		2	110	390	--	8.8E+02	3.2E+04	4.4E+02	1E-01	1E-02	-	**1E-01**
		4	4.5	ND	--	8.8E+02	3.2E+04	4.4E+02	5E-03	-	-	**5E-03**
B-85(w)	JV # - 1a,1b,1c	0.5	8.6	ND	--	8.8E+02	3.2E+04	4.4E+02	1E-02	-	-	**1E-02**
		2	2.1	ND	--	8.8E+02	3.2E+04	4.4E+02	2E-03	-	-	**2E-03**
B-86(w)	Residence #- 1a,1b,1c	0.5	12	56	--	8.8E+02	3.2E+04	4.4E+02	1E-02	2E-03	-	**2E-02**
		2	34	140	--	8.8E+02	3.2E+04	4.4E+02	4E-02	4E-03	-	**4E-02**
B-87(w)	Residence #1 (discrete)	0.5	14	22	--	8.8E+02	3.2E+04	4.4E+02	2E-02	7E-04	-	**2E-02**
		2	500	1,400	--	8.8E+02	3.2E+04	4.4E+02	6E-01	4E-02	-	**6E-01**
		4	1.5	ND	--	8.8E+02	3.2E+04	4.4E+02	2E-03	-	-	**2E-03**
B-88(w)	Bay City # - 1a,1b,1c	0.5	6.3	33	--	8.8E+02	3.2E+04	4.4E+02	7E-03	1E-03	-	**8E-03**
		2	1.5	15	--	8.8E+02	3.2E+04	4.4E+02	2E-03	5E-04	-	**2E-03**
B-89(w)	Bay City # - 2a,2b,2c	0.5	8.9	54	--	8.8E+02	3.2E+04	4.4E+02	1E-02	2E-03	-	**1E-02**
		2	9.4	64	--	8.8E+02	3.2E+04	4.4E+02	1E-02	2E-03	-	**1E-02**

Maximum HI => 3E+00

TABLE 2b

Incremental Lifetime Cancer Risk (ILCR) Values

~ Default Construction Worker Receptor ~

UPDATED Sample ID	ORIGINAL Consultant ID		Depth	Concentrations (in mg/kg) TPH as DIESEL	Concentrations (in mg/kg) TPH as MOTOR OIL	Concentrations (in mg/kg) Naphthalene	Construction Worker ESLs for Cancer Endpoint (in mg/kg) TPH as DIESEL	Construction Worker ESLs for Cancer Endpoint (in mg/kg) TPH as MOTOR OIL	Construction Worker ESLs for Cancer Endpoint (in mg/kg) Naphthalene	ILCR Values (unitless) TPH as DIESEL	ILCR Values (unitless) TPH as MOTOR OIL	ILCR Values (unitless) Naphthalene	Σ ILCR = $ILCR_{total}$
B-3(t)	TB-3		0.5	ND	3,500	0.31	NC	NC	3.5E+02	NC	NC	9E-10	**9E-10**
			1.5	ND	1,800	1.50	NC	NC	3.5E+02	NC	NC	4E-09	**4E-09**
B-8(t)	TB-8		0.5	ND	32,000	0.22	NC	NC	3.5E+02	NC	NC	6E-10	**6E-10**
B-9(t)	TB-9		0.5	--	--	0.067	NC	NC	3.5E+02	NC	NC	2E-10	**2E-10**
T-2(t)	Area 1	T6	3.5	ND	85	0.016	NC	NC	3.5E+02	NC	NC	5E-11	**5E-11**
T-3(t)		T9	2	94	240	0.017	NC	NC	3.5E+02	NC	NC	5E-11	**5E-11**
T-4(t)		T10	1	ND	32	ND	NC	NC	3.5E+02	NC	NC	-	**0E+00**
T-6(t)		T12	1	ND	250	ND	NC	NC	3.5E+02	NC	NC	-	**0E+00**
T-7(t)	Area 2	T6	1	ND	ND	ND	NC	NC	3.5E+02	NC	NC	-	**0E+00**
T-8(t)		T12	2	ND	400	ND	NC	NC	3.5E+02	NC	NC	-	**0E+00**
T-9(t)		T15	2	ND	510	0.02	NC	NC	3.5E+02	NC	NC	6E-11	**6E-11**
T-11(t)	Area 5	T1	6	ND	680	0.018	NC	NC	3.5E+02	NC	NC	5E-11	**5E-11**
T-12(t)		T3	2	ND	800	0.043	NC	NC	3.5E+02	NC	NC	1E-10	**1E-10**
T-14(t)		T10	4	ND	18	ND	NC	NC	3.5E+02	NC	NC	-	**0E+00**
T-15(t)	Area 6	T1	2	ND	2,000	0.018	NC	NC	3.5E+02	NC	NC	5E-11	**5E-11**
T-16(t)		T1	8	ND	97,000	0.28	NC	NC	3.5E+02	NC	NC	8E-10	**8E-10**
T-17(t)	Area 8	T1	2	ND	51	ND	NC	NC	3.5E+02	NC	NC	-	**0E+00**
T-18(t)		Debris	--	ND	1,600	0.067	NC	NC	3.5E+02	NC	NC	2E-10	**2E-10**
B-10(w)	SB-1		0.5	180	2,400	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
			2	ND	22	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-11(w)	SB-2		0.5	670	5,500	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
			2	4.8	39	ND	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-12(w)	SB-3		0.5	8.3	80	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
			2	ND	29	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-13(w)	SB-4		0.5	3.5	45	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
			2	6.2	38	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-14(w)	SB-5		0.5	60	820	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
			2	8.9	63	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-15(w)	SB-6		0.5	15	170	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
			2	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-16(w)	SB-7		0.5	6.5	63	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
			2	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-17(w)	SB-8		0.5	53	750	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
			2	4.9	51	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-18(w)	SB-9		0.5	110	1,300	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
			2	10	98	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-19(w)	SB-10		0.5	7.1	48	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
			2	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-20(w)	SB-11		0.5	12	150	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
			2	ND	21	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**

TABLE 2b

Incremental Lifetime Cancer Risk (ILCR) Values

~ Default Construction Worker Receptor ~

			Concentrations (in mg/kg)			Construction Worker ESLs for Cancer Endpoint (in mg/kg)			ILCR Values (unitless)			
UPDATED Sample ID	**ORIGINAL Consultant ID**	**Depth**	**TPH as DIESEL**	**TPH as MOTOR OIL**	**Naphthalene**	**TPH as DIESEL**	**TPH as MOTOR OIL**	**Naphthalene**	**TPH as DIESEL**	**TPH as MOTOR OIL**	**Naphthalene**	**Σ ILCR = $ILCR_{total}$**
B-21(w)	SB-12	0.5	33	380	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	18	78	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-22(w)	SB-13	0.5	7.1	64	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	ND	19	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-23(w)	SB-14	0.5	150	1,600	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-24(w)	SB-15	0.5	10	140	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	ND	28	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-25(w)	DP-1	2	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-26(w)	DP-2	2	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-27(w)	DP-4	2	5.2	14	0.023	NC	NC	3.5E+02	NC	NC	7E-11	**7E-11**
B-28(w)	DP-5	2	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-29(w)	DP-6	2	5.6	23	ND	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-30(w)	DP-7	2	7.3	42	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-31(w)	DP-8	2	5.8	33	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-32(w)	DP-9	2	43	180	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-52(L)	G + G -1	2	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		4	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		6	160	1,200	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-55(L)	G + G -4	2	1.7	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		3	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-65(w)	G&G# - 1a,1b,1c	0.5	68	310	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-66(w)	G&G# - 2a,2b,2c	0.5	25	170	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	110	360	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-66a(w)	G&G 2a	2	19	78	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-66b(w)	G&G 2b	2	11	33	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		4	3.6	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-66c(w)	G&G 2c	2	21	86	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-67(w)	G&G# - 3a,3b,3c	0.5	60	700	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-68(w)	G&G# - 4a,4b,4c	0.5	620	3,300	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-69(w)	G&G# - 5a,5b,5c	0.5	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-70(w)	G&G Discrete #1	0.5	110	510	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	130	980	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		4	1.5	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-71(w)	EB-1	20	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		40	1.1	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**

TABLE 2b
Incremental Lifetime Cancer Risk (ILCR) Values
~ Default Construction Worker Receptor ~

UPDATED Sample ID	ORIGINAL Consultant ID	Depth	Concentrations (in mg/kg) TPH as DIESEL	TPH as MOTOR OIL	Naphthalene	Construction Worker ESLs for Cancer Endpoint (in mg/kg) TPH as DIESEL	TPH as MOTOR OIL	Naphthalene	ILCR Values (unitless) TPH as DIESEL	TPH as MOTOR OIL	Naphthalene	Σ ILCR = $ILCR_{total}$
B-72(w)	Gonzalez# - 1a, 1b, 1c	0.5	6.1	30	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	1.6	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-73(w)	Gonzalez# - 2a, 2b, 2c	0.5	8.8	58	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	1.6	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-74(w)	Clusters# - 1a,1b,1c	0.5	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	6.4	31	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-75(w)	Clusters# - 2a,2b,2c	0.5	3.2	16	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-76(w)	Clusters# - 3a,3b,3c	0.5	5.6	57	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	4	39	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-77(w)	Chaz #- 1a,1b,1c	0.5	31	250	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	4.5	35	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-78(w)	Chaz # - 2a,2b,2c	0.5	15	130	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	5.3	48	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-79(w)	Gerrys #- 1a,1b,1c	0.5	45	200	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	12	57	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-80(w)	Gerrys #- 2a,2b,2c	0.5	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	62	200	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-80a(w)	Gerrys 2a	2	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-80b(w)	Gerrys 2b	2	190	600	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		4	2	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-80c(w)	Gerrys 2c	2	3.2	16	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-81(w)	Gerrys # - 3a,3b,3c	0.5	170	670	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-82(w)	Gerrys # - 4a,4b,4c	0.5	33	130	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	ND	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-83(w)	Gerrys Discrete	0.5	1.7	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	110	390	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		4	4.5	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-85(w)	JV # - 1a,1b,1c	0.5	8.6	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	2.1	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-86(w)	Residence #- 1a,1b,1c	0.5	12	56	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	34	140	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-87(w)	Residence #1 (discrete)	0.5	14	22	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	500	1,400	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		4	1.5	ND	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-88(w)	Bay City # - 1a,1b,1c	0.5	6.3	33	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	1.5	15	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
B-89(w)	Bay City # - 2a,2b,2c	0.5	8.9	54	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**
		2	9.4	64	--	NC	NC	3.5E+02	NC	NC	-	**0E+00**

Maximum $ILCR_{total}$ => **4E-09**

TABLE 3a
Comparison of Lead Concentrations
to Residential ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID		Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-1(t)	TB-1		0.5	--	80	-	-
B-2(t)	TB-2		0.5	--	80	-	-
B-3(t)	TB-3		0.5	12	80	No	-
			1.5	140	80	Yes	1.5
			2.5	--	80	-	-
			4	--	80	-	-
B-4(t)	TB-4		0.5	--	80	-	-
B-5(t)	TB-5		0.5	--	80	-	-
B-6(t)	TB-6		0.75	--	80	-	-
B-7(t)	TB-7		0.5	--	80	-	-
B-8(t)	TB-8		0.5	23	80	No	-
			1.5	--	80	-	-
			2.5	--	80	-	-
			4	--	80	-	-
B-9(t)	TB-9		0.5	40	80	No	-
			1.5	--	80	-	-
			2.5	--	80	-	-
			4	--	80	-	-
T-1(t)	Area 1	T4	4	--	80	-	-
T-2(t)		T6	3.5	20	80	No	-
T-3(t)		T9	2	29	80	No	-
T-4(t)		T10	1	6.8	80	No	-
T-5(t)		T11	1.5	--	80	-	-
T-6(t)		T12	1	76	80	No	-
T-7(t)	Area 2	T6	1	8.6	80	No	-
T-8(t)		T12	2	22	80	No	-
T-9(t)		T15	2	55	80	No	-
T-10(t)	Area 3	T1	3	--	80	-	-
T-11(t)	Area 5	T1	6	3,200	80	Yes	6
T-12(t)		T3	2	1,100	80	Yes	2
T-13(t)		T5	3	--	80	-	-
T-14(t)		T10	4	16	80	No	-
T-15(t)	Area 6	T1	2	130	80	Yes	2
T-16(t)		T1*	8	310	80	Yes	8
T-17(t)	Area 8	T1	2	120	80	Yes	2
T-18(t)		Debris	--	50	80	No	-
B-10(w)	SB-1		0.5	63	80	No	-
			2	13	80	No	-
B-11(w)	SB-2		0.5	110	80	Yes	0.5
			2	9.9	80	No	-
B-12(w)	SB-3		0.5	250	80	Yes	0.5
			2	17	80	No	-
B-13(w)	SB-4		0.5	52	80	No	-
			2	14	80	No	-

TABLE 3a
Comparison of Lead Concentrations to Residential ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-14(w)	SB-5	0.5	23	80	No	-
		2	6.9	80	No	-
B-41(L)	R-2	0.5	6.9	80	No	-
		2	5.5	80	No	-
		3	5.2	80	No	-
B-42(L)	R-3	1	5.4	80	No	-
		3	5.9	80	No	-
B-43(L)	GZ-1	2	9.4	80	No	-
		3	5.1	80	No	-
B-44(L)	GZ-2	1	44	80	No	-
		3	9.8	80	No	-
B-45(L)	BC-1	3	13	80	No	-
		5	9	80	No	-
		7	33	80	No	-
B-46(L)	BC-2	3	21	80	No	-
		5	25	80	No	-
		7	8.9	80	No	-
B-47(L)	BC-3	3	11	80	No	-
		5	9.3	80	No	-
		7	17	80	No	-
B-48(L)	BC-4	3	17	80	No	-
		5	6.5	80	No	-
		7	7.6	80	No	-
B-49(L)	CZ-1	2	1	80	No	-
		4	10	80	No	-
B-50(L)	CZ-2	1	6.9	80	No	-
		3	6.8	80	No	-
		7	7.7	80	No	-
		11	7.9	80	No	-
B-51(L)	CZ-3	2	8.2	80	No	-
B-52(L)	G+G-1	2	8	80	No	-
		4	10	80	No	-
		6	77	80	No	-
B-53(L)	G+G-2	2	6.8	80	No	-
		4	6.5	80	No	-
		6	3.9	80	No	-
B-54(L)	G+G-3	0.5	7	80	No	-
		2	6.4	80	No	-
B-55(L)	G+G-4	0.5	24	80	No	-
		2	6	80	No	-
		3	9.1	80	No	-
B-56(L)	G+G-5	2	5.1	80	No	-
		4	5.1	80	No	-

TABLE 3a
Comparison of Lead Concentrations to Residential ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-57(L)	G+G-6	2	7.2	80	No	-
		4	5.3	80	No	-
B-69(w)	G&G# - 5a,5b,5c	0.5	32	80	No	-
		2	17	80	No	-
B-69a(w)	G&G 5a	0.5	37	80	No	-
B-69b(w)	G&G 5b	0.5	33	80	No	-
B-69c(w)	G&G 5c	0.5	69	80	No	-
B-72(w)	Gonzalez# - 1a, 1b, 1c	0.5	17	80	No	-
		2	14	80	No	-
B-73(w)	Gonzalez# - 2a, 2b, 2c	0.5	100	80	Yes	0.5
		2	16	80	No	-
B-73a(w)	Gonzalez 2a	0.5	33	80	No	-
B-73b(w)	Gonzalez 2b	0.5	120	80	Yes	0.5
B-73c(w)	Gonzalez 2c	0.5	85	80	Yes	0.5
B-74(w)	Clusters# - 1a,1b,1c	0.5	16	80	No	-
		2	20	80	No	-
B-75(w)	Clusters# - 2a,2b,2c	0.5	16	80	No	-
		2	17	80	No	-
B-76(w)	Clusters# - 3a,3b,3c	0.5	41	80	No	-
		2	31	80	No	-
B-77(w)	Chaz #- 1a,1b,1c	0.5	34	80	No	-
		2	100	80	Yes	2
B-77a(w)	Chaz 1a	2	280	80	Yes	2
B-77b(w)	Chaz 1b	2	36	80	No	-
B-77c(w)	Chaz 1c	2	19	80	No	-
B-78(w)	Chaz # - 2a,2b,2c	0.5	26	80	No	-
		2	38	80	No	-
B-79(w)	Gerrys #- 1a,1b,1c	0.5	29	80	No	-
		2	28	80	No	-
B-80(w)	Gerrys #- 2a,2b,2c	0.5	17	80	No	-
		2	21	80	No	-
B-81(w)	Gerrys # - 3a,3b,3c	0.5	130	80	Yes	0.5
		2	19	80	No	-
B-81a(w)	Gerrys 3a	0.5	46	80	No	-
		2	--	80	-	-
B-81b(w)	Gerrys 3b	0.5	110	80	Yes	0.5
		2	--	80	-	-
B-81c(w)	Gerrys 3c	0.5	15	80	No	-
		2	--	80	-	-
B-82(w)	Gerrys # - 4a,4b,4c	0.5	47	80	No	-
		2	20	80	No	-

TABLE 3a
Comparison of Lead Concentrations
to Residential ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-82a(w)	Gerrys 4a	2	--	80	-	-
B-82b(w)	Gerrys 4b	2	--	80	-	-
B-82c(w)	Gerrys 4c	2	--	80	-	-
B-85(w)	JV # - 1a,1b,1c	0.5	60	80	No	-
		2	22	80	No	-
B-85a(w)	JV 1a	0.5	48	80	No	-
B-85b(w)	JV 1b	0.5	16	80	No	-
B-85c(w)	JV 1c	0.5	17	80	No	-
B-86(w)	Residence #- 1a,1b,1c	0.5	15	80	No	-
		2	18	80	No	-
B-88(w)	Bay City # - 1a,1b,1c	0.5	28	80	No	-
		2	18	80	No	-
B-89(w)	Bay City # - 2a,2b,2c	0.5	44	80	No	-
		2	48	80	No	-
B-15(w)	SB-6	0.5	32	80	No	-
		2	7.5	80	No	-
B-16(w)	SB-7	0.5	13	80	No	-
		2	11	80	No	-
B-17(w)	SB-8	0.5	17	80	No	-
		2	9.5	80	No	-
B-18(w)	SB-9	0.5	38	80	No	-
		2	8	80	No	-
B-19(w)	SB-10	0.5	15	80	No	-
		2	8.6	80	No	-
B-20(w)	SB-11	0.5	24	80	No	-
		2	12	80	No	-
B-21(w)	SB-12	0.5	25	80	No	-
		2	15	80	No	-
B-22(w)	SB-13	0.5	17	80	No	-
		2	8.3	80	No	-
B-23(w)	SB-14	0.5	12	80	No	-
		2	13	80	No	-
B-24(w)	SB-15	0.5	8.1	80	No	-
		2	9.6	80	No	-
B-25(w)	DP-1	2	9.1	80	No	-
B-26(w)	DP-2	2	9.4	80	No	-
B-27(w)	DP-4	2	9	80	No	-
B-28(w)	DP-5	2	5.9	80	No	-
B-29(w)	DP-6	2	7.5	80	No	-
B-30(w)	DP-7	2	8.8	80	No	-
B-31(w)	DP-8	2	23	80	No	-
B-32(w)	DP-9	2	14	80	No	-
B-33(L)	CL-1	1	9.9	80	No	-
		3	6.2	80	No	-

TABLE 3a
Comparison of Lead Concentrations to Residential ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-34(L)	CL-2	2	9.8	80	No	-
		3	7.7	80	No	-
B-35(L)	CL-3	2	5.7	80	No	-
		3	5.9	80	No	-
B-36(L)	CL-4	4	7.1	80	No	-
B-37(L)	CL-5	1	9.1	80	No	-
		3	7	80	No	-
B-38(L)	CL-6	1	8.6	80	No	-
		3	7.1	80	No	-
		5	12	80	No	-
		7	14	80	No	-
B-39(L)	CL-8	5	15	80	No	-
B-40(L)	R-1	0.5	8.6	80	No	-
		2	7.8	80	No	-
B-58(L)	G+G-7	2	8.2	80	No	-
		3.5	11	80	No	-
B-59(L)	G-1	2	42	80	No	-
		3	5.2	80	No	-
B-60(L)	G-2	2	14	80	No	-
		3	14	80	No	-
B-61(L)	G-3	0.5	11	80	No	-
		2	11	80	No	-
		3	13	80	No	-
B-62(L)	G-4	2	9	80	No	-
		3	7.4	80	No	-
B-63(L)	G-5	2	16	80	No	-
		4	15	80	No	-
		6	6.2	80	No	-
B-64(L)	G-6	2	6.1	80	No	-
		4	24	80	No	-
		6	10	80	No	-
SS-1(L)	SS-1	--	14	80	No	-
SS-2(L)	SS-2	--	28	80	No	-
SS-3(L)	SS-3	--	110	80	Yes	--
SS-4(L)	SS-4	--	15	80	No	-
SS-5(L)	SS-5	--	11	80	No	-
B-65(w)	G&G# - 1a,1b,1c	0.5	49	80	No	-
		2	70	80	No	-
B-65a(w)	G&G 1a	2	25	80	No	-
B-65b(w)	G&G 1b	2	89	80	Yes	2
B-65c(w)	G&G 1c	2	50	80	No	-

TABLE 3a
Comparison of Lead Concentrations to Residential ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-66(w)	G&G# - 2a,2b,2c	0.5	40	80	No	-
		2	43	80	No	-
B-67(w)	G&G# - 3a,3b,3c	0.5	28	80	No	-
		2	20	80	No	-
B-67a(w)	G&G 3a	2	--	80	-	-
B-67b(w)	G&G 3b	2	--	80	-	-
B-67c(w)	G&G 3c	2	--	80	-	-
B-68(w)	G&G# - 4a,4b,4c	0.5	5400	80	Yes	0.5
		2	66	80	No	-
B-68a(w)	G&G 4a	0.5	100	80	Yes	0.5
		2	260	80	Yes	2
B-68b(w)	G&G 4b	0.5	170	80	Yes	0.5
		2	150	80	Yes	2
B-68c(w)	G&G 4c	0.5	480	80	Yes	0.5
		2	25	80	No	-

TABLE 3b
Comparison of Lead Concentrations to Construction Worker ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID		Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-1(t)	TB-1		0.5	--	160	-	-
B-2(t)	TB-2		0.5	--	160	-	-
B-3(t)	TB-3		0.5	12	160	No	-
			1.5	140	160	No	-
			2.5	--	160	-	-
			4	--	160	-	-
B-4(t)	TB-4		0.5	--	160	-	-
B-5(t)	TB-5		0.5	--	160	-	-
B-6(t)	TB-6		0.75	--	160	-	-
B-7(t)	TB-7		0.5	--	160	-	-
B-8(t)	TB-8		0.5	23	160	No	-
			1.5	--	160	-	-
			2.5	--	160	-	-
			4	--	160	-	-
B-9(t)	TB-9		0.5	40	160	No	-
			1.5	--	160	-	-
			2.5	--	160	-	-
			4	--	160	-	-
T-1(t)	Area 1	T4	4	--	160	-	-
T-2(t)		T6	3.5	20	160	No	-
T-3(t)		T9	2	29	160	No	-
T-4(t)		T10	1	6.8	160	No	-
T-5(t)		T11	1.5	--	160	-	-
T-6(t)		T12	1	76	160	No	-
T-7(t)	Area 2	T6	1	8.6	160	No	-
T-8(t)		T12	2	22	160	No	-
T-9(t)		T15	2	55	160	No	-
T-10(t)	Area 3	T1	3	--	160	-	-
T-11(t)	Area 5	T1	6	3,200	160	Yes	6
T-12(t)		T3	2	1,100	160	Yes	2
T-13(t)		T5	3	--	160	-	-
T-14(t)		T10	4	16	160	No	-
T-15(t)	Area 6	T1	2	130	160	No	-
T-16(t)		T1*	8	310	160	Yes	8
T-17(t)	Area 8	T1	2	120	160	No	-
T-18(t)		Debris	--	50	160	No	-
B-10(w)	SB-1		0.5	63	160	No	-
			2	13	160	No	-
B-11(w)	SB-2		0.5	110	160	No	-
			2	9.9	160	No	-
B-12(w)	SB-3		0.5	250	160	Yes	0.5
			2	17	160	No	-
B-13(w)	SB-4		0.5	52	160	No	-
			2	14	160	No	-

TABLE 3b
Comparison of Lead Concentrations to Construction Worker ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-14(w)	SB-5	0.5	23	160	No	-
		2	6.9	160	No	-
B-41(L)	R-2	0.5	6.9	160	No	-
		2	5.5	160	No	-
		3	5.2	160	No	-
B-42(L)	R-3	1	5.4	160	No	-
		3	5.9	160	No	-
B-43(L)	GZ-1	2	9.4	160	No	-
		3	5.1	160	No	-
B-44(L)	GZ-2	1	44	160	No	-
		3	9.8	160	No	-
B-45(L)	BC-1	3	13	160	No	-
		5	9	160	No	-
		7	33	160	No	-
B-46(L)	BC-2	3	21	160	No	-
		5	25	160	No	-
		7	8.9	160	No	-
B-47(L)	BC-3	3	11	160	No	-
		5	9.3	160	No	-
		7	17	160	No	-
B-48(L)	BC-4	3	17	160	No	-
		5	6.5	160	No	-
		7	7.6	160	No	-
B-49(L)	CZ-1	2	1	160	No	-
		4	10	160	No	-
B-50(L)	CZ-2	1	6.9	160	No	-
		3	6.8	160	No	-
		7	7.7	160	No	-
		11	7.9	160	No	-
B-51(L)	CZ-3	2	8.2	160	No	-
B-52(L)	G+G-1	2	8	160	No	-
		4	10	160	No	-
		6	77	160	No	-
B-53(L)	G+G-2	2	6.8	160	No	-
		4	6.5	160	No	-
		6	3.9	160	No	-
B-54(L)	G+G-3	0.5	7	160	No	-
		2	6.4	160	No	-
B-55(L)	G+G-4	0.5	24	160	No	-
		2	6	160	No	-
		3	9.1	160	No	-
B-56(L)	G+G-5	2	5.1	160	No	-
		4	5.1	160	No	-

TABLE 3b
Comparison of Lead Concentrations
to Construction Worker ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-57(L)	G+G-6	2	7.2	160	No	-
		4	5.3	160	No	-
B-69(w)	G&G# - 5a,5b,5c	0.5	32	160	No	-
		2	17	160	No	-
B-69a(w)	G&G 5a	0.5	37	160	No	-
B-69b(w)	G&G 5b	0.5	33	160	No	-
B-69c(w)	G&G 5c	0.5	69	160	No	-
B-72(w)	Gonzalez# - 1a, 1b, 1c	0.5	17	160	No	-
		2	14	160	No	-
B-73(w)	Gonzalez# - 2a, 2b, 2c	0.5	100	160	No	-
		2	16	160	No	-
B-73a(w)	Gonzalez 2a	0.5	33	160	No	-
B-73b(w)	Gonzalez 2b	0.5	120	160	No	-
B-73c(w)	Gonzalez 2c	0.5	85	160	No	-
B-74(w)	Clusters# - 1a,1b,1c	0.5	16	160	No	-
		2	20	160	No	-
B-75(w)	Clusters# - 2a,2b,2c	0.5	16	160	No	-
		2	17	160	No	-
B-76(w)	Clusters# - 3a,3b,3c	0.5	41	160	No	-
		2	31	160	No	-
B-77(w)	Chaz #- 1a,1b,1c	0.5	34	160	No	-
		2	100	160	No	-
B-77a(w)	Chaz 1a	2	280	160	Yes	2
B-77b(w)	Chaz 1b	2	36	160	No	-
B-77c(w)	Chaz 1c	2	19	160	No	-
B-78(w)	Chaz # - 2a,2b,2c	0.5	26	160	No	-
		2	38	160	No	-
B-79(w)	Gerrys #- 1a,1b,1c	0.5	29	160	No	-
		2	28	160	No	-
B-80(w)	Gerrys #- 2a,2b,2c	0.5	17	160	No	-
		2	21	160	No	-
B-81(w)	Gerrys # - 3a,3b,3c	0.5	130	160	No	-
		2	19	160	No	-
B-81a(w)	Gerrys 3a	0.5	46	160	No	-
		2	--	160	-	-
B-81b(w)	Gerrys 3b	0.5	110	160	No	-
		2	--	160	-	-
B-81c(w)	Gerrys 3c	0.5	15	160	No	-
		2	--	160	-	-
B-82(w)	Gerrys # - 4a,4b,4c	0.5	47	160	No	-
		2	20	160	No	-

TABLE 3b
Comparison of Lead Concentrations to Construction Worker ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-82a(w)	Gerrys 4a	2	--	160	-	-
B-82b(w)	Gerrys 4b	2	--	160	-	-
B-82c(w)	Gerrys 4c	2	--	160	-	-
B-85(w)	JV # - 1a,1b,1c	0.5	60	160	No	-
		2	22	160	No	-
B-85a(w)	JV 1a	0.5	48	160	No	-
B-85b(w)	JV 1b	0.5	16	160	No	-
B-85c(w)	JV 1c	0.5	17	160	No	-
B-86(w)	Residence #- 1a,1b,1c	0.5	15	160	No	-
		2	18	160	No	-
B-88(w)	Bay City # - 1a,1b,1c	0.5	28	160	No	-
		2	18	160	No	-
B-89(w)	Bay City # - 2a,2b,2c	0.5	44	160	No	-
		2	48	160	No	-
B-15(w)	SB-6	0.5	32	160	No	-
		2	7.5	160	No	-
B-16(w)	SB-7	0.5	13	160	No	-
		2	11	160	No	-
B-17(w)	SB-8	0.5	17	160	No	-
		2	9.5	160	No	-
B-18(w)	SB-9	0.5	38	160	No	-
		2	8	160	No	-
B-19(w)	SB-10	0.5	15	160	No	-
		2	8.6	160	No	-
B-20(w)	SB-11	0.5	24	160	No	-
		2	12	160	No	-
B-21(w)	SB-12	0.5	25	160	No	-
		2	15	160	No	-
B-22(w)	SB-13	0.5	17	160	No	-
		2	8.3	160	No	-
B-23(w)	SB-14	0.5	12	160	No	-
		2	13	160	No	-
B-24(w)	SB-15	0.5	8.1	160	No	-
		2	9.6	160	No	-
B-25(w)	DP-1	2	9.1	160	No	-
B-26(w)	DP-2	2	9.4	160	No	-
B-27(w)	DP-4	2	9	160	No	-
B-28(w)	DP-5	2	5.9	160	No	-
B-29(w)	DP-6	2	7.5	160	No	-
B-30(w)	DP-7	2	8.8	160	No	-
B-31(w)	DP-8	2	23	160	No	-
B-32(w)	DP-9	2	14	160	No	-
B-33(L)	CL-1	1	9.9	160	No	-
		3	6.2	160	No	-

TABLE 3b
Comparison of Lead Concentrations to Construction Worker ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-34(L)	CL-2	2	9.8	160	No	-
		3	7.7	160	No	-
B-35(L)	CL-3	2	5.7	160	No	-
		3	5.9	160	No	-
B-36(L)	CL-4	4	7.1	160	No	-
B-37(L)	CL-5	1	9.1	160	No	-
		3	7	160	No	-
B-38(L)	CL-6	1	8.6	160	No	-
		3	7.1	160	No	-
		5	12	160	No	-
		7	14	160	No	-
B-39(L)	CL-8	5	15	160	No	-
B-40(L)	R-1	0.5	8.6	160	No	-
		2	7.8	160	No	-
B-58(L)	G+G-7	2	8.2	160	No	-
		3.5	11	160	No	-
B-59(L)	G-1	2	42	160	No	-
		3	5.2	160	No	-
B-60(L)	G-2	2	14	160	No	-
		3	14	160	No	-
B-61(L)	G-3	0.5	11	160	No	-
		2	11	160	No	-
		3	13	160	No	-
B-62(L)	G-4	2	9	160	No	-
		3	7.4	160	No	-
B-63(L)	G-5	2	16	160	No	-
		4	15	160	No	-
		6	6.2	160	No	-
B-64(L)	G-6	2	6.1	160	No	-
		4	24	160	No	-
		6	10	160	No	-
SS-1(L)	SS-1	--	14	160	No	-
SS-2(L)	SS-2	--	28	160	No	-
SS-3(L)	SS-3	--	110	160	No	-
SS-4(L)	SS-4	--	15	160	No	-
SS-5(L)	SS-5	--	11	160	No	-
B-65(w)	G&G# - 1a,1b,1c	0.5	49	160	No	-
		2	70	160	No	-
B-65a(w)	G&G 1a	2	25	160	No	-
B-65b(w)	G&G 1b	2	89	160	No	-
B-65c(w)	G&G 1c	2	50	160	No	-

TABLE 3b
Comparison of Lead Concentrations
to Construction Worker ESL Value

UPDATED Sample ID	ORIGINAL Consultant ID	Depth (ft)	Lead (mg/kg)	Lead ESL (mg/kg)	ESL Exceedance?	Depth of ESL Exceedance (ft)
B-66(w)	G&G# - 2a,2b,2c	0.5	40	160	No	-
		2	43	160	No	-
B-67(w)	G&G# - 3a,3b,3c	0.5	28	160	No	-
		2	20	160	No	-
B-67a(w)	G&G 3a	2	--	160	-	-
B-67b(w)	G&G 3b	2	--	160	-	-
B-67c(w)	G&G 3c	2	--	160	-	-
B-68(w)	G&G# - 4a,4b,4c	0.5	5400	160	Yes	0.5
		2	66	160	No	-
B-68a(w)	G&G 4a	0.5	100	160	No	-
		2	260	160	Yes	2
B-68b(w)	G&G 4b	0.5	170	160	Yes	0.5
		2	150	160	No	-
B-68c(w)	G&G 4c	0.5	480	160	Yes	0.5
		2	25	160	No	-

ATTACHMENT 1

Statistical Evaluation of Arsenic, Hexavalent Chromium, and Nickel Background Concentrations

ATTACHMENT 1

Statistical Evaluation of Arsenic, Hexavalent Chromium, and Nickel Background Concentrations Former Clusters Storage Yard Watsonville, California

This attachment provides a statistical evaluation of arsenic, hexavalent chromium (Cr[VI]), and nickel. The evaluation uses a multiple-lines-of-evidence approach to establish whether a site-related release of these metals has occurred and, as such, whether these metals should be included as 'chemicals of potential concern' (COPCs) to be included in quantitative risk calculations. The analysis is conducted consistent with California Environmental Protection Agency guidance (CalEPA, 1997) using U.S. Environmental Protection Agency statistical software (USEPA, 2015).

1 BACKGROUND

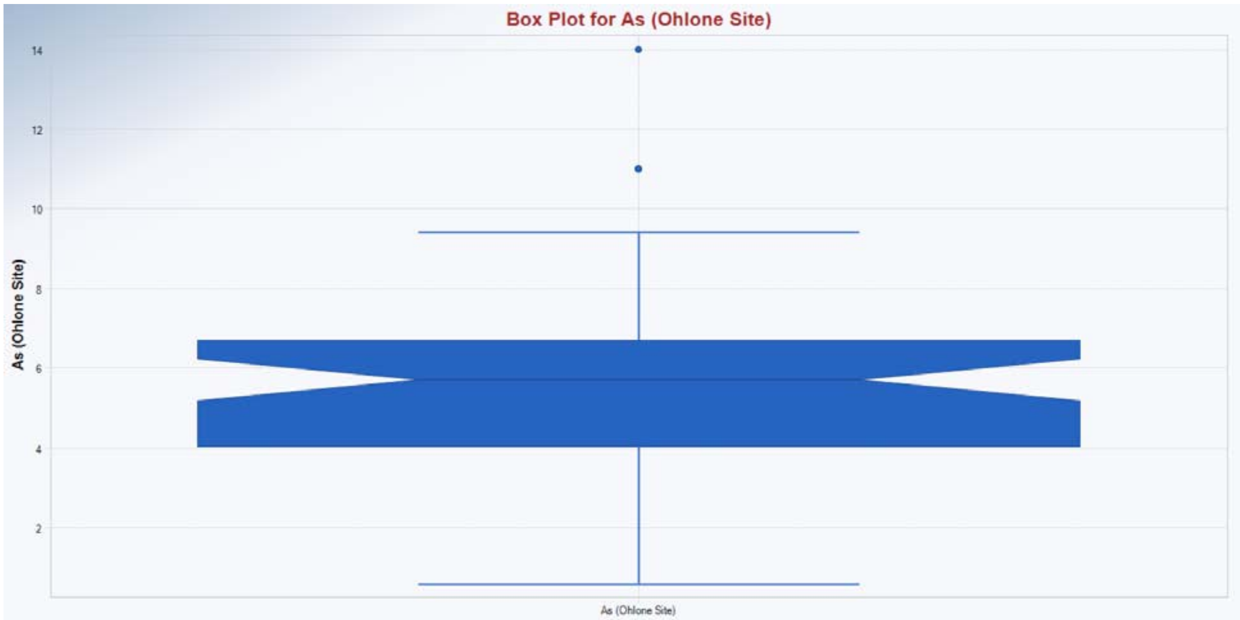
Seven contaminants of concern were identified in the RAP based on concentration exceedances of conservative, Tier-1 agency-established thresholds that are designed to be protective of human health and the environment (i.e., Environmental Screening Levels [ESLs], RWQCB, 2016). These contaminants include arsenic (up to 14 milligrams per kilogram [mg/kg]), Cr(VI) (up to 4.9 mg/kg), lead (up to 5,400 mg/kg), nickel (up to 150 mg/kg), total petroleum hydrocarbons as diesel (TPH-diesel, up to 670 mg/kg), total petroleum hydrocarbons as motor oil (TPH-motor oil, up to 97,000 mg/kg), and naphthalene (up to 1.5 mg/kg). The datasets for the three constituents considered in this analysis (arsenic, Cr[VI], and nickel) as excerpted from the RAP are included as **Enclosure A**.

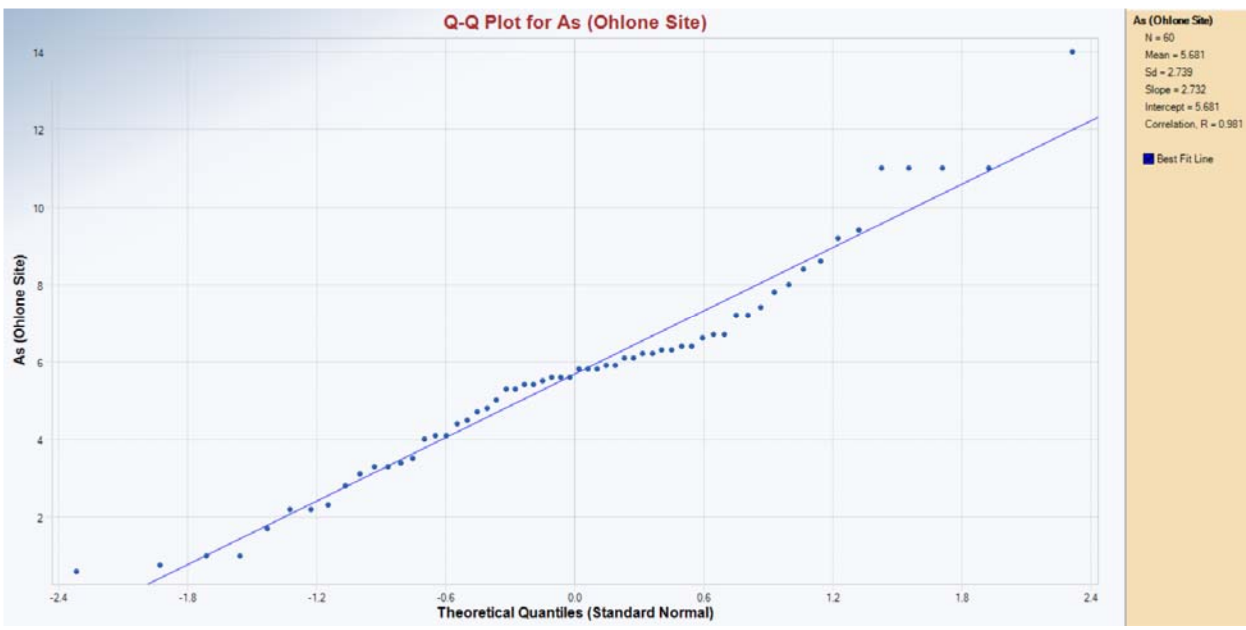
2 ARSENIC

The arsenic site dataset consists of samples collected in June and October 2016 as shown in **Enclosure A**. The summary statistics for the arsenic site dataset are as follows:

Total Number of Observations	60	Number of Distinct Observations	40
Minimum	0.6	First Quartile	4.075
Second Largest	11	Median	5.7
Maximum	14	Third Quartile	6.7
Mean	5.681	Standard Deviation (SD)	2.739
Coefficient of Variation	0.482	Skewness	0.517
Mean of logged Data	1.582	SD of logged Data	0.64

As shown in the above table, the range of concentrations is relatively narrow (i.e., minimum concentration of 0.6 mg/kg and maximum concentration of 14 mg/kg) with a relatively low coefficient of variation (0.482). Visual analyses using box and Q-Q plots show the arsenic site dataset to follow a normal distribution with potential outliers of 11 mg/kg (four samples) and 14 mg/kg (one sample).





Rosner's test was used to quantitatively assess the presence of outliers visually identified in the box and Q-Q plots. Rosner's test did not identify any outliers in the arsenic site dataset.

Given these findings, no outliers were removed from the arsenic site dataset. This uncensored dataset was further evaluated and found to follow an 'approximate normal distribution'[1] with a background threshold value (BTV) of 13.97 mg/kg (i.e., the 95% upper simultaneous limit [USL]), which is essentially equal to the maximum arsenic concentration detected at the Site (14 mg/kg).

Normal GOF Test			
Shapiro Wilk Test Statistic	0.961	Normal GOF Test	
5% Shapiro Wilk P Value	0.116	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.122	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.114	Data Not Normal at 5% Significance Level	
Data appear Approximate Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	11.21	90% Percentile (z)	9.192
95% UPL (t)	10.3	95% Percentile (z)	10.19
95% USL	13.97	99% Percentile (z)	12.05

Given the following lines of evidence, it appears that a site-related release of arsenic has not occurred:

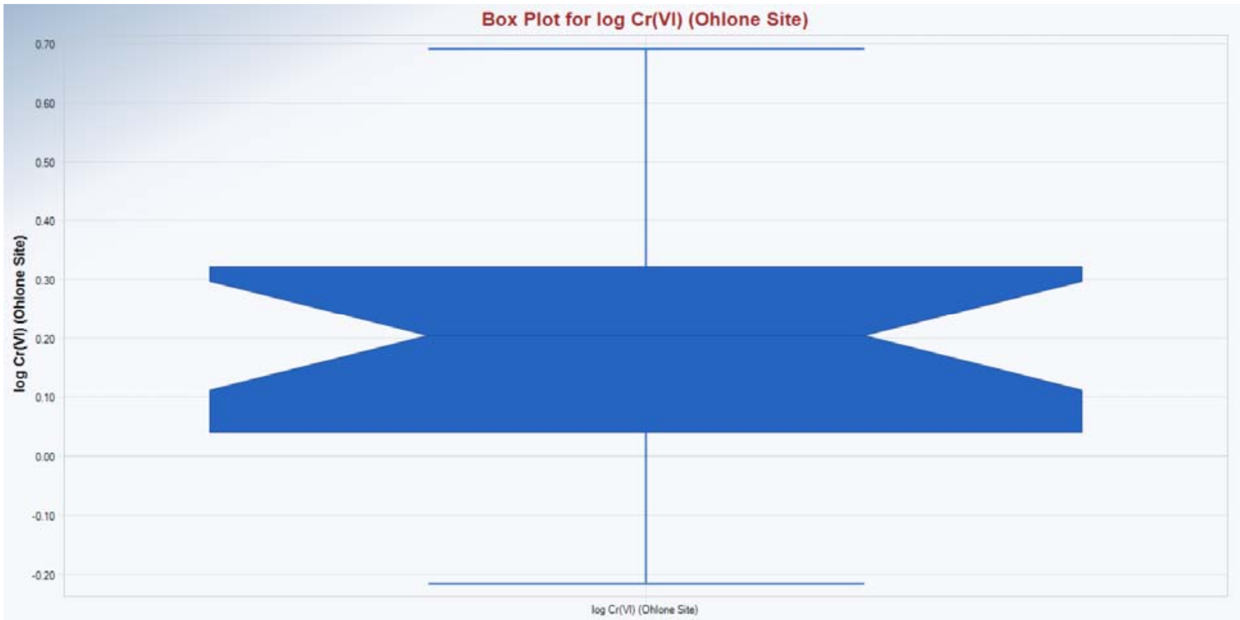
- arsenic concentrations fall within a narrow range;
- the coefficient of variation for the arsenic site dataset is less than 1;
- visual and quantitative analyses show the arsenic site dataset to be normally distributed;
- quantitative analysis shows the arsenic site dataset to contain no statistical outliers; and
- the BTV, quantified as the 95% USL (13.97 mg/kg), is essentially equal to the maximum detected concentration (14 mg/kg).

Given the finding that a site-related release of arsenic has not occurred, it is eliminated as a COPC.

3 HEXAVALENT CHROMIUM (CR[VI])

The Cr(VI) site dataset consists of samples collected during the one sampling episode in which it was analyzed (October 2016) as shown in **Enclosure A**. Visual analyses using box and Q-Q plots show the Cr(VI) site dataset to follow a lognormal distribution with no potential outliers as shown below.

[1] One of the two 'goodness of fit' (GOF) tests (i.e., the Shapiro-Wilk test) shows the arsenic site dataset to be normally distributed.



The summary statistics for the log-transformed Cr(VI) site dataset are as follows:

Total Number of Observations	23	Number of Distinct Observations	17
Minimum	-0.215	First Quartile	0.041
Second Largest	0.544	Median	0.204
Maximum	0.69	Third Quartile	0.322
Mean	0.211	Standard Deviation (SD)	0.22
Coefficient of Variation	1.041	Skewness	0.156

Using Dixon's test for outliers as programmed into ProUCL confirmed the visual analyses in that no outliers were identified in the log-transformed Cr(VI) site dataset.

Given these findings, the log-transformed Cr(VI) site dataset was then evaluated using ProUCL and found to follow a normal distribution (i.e., thus confirming the semi-quantitative analyses that the Cr[VI] site dataset follows a lognormal distribution) with a BTV of $10^{0.787}$ mg/kg (6.1 mg/kg; the 95% USL).

Normal GOF Test			
Shapiro Wilk Test Statistic	0.985	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.914	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.0961	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.18	Data appear Normal at 5% Significance Level	
Data appear Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	0.722	90% Percentile (z)	0.492
95% UPL (t)	0.596	95% Percentile (z)	0.572
95% USL	0.787	99% Percentile (z)	0.722

While recommended by CalEPA (1997), it is noted that USEPA (2015) recommends against using the lognormal distribution. To this end, the Cr(VI) site dataset is also found to follow a gamma distribution with 95% USLs ranging from 5.2 and 5.3 mg/kg.

Given the following lines of evidence, it appears that a site-related release of Cr(VI) has not occurred:

- Cr(VI) concentrations fall within a narrow range (0.61 to 4.9 mg/kg);
- the coefficient of variation of the log-transformed Cr(VI) dataset is approximately 1;
- visual and quantitative analyses show the log-transformed Cr(VI) site dataset to contain no statistical outliers;
- visual and quantitative analyses show the Cr(VI) site dataset to be lognormally distributed; and
- the BTV, quantified as the 95% USL for a lognormal distribution (6.1 mg/kg) and the 95% USLs for a gamma distribution (5.2 to 5.3 mg/kg), exceeds the maximum detected concentration (4.9 mg/kg).

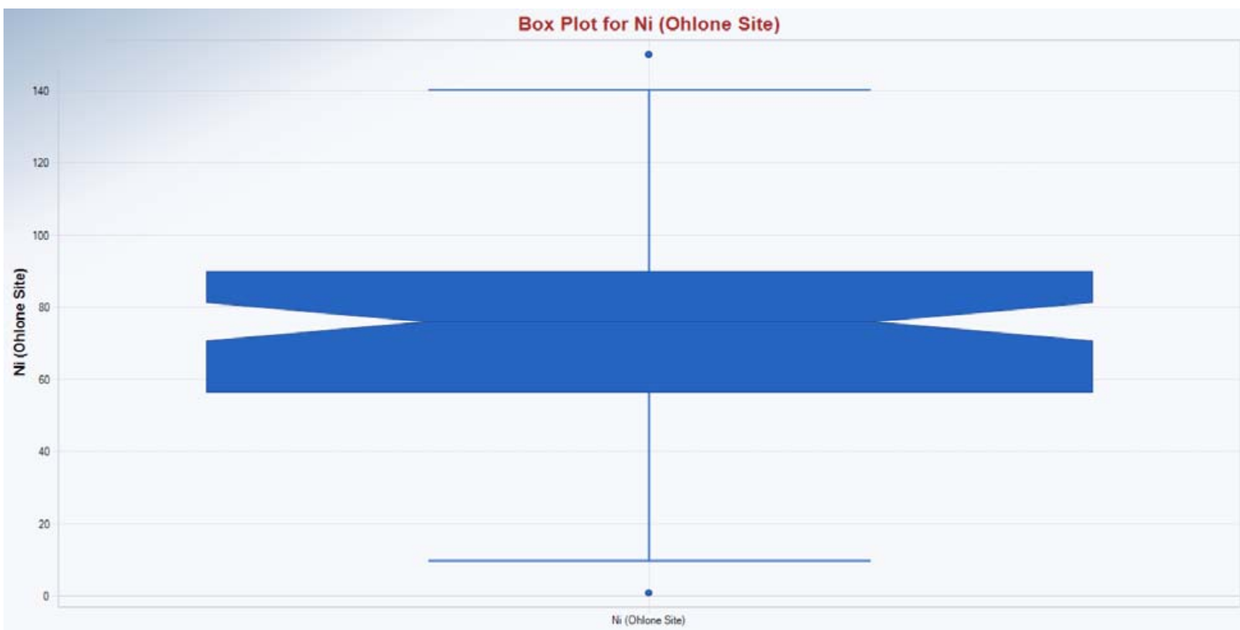
Given the finding that a site-related release of Cr(VI) has not occurred, it is eliminated as a COPC.

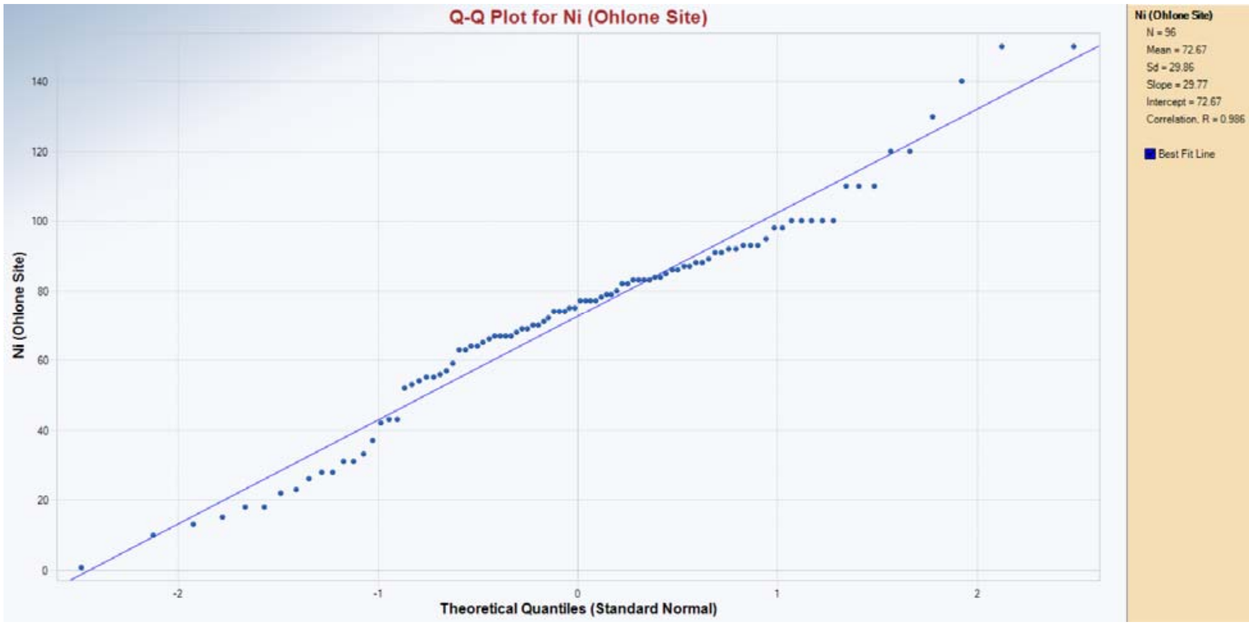
4 NICKEL

The nickel site dataset consists of samples collected during three sampling episodes (December 2003, June 2016, and October 2016) as shown in **Enclosure A**. The summary statistics for the nickel site dataset are as follows:

Total Number of Observations	96	Number of Distinct Observations	56
Minimum	0.76	First Quartile	56.75
Second Largest	150	Median	76
Maximum	150	Third Quartile	89.5
Mean	72.67	Standard Deviation (SD)	29.86
Coefficient of Variation	0.411	Skewness	-0.1
Mean of logged Data	4.14	SD of logged Data	0.698

Semi-quantitative analyses using box and Q-Q plots show the nickel site dataset to follow a normal distribution with potential outliers of 0.76 mg/kg (one sample) and 150 mg/kg (two samples) as shown in the figures that follow.





Using Rosner's test for outliers as programmed into ProUCL did not identify any outliers in the nickel site dataset.

Given these findings, the nickel site dataset was then further evaluated using ProUCL and found to follow an 'approximate normal distribution'[2] with a BTV of 168.1 mg/kg (i.e., the 95% USL).

		Normal GOF Test		
Shapiro Wilk Test Statistic	0.964	**Normal GOF Test**		
5% Shapiro Wilk P Value	0.0525	Data appear Normal at 5% Significance Level		
Lilliefors Test Statistic	0.102	**Lilliefors GOF Test**		
5% Lilliefors Critical Value	0.0907	Data Not Normal at 5% Significance Level		
		Data appear Approximate Normal at 5% Significance Level		
		Background Statistics Assuming Normal Distribution		
95% UTL with 95% Coverage	130.3		90% Percentile (z)	110.9
95% UPL (t)	122.5		95% Percentile (z)	121.8
95% USL	168.1		99% Percentile (z)	142.1

Given the following lines of evidence, it appears that a site-related release of nickel has not occurred:

- the coefficient of variation for the nickel site dataset is less than 1;
- quantitative analysis shows the nickel site dataset to contain no statistical outliers;
- visual and quantitative analyses show the nickel site dataset to be normally distributed; and

[2] One of the two 'goodness of fit' (GOF) tests (i.e., the Shapiro-Wilk test) shows the nickel site dataset to be normally distributed.

- the BTV, as the 95% USL (168.1 mg/kg), exceeds the maximum detected concentration (150 mg/kg).

Given the finding that a site-related release of nickel has not occurred, it is eliminated as a COPC.

5 Closing

The statistical analysis presented herein, using multiple lines of evidence and conducted in accordance with CalEPA and USEPA guidance using USEPA's statistical software ProUCL, supports the conclusion that site-related releases of arsenic, hexavalent chromium, and nickel have not occurred at the Site. Therefore, it is recommended that these three metals be eliminated as COPCs for the Site. Based on this finding and the other COPCs identified in the RAP, the COPCs for the Site are lead, TPH-diesel, TPH-motor oil, and naphthalene.

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Weber, Hayes & Associates, 2017a. Remedial Action Plan (RAP), Former Clusters Storage Yard, 511 Ohlone Parkway, Watsonville, California. September 13th.

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Enclosure

Enclosure A: Concentrations of Metal in Soil (Table 2 of the RAP)

Enclosure A

Table 2 from RAP

Table 2 - Metals
Soil Sample Test Results: CAM 17 METALS Analysis
Former Clusters Junkyard, 511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Info					*Laboratory Results: CAM 17 Metals plus Mercury*																		
Date Sampled	*UPDATED Sample ID*	*ORIGINAL Consultant ID*		*Depth*	*Antimony*	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Chromium	Hexavalent Chromium	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Mercury
October 2016 (sampled by Trinity Source Group)	**B-1(t)**	TB -1		0.5	--	--	--	--	--	--	--	1.4	--	--	--	--	--	--	--	--	--	--	--
	B-2(t)	TB-2		0.5	--	--	--	--	--	--	--	1.5	--	--	--	--	--	--	--	--	--	--	--
	B-3(t)	TB-3		0.5	ND	--	1	95	0.12	0.37	13	0.78	6.5	27	12	1	15	ND	0.1	0.12	51	71	0.044
				1.5	0.89	--	1.7	140	0.24	2.4	23	1.1	8.7	85	**140**	1.2	26	ND	0.18	ND	53	410	0.073
				2.5	--	--	--	--	--	--	--	1.6	--	--	--	--	--	--	--	--	--	--	--
				4	--	--	--	--	--	--	--	1.6	--	--	--	--	--	--	--	--	--	--	--
	B-4(t)	TB-4		0.5	--	--	--	--	--	--	--	2	--	--	--	--	--	--	--	--	--	--	--
	B-5(t)	TB-5		0.5	--	--	--	--	--	--	--	2.1	--	--	--	--	--	--	--	--	--	--	--
	B-6(t)	TB-6		0.75	--	--	--	--	--	--	--	1.8	--	--	--	--	--	--	--	--	--	--	--
	B-7(t)	TB-7		0.5	--	--	--	--	--	--	--	1.6	--	--	--	--	--	--	--	--	--	--	--
	B-8(t)	TB-8		0.5	0.75	--	0.77	54	0.14	0.71	9.9	1	6.6	54	23	2.4	9.9	ND	ND	ND	51	75	0.053
				1.5	--	--	--	--	--	--	--	3.3	--	--	--	--	--	--	--	--	--	--	--
				2.5	--	--	--	--	--	--	--	1.9	--	--	--	--	--	--	--	--	--	--	--
				4	--	--	--	--	--	--	--	0.61	--	--	--	--	--	--	--	--	--	--	--
	B-9(t)	TB-9		0.5	0.14	--	2.2	93	0.17	1.3	29	1.1	7.4	82	40	2.6	31	ND	0.12	ND	46	97	0.11
				1.5	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--
				2.5	--	--	--	--	--	--	--	2.7	--	--	--	--	--	--	--	--	--	--	--
				4	--	--	--	--	--	--	--	0.85	--	--	--	--	--	--	--	--	--	--	--
	T-1(t)	Area 1	T4	4	--	--	5.9^	--	--	--	--	2.1	--	--	--	--	--	--	--	--	--	--	--
	T-2(t)		T6	3.5	ND	--	4.4^	170^	0.30^	0.74^	21^	---	5.9^	15^	20^	0.91^	18^	ND	ND	ND	25^	68^	0.39
	T-3(t)		T9	2	ND	--	9.2^	110^	0.32^	1.4^	33^	---	9.6^	69^	29^	1.5^	37^	ND	ND	ND	44^	150^	0.28
	T-4(t)		T10	1	ND	--	3.3^	120^	0.50^	0.35^	31^	---	12^	10^	6.8^	0.48^	23^	ND	ND	ND	43^	39^	0.047
	T-5(t)		T11	1.5	--	--	5.5^	--	--	--	--	1.6	--	--	--	--	--	--	--	--	--	--	--
	T-6(t)		T12	1	ND	--	5.6^	170^	0.42^	0.68^	53^	---	13^	25^	76^	0.60^	57^	ND	ND	ND	49^	110^	0.14
	T-7(t)	Area 2	T6	1	ND	--	5.8^	210^	0.50^	0.38^	62^	---	16^	36^	8.6^	0.27^	100^	ND	ND	ND	42^	76^	0.17
	T-8(t)		T12	2	ND	--	5.0^	140^	0.30^	0.95^	77^	---	13^	31^	22^	0.63^	93^	ND	ND	ND	43^	110^	0.15
	T-9(t)		T15	2	ND	--	3.5^	83^	0.26^	0.53^	47^	---	11^	63^	55^	0.72^	52	ND	ND	ND	52	88^	0.16
	T-10(t)	Area 3	T1	3	--	--	8.6	--	--	--	--	3.5	--	--	--	--	--	--	--	--	--	--	--
	T-11(t)	Area 5	T1	6	1.5^	--	11^	2,100^	0.48^	**9.3^**	100^	---	16^	86^	**3,200^**	5.5^	140^	ND	ND	ND	42^	1,400^	0.14
	T-12(t)		T3	2	6.1^	--	9.4^	250^	0.45^	4.3^	57^	---	19^	100^	**1,100^**	2.8^	84^	ND	ND	ND	50^	380^	0.18
	T-13(t)		T5	3	--	--	5.8^	--	--	--	--	4.9	--	--	--	--	--	--	--	--	--	--	--
	T-14(t)		T10	4	ND	--	7.4^	260^	0.64^	0.44^	70^	---	18^	35^	16^	0.57^	110^	ND	ND	ND	48^	69^	0.09
	T-15(t)	Area 6	T1	2	0.62^	--	5.4^	130^	0.42^	1.2^	45^	2.3	12^	73^	**130^**	1.5^	59^	ND	ND	ND	49^	160^	0.11
	T-16(t)		T1*	8	1.6^	--	11^	120^	0.22^	2.6^	35^	---	8.1^	160^	**310^**	13^	74^	ND	ND	ND	62^	380^	0.18
	T-17(t)	Area 8	T1	2	0.56^	--	4.5^	120^	0.37^	3.0^	35^	---	9.7^	94^	50^	2.6^	42^	ND	0.77^	ND	59^	360^	0.099
	T-18(t)		Debris	--	ND	--	**14^**	330^	0.92^	1.6^	110^	---	**28^**	53^	**120^**	0.83^	150^	ND	ND	ND	61^	150^	0.17
RWQCB Environmental Screening Levels Residential					*31*	*NE*	*0.067* (3)	*15,000*	*42*	*39*	*120,000*	*0.3*	*23*	*3,100*	*80*	*390*	*86* (4)	*390*	*390*	*0.78*	*390*	*23,000*	*13*
US EPA RLs / DTSC-Modified SLs (Residential)					31 / --	77,000 / --	0.68 / 0.11	15,000 / --	160 / 15	71 / 5.2	120, 000 /36,000	0.3 / --	23 / --	3,100 / --	400 / 80	390 / --	-- / --	390 / --	390 / 390	0.78 / --	390 / 390	23,000 / --	11 / 1.0
Site Specific, Background Concentrations (Naturally-Occurring Metals)							**13.97** (3)					**6.1** (3)					**168.1** (3)						

Table 2 - Metals
Soil Sample Test Results: CAM 17 METALS Analysis
Former Clusters Junkyard, 511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Info				*Laboratory Results: CAM 17 Metals plus Mercury*																		
Date Sampled	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	*Antimony*	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Chromium	Hexavalent Chromium	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Mercury
June 2016 (Sampled by Weber Hayes and Associates)	B-10(w)	SB-1	0.5	ND	15,000	3.3	65	0.12[J]	1.7	24	---	12	140	63	2.3[J]	22	ND	0.41[J]	ND	54	110	0.060[J]
			2	ND	15,000	6.7	170	0.5	0.29[J]	52	---	13	31	13	ND	98	ND	0.31[J]	ND	33	66	0.056[J]
	B-11(w)	SB-2	0.5	ND	18,000	2.3	78	0.13[J]	1.8	28	---	9.7	690	**110**	2.6	150	ND	0.45[J]	ND	58	5,500	0.063[J]
			2	ND	17,000	11	120	0.49[J]	0.092[J]	62	---	14	41	9.9	ND	89	ND	0.44[J]	ND	41	71	0.083[J]
	B-12(w)	SB-3	0.5	ND	17,000	4.1	100	0.19[J]	0.8	39	---	11	170	**250**	1.0[J]	43	ND	1	ND	61	82	0.076[J]
			2	ND	22,000	1	130	0.48[J]	0.15[J]	75	---	11	35	17	ND	83	ND	0.21[J]	ND	23	71	0.21
	B-13(w)	SB-4	0.5	ND	18000^	5.9	180	0.49[J]	0.62	51	---	12	35	52	ND	67	6.2	0.24[J]	ND	43	61	0.044[J]
			2	ND	21000^	6.2	160	0.51	0.13[J]	57	---	15	34	14	ND	80	7.7	0.33[J]	ND	43	59	ND
	B-14(w)	SB-5	0.5	ND	17,000^	5.3	110	0.29[J]	0.34[J]	48	---	8.8	51	23	1.3[J]	54	7	1.1	ND	48	71	0.052[J]
			2	ND	19,000^	6.1	210	0.47[J]	ND	53	---	7.5	22	6.9	ND	64	ND	0.23[J]	ND	40	30	0.047[J]
	B-15(w)	SB-6	0.5	ND	17,000^	3.1	100	0.25[J]	0.29[J]	30	---	9.8	210	32	0.21[J]	33	7.1	0.33[J]	ND	47	77	0.070[J]
			2	ND	15,000^	5.3	200	0.5	ND	46	---	11	20	7.5	ND	55	ND	0.18[J]	ND	36	26	0.045[J]
	B-16(w)	SB-7	0.5	ND	12,000^	4	76	0.20[J]	0.15[J]	46	---	7.5	50	13	0.34[J]	43	ND	0.22[J]	0.50[J]	40	51	0.077[J]
			2	ND	16,000^	6.3	170	0.43[J]	0.085[J]	53	---	9.6	25	11	ND	69	ND	0.23[J]	ND	41	40	0.045[J]
	B-17(w)	SB-8	0.5	ND	15,000^	2.2	72	0.14[J]	0.25[J]	16	---	5.4	39	17	0.30[J]	18	ND	0.26[J]	ND	38	48	0.053[J]
			2	ND	16,000^	5.8	130	0.46[J]	ND	57	---	10	33	9.5	ND	79	ND	0.24[J]	ND	33	58	0.11[J]
	B-18(w)	SB-9	0.5	ND	22,000^	2.8	71	0.19[J]	0.78	19	---	9.4	87	38	0.36[J]	28	ND	0.28[J]	ND	58	58	0.12[J]
			2	ND	16,000^	5.4	170	0.52	ND	51	---	13	25	8	ND	69	ND	0.20[J]	ND	34	35	0.078[J]
	B-19(w)	SB-10	0.5	ND	19,000^	6.4	180	0.48[J]	0.16[J]	76	---	13	37	15	0.067[J]	86	ND	0.21[J]	ND	36	98^	0.15[J]
			2	ND	19,000^	8	66	0.47[J]	ND	71	---	10	35	8.6	ND	91	ND	0.16[J]	ND	42	74^	0.15[J]
	B-20(w)	SB-11	0.5	ND	25,000^	3.4	78	0.19[J]	0.78	27	---	11	72	24	0.41[J]	31	ND	0.27[J]	ND	66	130^	0.059[J]
			2	ND	19,000^	8.4	190	0.49[J]	0.16[J]	68	---	14	34	12	0.088[J]	93	ND	0.17[J]	ND	51	73^	0.23
	B-21(w)	SB-12	0.5	ND	17,000^	4.8	85	0.23[J]	0.22[J]	50	---	11	59	25	0.18[J]	53	ND	0.29[J]	0.68[J]	58	88^	0.12[J]
			2	ND	15,000^	4.7	89	0.26[J]	0.11[J]	54	---	10	59	15	1.7[J]	63	ND	0.30[J]	ND	48	60^	0.089[J]
	B-22(w)	SB-13	0.5	ND	18,000^	7.2	180	0.48[J]	0.087[J]	61	---	14	32	17	0.14[J]	88	ND	0.20[J]	ND	47	64^	0.079[J]
			2	ND	21,000^	7.8	180	0.5	0.34[J]	81	---	14	35	8.3	ND	95	ND	0.26[J]	ND	46	70^	0.16
	B-23(w)	SB-14	0.5	ND	14,000^	6.7	120	0.26[J]	0.077[J]	20	---	6.7	12	12	1.0[J]	13	ND	0.11[J]	1.3[J]	45	63^	0.044[J]
			2	ND	16,000^	6.3	130	0.48[J]	ND	55	---	11	23	13	ND	67	ND	0.13[J]	ND	37	43^	0.069[J]
	B-24(w)	SB-15	0.5	ND	17,000^	0.60[J]	3.7	0.052	0.64	ND	---	6.2	18	8.1	0.48[J]	0.76	ND	ND	ND	20	100^	0.15[J]
			2	ND	15,000^	6.2	100	0.42[J]	ND	51	---	**26**	21	9.6	ND	64	2.4	0.27[J]	ND	34	49^	0.044[J]
	B-25(w)	DP-1	2	ND	--	7.2	260	0.55	0.35[J]	61	---	17	26	9.1	ND	77	ND	0.25[J]	ND	48	40	ND
	B-26(w)	DP-2	2	ND	--	6.6	190	0.61	0.083[J]	65	---	13	31	9.4	ND	92	ND	0.21[J]	ND	46	49	ND
	B-27(w)	DP-4	2	ND	--	6.4	220	0.50	0.056[J]	59	---	13	29	9	ND	86	ND	0.24[J]	ND	41	48	ND
	B-28(w)	DP-5	2	ND	--	4.1	11	0.35[J]	ND	51	---	11	26	5.9	ND	70	ND	ND	ND	29	47	0.066[J]
	B-29(w)	DP-6	2	ND	--	5.6	210	0.52	ND	57	---	15	25	7.5	ND	87	ND	0.18[J]	ND	37	40	0.063[J]
	B-30(w)	DP-7	2	ND	--	6.1	210	0.58	0.067[J]	58	---	16	26	8.8	ND	82	ND	0.15[J]	ND	44	37	ND
	B-31(w)	DP-8	2	ND	--	11	160	0.48[J]	0.24[J]	70	---	16	40	23	0.14[J]	100	ND	0.31[J]	ND	42	72	0.078[J]
	B-32(w)	DP-9	2	ND	--	5.6	160	0.44[J]	0.090[J]	60	---	12	31	14	0.55[J]	83	ND	0.21[J]	ND	41	52	0.059[J]
RWQCB Environmental Screening Levels Residential				*31*	*NE*	*0.067* (3)	*15,000*	*42*	*39*	*120,000*	*0.3*	*23*	*3,100*	*80*	*390*	*86* (4)	*390*	*390*	*0.78*	*390*	*23,000*	*13*
US EPA RLs / DTSC-Modified SLs (Residential)				31 / --	77,000 / --	0.68 / 0.11	15,000 / --	160 / 15	71 / 5.2	120, 000 /36,000	0.3 / --	23 / --	3,100 / --	400 / 80	390 / --	-- / --	390 / --	390 / 390	0.78 / --	390 / 390	23,000 / --	11 / 1.0
Site Specific, Background Concentrations (Naturally-Occurring Metals)						**13.97** (3)					**6.1** (3)					**168.1** (3)						

Table 2 - Metals
Soil Sample Test Results: CAM 17 METALS Analysis
Former Clusters Junkyard, 511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Info				*Laboratory Results: CAM 17 Metals plus Mercury*																		
Date Sampled	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	*Antimony*	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Chromium	Hexavalent Chromium	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Mercury
August 2004 (Sampled by Lowney Associates)	**B-33(L)**	CL-1	1	---	---	---	---	---	---	---	---	---	---	9.9	---	---	---	---	---	---	---	---
			3	---	---	---	---	---	---	---	---	---	---	6.2	---	---	---	---	---	---	---	---
	B-34(L)	CL-2	2	---	---	---	---	---	---	---	---	---	---	9.8	---	---	---	---	---	---	---	---
			3	---	---	---	---	---	---	---	---	---	---	7.7	---	---	---	---	---	---	---	---
	B-35(L)	CL-3	2	---	---	---	---	---	---	---	---	---	---	5.7	---	---	---	---	---	---	---	---
			3	---	---	---	---	---	---	---	---	---	---	5.9	---	---	---	---	---	---	---	---
	B-36(L)	CL-4	4	---	---	---	---	---	---	---	---	---	---	7.1	---	---	---	---	---	---	---	---
	B-37(L)	CL-5	1	---	---	---	---	---	---	---	---	---	---	9.1	---	---	---	---	---	---	---	---
			3	---	---	---	---	---	---	---	---	---	---	7	---	---	---	---	---	---	---	---
	B-38(L)	CL-6	1	---	---	---	---	---	---	---	---	---	---	8.6	---	---	---	---	---	---	---	---
			3	---	---	---	---	---	---	---	---	---	---	7.1	---	---	---	---	---	---	---	---
			5	---	---	---	---	---	---	---	---	---	---	12	---	---	---	---	---	---	---	---
			7	---	---	---	---	---	---	---	---	---	---	14	---	---	---	---	---	---	---	---
	B-39(L)	CL-8	5	---	---	---	---	---	---	---	---	---	---	15	---	---	---	---	---	---	---	---
	B-40(L)	R-1	0.5	---	---	---	---	---	---	---	---	---	---	8.6	---	---	---	---	---	---	---	---
			2	---	---	---	---	---	---	---	---	---	---	7.8	---	---	---	---	---	---	---	---
	B-41(L)	R-2	0.5	---	---	---	---	---	---	---	---	---	---	6.9	---	---	---	---	---	---	---	---
			2	---	---	---	---	---	---	---	---	---	---	5.5	---	---	---	---	---	---	---	---
			3	---	---	---	---	---	---	---	---	---	---	5.2	---	---	---	---	---	---	---	---
	B-42(L)	R-3	1	---	---	---	---	---	---	---	---	---	---	5.4	---	---	---	---	---	---	---	---
			3	---	---	---	---	---	---	---	---	---	---	5.9	---	---	---	---	---	---	---	---
	B-43(L)	GZ-1	2	---	---	---	---	---	---	---	---	---	---	9.4	---	---	---	---	---	---	---	---
			3	---	---	---	---	---	---	---	---	---	---	5.1	---	---	---	---	---	---	---	---
	B-44(L)	GZ-2	1	---	---	---	---	---	---	---	---	---	---	44	---	---	---	---	---	---	---	---
			3	---	---	---	---	---	---	---	---	---	---	9.8	---	---	---	---	---	---	---	---
	B-45(L)	BC-1	3	---	---	---	---	---	---	---	---	---	---	13	---	---	---	---	---	---	---	---
			5	---	---	---	---	---	---	---	---	---	---	9	---	---	---	---	---	---	---	---
			7	---	---	---	---	---	---	---	---	---	---	33	---	---	---	---	---	---	---	---
	B-46(L)	BC-2	3	---	---	---	---	---	---	---	---	---	---	21	---	---	---	---	---	---	---	---
			5	---	---	---	---	---	---	---	---	---	---	25	---	---	---	---	---	---	---	---
			7	---	---	---	---	---	---	---	---	---	---	8.9	---	---	---	---	---	---	---	---
	B-47(L)	BC-3	3	---	---	---	---	---	---	---	---	---	---	11	---	---	---	---	---	---	---	---
			5	---	---	---	---	---	---	---	---	---	---	9.3	---	---	---	---	---	---	---	---
			7	---	---	---	---	---	---	---	---	---	---	17	---	---	---	---	---	---	---	---
	B-48(L)	BC-4	3	---	---	---	---	---	---	---	---	---	---	17	---	---	---	---	---	---	---	---
			5	---	---	---	---	---	---	---	---	---	---	6.5	---	---	---	---	---	---	---	---
			7	---	---	---	---	---	---	---	---	---	---	7.6	---	---	---	---	---	---	---	---
	B-49(L)	CZ-1	2	---	---	---	---	---	---	---	---	---	---	1	---	---	---	---	---	---	---	---
			4	---	---	---	---	---	---	---	---	---	---	10	---	---	---	---	---	---	---	---
	B-50(L)	CZ-2	1	---	---	---	---	---	---	---	---	---	---	6.9	---	---	---	---	---	---	---	---
			3	---	---	---	---	---	---	---	---	---	---	6.8	---	---	---	---	---	---	---	---
			7	---	---	---	---	---	---	---	---	---	---	7.7	---	---	---	---	---	---	---	---
			11	---	---	---	---	---	---	---	---	---	---	7.9	---	---	---	---	---	---	---	---
	B-51(L)	CZ-3	2	---	---	---	---	---	---	---	---	---	---	8.2	---	---	---	---	---	---	---	---
RWQCB Environmental Screening Levels Residential				*31*	*NE*	*0.067* (3)	*15,000*	*42*	*39*	*120,000*	*0.3*	*23*	*3,100*	*80*	*390*	*86* (4)	*390*	*390*	*0.78*	*390*	*23,000*	*13*
US EPA RLs / DTSC-Modified SLs (Residential)				31 / --	77,000 / --	0.68 / 0.11	15,000 / --	160 / 15	71 / 5.2	120, 000 /36,000	0.3 / --	23 / --	3,100 / --	400 / 80	390 / --	-- / --	390 / --	390 / 390	0.78 / --	390 / 390	23,000 / --	11 / 1.0
Site Specific, Background Concentrations (Naturally-Occurring Metals)						**13.97** (3)					**6.1** (3)					**168.1** (3)						

Table 2 - Metals
Soil Sample Test Results: CAM 17 METALS Analysis
Former Clusters Junkyard, 511 Ohlone Parkway, Watsonville
All soil results are in milligrams per Kilogram (mg/Kg)

Sample Info				*Laboratory Results: CAM 17 Metals plus Mercury*																		
Date Sampled	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	*Antimony*	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Chromium	Hexavalent Chromium	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Mercury
August 2004 - continued - (Sampled by Lowney Associates)	**B-52(L)**	G+G-1	2	---	---	---	---	---	---	---	---	---	---	8	---	---	---	---	---	---	---	---
			4	---	---	---	---	---	---	---	---	---	---	10	---	---	---	---	---	---	---	---
			6	---	---	---	---	---	---	---	---	---	---	**77**	---	---	---	---	---	---	---	---
	B-53(L)	G+G-2	2	---	---	---	---	---	---	---	---	---	---	6.8	---	---	---	---	---	---	---	---
			4	---	---	---	---	---	---	---	---	---	---	6.5	---	---	---	---	---	---	---	---
			6	---	---	---	---	---	---	---	---	---	---	3.9	---	---	---	---	---	---	---	---
	B-54(L)	G+G-3	0.5	---	---	---	---	---	---	---	---	---	---	7	---	---	---	---	---	---	---	---
			2	---	---	---	---	---	---	---	---	---	---	6.4	---	---	---	---	---	---	---	---
	B-55(L)	G+G-4	0.5	---	---	---	---	---	---	---	---	---	---	24	---	---	---	---	---	---	---	---
			2	---	---	---	---	---	---	---	---	---	---	6	---	---	---	---	---	---	---	---
			3	---	---	---	---	---	---	---	---	---	---	9.1	---	---	---	---	---	---	---	---
	B-56(L)	G+G-5	2	---	---	---	---	---	---	---	---	---	---	5.1	---	---	---	---	---	---	---	---
			4	---	---	---	---	---	---	---	---	---	---	5.1	---	---	---	---	---	---	---	---
	B-57(L)	G+G-6	2	---	---	---	---	---	---	---	---	---	---	7.2	---	---	---	---	---	---	---	---
			4	---	---	---	---	---	---	---	---	---	---	5.3	---	---	---	---	---	---	---	---
	B-58(L)	G+G-7	2	---	---	---	---	---	---	---	---	---	---	8.2	---	---	---	---	---	---	---	---
			3.5	---	---	---	---	---	---	---	---	---	---	11	---	---	---	---	---	---	---	---
	B-59(L)	G-1	2	---	---	---	---	---	---	---	---	---	---	42	---	---	---	---	---	---	---	---
			3	---	---	---	---	---	---	---	---	---	---	5.2	---	---	---	---	---	---	---	---
	B-60(L)	G-2	2	---	---	---	---	---	---	---	---	---	---	14	---	---	---	---	---	---	---	---
			3	---	---	---	---	---	---	---	---	---	---	14	---	---	---	---	---	---	---	---
	B-61(L)	G-3	0.5	---	---	---	---	---	---	---	---	---	---	11	---	---	---	---	---	---	---	---
			2	---	---	---	---	---	---	---	---	---	---	11	---	---	---	---	---	---	---	---
			3	---	---	---	---	---	---	---	---	---	---	13	---	---	---	---	---	---	---	---
	B-62(L)	G-4	2	---	---	---	---	---	---	---	---	---	---	9	---	---	---	---	---	---	---	---
			3	---	---	---	---	---	---	---	---	---	---	7.4	---	---	---	---	---	---	---	---
	B-63(L)	G-5	2	---	---	---	---	---	---	---	---	---	---	16	---	---	---	---	---	---	---	---
			4	---	---	---	---	---	---	---	---	---	---	15	---	---	---	---	---	---	---	---
			6	---	---	---	---	---	---	---	---	---	---	6.2	---	---	---	---	---	---	---	---
	B-64(L)	G-6	2	---	---	---	---	---	---	---	---	---	---	6.1	---	---	---	---	---	---	---	---
			4	---	---	---	---	---	---	---	---	---	---	24	---	---	---	---	---	---	---	---
			6	---	---	---	---	---	---	---	---	---	---	10	---	---	---	---	---	---	---	---
	SS-1(L)	SS-1	--	---	---	---	---	---	---	---	---	---	---	14	---	---	---	---	---	---	---	---
	SS-2(L)	SS-2	--	---	---	---	---	---	---	---	---	---	---	28	---	---	---	---	---	---	---	---
	SS-3(L)	SS-3	--	---	---	---	---	---	---	---	---	---	---	**110**	---	---	---	---	---	---	---	---
	SS-4(L)	SS-4	--	---	---	---	---	---	---	---	---	---	---	15	---	---	---	---	---	---	---	---
	SS-5(L)	SS-5	--	---	---	---	---	---	---	---	---	---	---	11	---	---	---	---	---	---	---	---
RWQCB Environmental Screening Levels Residential				*31*	*NE*	*0.067* (3)	*15,000*	*42*	*39*	*120,000*	*0.3*	*23*	*3,100*	*80*	*390*	*86* (4)	*390*	*390*	*0.78*	*390*	*23,000*	*13*
US EPA RLs / DTSC-Modified SLs (Residential)				31 / --	77,000 / --	0.68 / 0.11	15,000 / --	160 / 15	71 / 5.2	120, 000 /36,000	0.3 / --	23 / --	3,100 / --	400 / 80	390 / --	-- / --	390 / --	390 / 390	0.78 / --	390 / 390	23,000 / --	11 / 1.0
Site Specific, Background Concentrations (Naturally-Occurring Metals)						**13.97** (3)					**6.1** (3)					**168.1** (3)						

Table 2 - Metals
Soil Sample Test Results: CAM 17 METALS Analysis
Former Clusters Junkyard, 511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

Sample Info				*Laboratory Results: CAM 17 Metals plus Mercury*																		
Date Sampled	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	*Antimony*	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Chromium	Hexavalent Chromium	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Mercury
December 2003 (Sampled by Weber Hayes and Associates)	**B-65(w)**	G&G# - 1a,1b,1c	0.5	---	---	---	---	---	ND	65	---	---	---	49	---	93	---	---	---	---	99	0.076
			2	---	---	---	---	---	ND	83	---	---	---	70	---	130	---	---	---	---	110	--
	B-65a(w)	G&G 1a	2	---	---	---	---	---	--	64	---	---	---	25	---	--	---	---	---	---	--	--
	B-65b(w)	G&G 1b	2	---	---	---	---	---	--	85	---	---	---	**89**	---	--	---	---	---	---	--	--
	B-65c(w)	G&G 1c	2	---	---	---	---	---	--	72	---	---	---	50	---	--	---	---	---	---	--	--
	B-66(w)	G&G# - 2a,2b,2c	0.5	---	---	---	---	---	ND	50	---	---	---	40	---	70	---	---	---	---	93	ND
			2	---	---	---	---	---	ND	48	---	---	---	43	---	75	---	---	---	---	65	--
	B-67(w)	G&G# - 3a,3b,3c	0.5	---	---	---	---	---	ND	60	---	---	---	28	---	82	---	---	---	---	94	0.065
			2	---	---	---	---	---	ND	71	---	---	---	20	---	100	---	---	---	---	79	---
	B-67a(w)	G&G 3a	2	---	---	---	---	---	---	74	---	---	---	---	---	---	---	---	---	---	---	---
	B-67b(w)	G&G 3b	2	---	---	---	---	---	---	53	---	---	---	---	---	---	---	---	---	---	---	---
	B-67c(w)	G&G 3c	2	---	---	---	---	---	---	75	---	---	---	---	---	---	---	---	---	---	---	---
	B-68(w)	G&G# - 4a,4b,4c	0.5	---	---	---	---	---	ND	19	---	---	---	**5,400**	---	28	---	---	---	---	370	---
			2	---	---	---	---	---	ND	54	---	---	---	**66**	---	77	---	---	---	---	280	---
	B-68a(w)	G&G 4a	0.5	---	---	---	---	---	---	---	---	---	---	**100**	---	---	---	---	---	---	---	---
			2	---	---	---	---	---	---	---	---	---	---	**260**	---	---	---	---	---	---	---	---
	B-68b(w)	G&G 4b	0.5	---	---	---	---	---	---	---	---	---	---	**170**	---	---	---	---	---	---	---	---
			2	---	---	---	---	---	---	---	---	---	---	**150**	---	---	---	---	---	---	---	---
	B-68c(w)	G&G 4c	0.5	---	---	---	---	---	---	---	---	---	---	**480**	---	---	---	---	---	---	---	---
			2	---	---	---	---	---	---	---	---	---	---	25	---	---	---	---	---	---	---	---
	B-69(w)	G&G# - 5a,5b,5c	0.5	---	---	---	---	---	ND	50	---	---	---	32	---	67	---	---	---	---	75	---
			2	---	---	---	---	---	ND	53	---	---	---	17	---	85	---	---	---	---	47	---
	B-69a(w)	G&G 5a	0.5	---	---	---	---	---	---	---	---	---	---	37	---	---	---	---	---	---	---	---
	B-69b(w)	G&G 5b	0.5	---	---	---	---	---	---	---	---	---	---	33	---	---	---	---	---	---	---	---
	B-69c(w)	G&G 5c	0.5	---	---	---	---	---	---	---	---	---	---	69	---	---	---	---	---	---	---	---
	B-72(w)	Gonzalez# - 1a, 1b, 1c	0.5	---	---	---	---	---	ND	43	---	---	---	17	---	67	---	---	---	---	45	---
			2	---	---	---	---	---	ND	55	---	---	---	14	---	74	---	---	---	---	45	---
	B-73(w)	Gonzalez# - 2a, 2b, 2c	0.5	---	---	---	---	---	ND	58	---	---	---	**100**	---	92	---	---	---	---	110	0.083
			2	---	---	---	---	---	ND	61	---	---	---	16	---	88	---	---	---	---	50	---
	B-73a(w)	Gonzalez 2a	0.5	---	---	---	---	---	---	---	---	---	---	33	---	---	---	---	---	---	---	---
	B-73b(w)	Gonzalez 2b	0.5	---	---	---	---	---	---	---	---	---	---	**120**	---	---	---	---	---	---	---	---
	B-73c(w)	Gonzalez 2c	0.5	---	---	---	---	---	---	---	---	---	---	**85**	---	---	---	---	---	---	---	---
	B-74(w)	Clusters# - 1a,1b,1c	0.5	---	---	---	---	---	ND	63	---	---	---	16	---	100	---	---	---	---	54	---
			2	---	---	---	---	---	ND	59	---	---	---	20	---	79	---	---	---	---	64	---
	B-75(w)	Clusters# - 2a,2b,2c	0.5	---	---	---	---	---	ND	61	---	---	---	16	---	120	---	---	---	---	58	---
			2	---	---	---	---	---	ND	61	---	---	---	17	---	110	---	---	---	---	64	---
	B-76(w)	Clusters# - 3a,3b,3c	0.5	---	---	---	---	---	ND	50	---	---	---	41	---	72	---	---	---	---	62	---
			2	---	---	---	---	---	ND	46	---	---	---	31	---	71	---	---	---	---	61	---
	B-77(w)	Chaz #- 1a,1b,1c	0.5	---	---	---	---	---	ND	44	---	---	---	34	---	55	---	---	---	---	69	---
			2	---	---	---	---	---	1.2	53	---	---	---	**100**	---	77	---	---	---	---	160	---
	B-77a(w)	Chaz 1a	2	---	---	---	---	---	---	---	---	---	---	**280**	---	---	---	---	---	---	---	---
	B-77b(w)	Chaz 1b	2	---	---	---	---	---	---	---	---	---	---	36	---	---	---	---	---	---	---	---
	B-77c(w)	Chaz 1c	2	---	---	---	---	---	---	---	---	---	---	19	---	---	---	---	---	---	---	---
RWQCB Environmental Screening Levels Residential				*31*	*NE*	*0.067* (3)	*15,000*	*42*	*39*	*120,000*	*0.3*	*23*	*3,100*	*80*	*390*	*86* (4)	*390*	*390*	*0.78*	*390*	*23,000*	*13*
US EPA RLs / DTSC-Modified SLs (Residential)				31 / --	77,000 / --	0.68 / 0.11	15,000 / --	160 / 15	71 / 5.2	120, 000 /36,000	0.3 / --	23 / --	3,100 / --	400 / 80	390 / --	-- / --	390 / --	390 / 390	0.78 / --	390 / 390	23,000 / --	11 / 1.0
Site Specific, Background Concentrations (Naturally-Occurring Metals)						**13.97** (3)					**6.1** (3)					**168.1** (3)						

Table 2 - Metals

Soil Sample Test Results: CAM 17 METALS Analysis

Former Clusters Junkyard, 511 Ohlone Parkway, Watsonville

All soil results are in milligrams per Kilogram (mg/Kg)

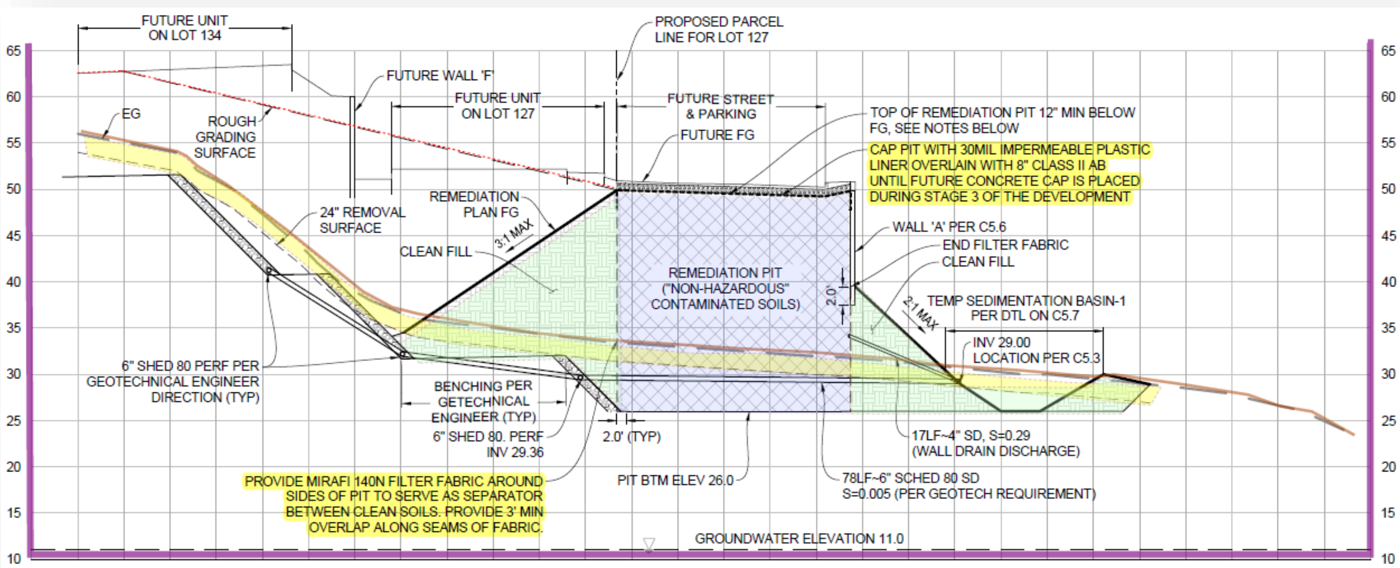
Sample Info				*Laboratory Results: CAM 17 Metals plus Mercury*																		
Date Sampled	*UPDATED Sample ID*	*ORIGINAL Consultant ID*	*Depth*	*Antimony*	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Chromium	Hexavalent Chromium	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Mercury
December 2003 - continued - (Sampled by Weber Hayes and Associates)	**B-78(w)**	Chaz # - 2a,2b,2c	0.5	---	---	---	---	---	ND	54	---	---	---	26	---	84	---	---	---	---	71	---
			2	---	---	---	---	---	ND	57	---	---	---	38	---	83	---	---	---	---	69	---
	B-79(w)	Gerrys #- 1a,1b,1c	0.5	---	---	---	---	---	ND	43	---	---	---	29	---	66	---	---	---	---	81	0.068
			2	---	---	---	---	---	ND	46	---	---	---	28	---	74	---	---	---	---	53	---
	B-80(w)	Gerrys #- 2a,2b,2c	0.5	---	---	---	---	---	ND	51	---	---	---	17	---	100	---	---	---	---	61	0.087
			2	---	---	---	---	---	ND	56	---	---	---	21	---	83	---	---	---	---	67	---
	B-81(w)	Gerrys # - 3a,3b,3c	0.5	---	---	---	---	---	ND	43	---	---	---	**130**	---	75	---	---	---	---	130	---
			2	---	---	---	---	---	ND	71	---	---	---	19	---	110	---	---	---	---	67	---
	B-81a(w)	Gerrys 3a	0.5	---	---	---	---	---	---	---	---	---	---	46	---	---	---	---	---	---	---	---
			2	---	---	---	---	---	---	79	---	---	---	---	---	---	---	---	---	---	---	---
	B-81b(w)	Gerrys 3b	0.5	---	---	---	---	---	---	---	---	---	---	**110**	---	---	---	---	---	---	---	---
			2	---	---	---	---	---	---	72	---	---	---	---	---	---	---	---	---	---	---	---
	B-81c(w)	Gerrys 3c	0.5	---	---	---	---	---	---	---	---	---	---	15	---	---	---	---	---	---	---	---
			2	---	---	---	---	---	---	71	---	---	---	---	---	---	---	---	---	---	---	---
	B-82(w)	Gerrys # - 4a,4b,4c	0.5	---	---	---	---	---	ND	50	---	---	---	47	---	87	---	---	---	---	86	---
			2	---	---	---	---	---	ND	**78**	---	---	---	20	---	120	---	---	---	---	78	---
	B-82a(w)	Gerrys 4a	2	---	---	---	---	---	---	97	---	---	---	---	---	---	---	---	---	---	---	---
	B-82b(w)	Gerrys 4b	2	---	---	---	---	---	---	77	---	---	---	---	---	---	---	---	---	---	---	---
	B-82c(w)	Gerrys 4c	2	---	---	---	---	---	---	77	---	---	---	---	---	---	---	---	---	---	---	---
	B-85(w)	JV # - 1a,1b,1c	0.5	---	---	---	---	---	ND	49	---	---	---	**60**	---	91	---	---	---	---	320	---
			2	---	---	---	---	---	ND	49	---	---	---	22	---	77	---	---	---	---	58	---
	B-85a(w)	JV 1a	0.5	---	---	---	---	---	---	---	---	---	---	48	---	---	---	---	---	---	---	---
	B-85b(w)	JV 1b	0.5	---	---	---	---	---	---	---	---	---	---	16	---	---	---	---	---	---	---	---
	B-85c(w)	JV 1c	0.5	---	---	---	---	---	---	---	---	---	---	17	---	---	---	---	---	---	---	---
	B-86(w)	Residence #- 1a,1b,1c	0.5	---	---	---	---	---	ND	45	---	---	---	15	---	68	---	---	---	---	42	---
			2	---	---	---	---	---	ND	53	---	---	---	18	---	78	---	---	---	---	51	---
	B-88(w)	Bay City # - 1a,1b,1c	0.5	---	---	---	---	---	ND	53	---	---	---	28	---	63	---	---	---	---	110	---
			2	---	---	---	---	---	ND	56	---	---	---	18	---	65	---	---	---	---	50	---
	B-89(w)	Bay City # - 2a,2b,2c	0.5	---	---	---	---	---	ND	46	---	---	---	44	---	56	---	---	---	---	120	---
			2	---	---	---	---	---	ND	50	---	---	---	48	---	98	---	---	---	---	120	---
RWQCB Environmental Screening Levels Residential				*31*	*NE*	*0.067* (3)	*15,000*	*42*	*39*	*120,000*	*0.3*	*23*	*3,100*	*80*	*390*	*86* (4)	*390*	*390*	*0.78*	*390*	*23,000*	*13*
US EPA RLs / DTSC-Modified SLs (Residential)				31 / --	77,000 / --	0.68 / 0.11	15,000 / --	160 / 15	71 / 5.2	120, 000 /36,000	0.3 / --	23 / --	3,100 / --	400 / 80	390 / --	-- / --	390 / --	390 / 390	0.78 / --	390 / 390	23,000 / --	11 / 1.0
Site Specific, Background Concentrations (Naturally-Occurring Metals)						**13.97** (3)					**6.1** (3)					**168.1** (3)						

APPENDIX D

Environmental Soil Management Plan (SMP)
&
Environmental Site Safety Plan (SSP)
for Remedial Grading & Soil Removal
Operations

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Drive, Watsonville, CA 95076
(831) 722-3580 // www.weber-hayes.com

Environmental Soil Management Plan
for a Construction Site
March 2022



Grading and Earthworks Project

***Site*:**

Hillcrest Development Project
511 Ohlone Parkway, Watsonville

Santa Cruz County
Assessor Parcel Number:

018-372-14
(11.3-acres)

***Prepared for Submittal to*:**

LANDCO Hillcrest, LLC.
c/o: Mark Lester, Lisa Li
Twenty Park Road
Burlingame, California 94010

Project: 2t159

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Figures

Appendices

1.0 INTRODUCTION

Weber, Hayes and Associates (WHA) has prepared this environmental *Soil Management Plan* (*Environmental SMP*) on behalf of LANDCO Hillcrest, LLC, for management of environmental work tasks that will be conducted on a vacant, 11.3-acre property that is being redeveloped into a residential neighborhood (511 Ohlone Parkway, Watsonville; "the Site", see *Location Map*, Figure 1). This environmental SMP addresses construction monitoring and soil handling procedures designed to address limited chemical impacts in surface/shallow soils originating from decades of vehicle storage activities. Surface and shallow soil samples obtained from across the property have characterized the Site through multiple rounds of soil and groundwater testing. These investigations included laboratory analysis of 249 soil samples collected from 145 locations across the Site. Multiple environmental consultant reports concluded that chemical impacts exceeding agency screening levels for residential land use were generally limited to the upper two (2) feet of soil (Trinity, 2018; WHA, 2018; Lowney, 2004). Agency oversight of ongoing assessment and Site-wide remediation remedial activities is provided by the County of Santa Cruz Environmental Health Services Agency, in accordance with a Site-specific, *Voluntary Cleanup Program* agreement (SC-HSA, 2016).

The irregularly-shaped subject Site is situated on a small hilltop that has been cut and filled over the years to create several flat-lying terrace areas. The Site is currently vacant (all structures and infrastructure were cleared from the site in 2017, see aerial birds eye view of the site, below).

View of the 11.3-acre, Multi-Terraced, Subject Site
(Google Earth Birds Eye View)

This *Environmental SMP* addresses simple soil and off-site soil disposal handing, worker-right-to-know, and documentation obligations required for this regulated Site. The *Environmental SMP* is designed to provide:

- Worker awareness (i.e., worker right-to-know) of the presence or potential presence of *Chemicals of Concern* (COCs) that have previously been identified in soil vapor, soil, and groundwater at the Site.
- Procedures to minimize risks to on-site construction workers (construction earthworks and utility installation workers), and neighboring residents, other trade workers, and customers from potential exposure to COCs during construction earthwork/utility installation tasks.
- Appropriate soil handling procedures and requirements for off-site disposal of surplus development soils. And
- Documentation procedures.

This *Environmental SMP* will be amended to be included as an exhibit in the *Land Use Covenant (LUC)* as the *Post-Construction Site Management Plan (Post-Construction SMP).* This separate document includes requirements for standard of care monitoring, agency notification and soil handling obligations for future cap repairs and/or repairs of utility located within the cap footprint. As note in the recent *Renewed Remedial Action Plan* (WHA 2022b), the LUC would run-with-the-land and will document existing conditions and future soil management obligations. The LUC will be an enforceable agreement between SC-HSA and the property owner and recorded with the Santa Cruz County Recorder’s Office to ensure that local agencies, the public, prospective purchasers and tenants are aware of capped footprint of consolidated soil contaminant compounds (non-hazardous) present at the Site.

1.1 Redevelopment Details (construction and earthworks)

The project site will be developed with 144 residential units and has limited changes to the original design such as the size and location of open space areas and stormwater management facilities on the site, alignment of on-site trails, alignment of internal circulation roads and utilities, and the use of more retaining walls to reduce extensive grading (Rincon, 2022). The conceptual site development plan for the project is shown on Figure 4.

In order to eliminate shallow, impacted soils from potential exposure to future onsite receptors, the remediation plan consists of the following steps:

1. Off-haul and landfill disposal of approximately 17,200 yd^3 of shallow contaminated soils.
2. In accordance with State Department of Toxic Substances’ Control remediation guidance, consolidation and on-site burial of approximately 18,000 yd^3 of shallow contaminated soils (non-hazardous) beneath an isolated, capped roadway/parking area in the northeastern corner of the development (see blue-shaded, capped area, right). And,
3. Emplacement of a clean, impervious cap (i.e., concrete) above the AOC-buried soils and as noted above, implementation of a *Land Use Covenant* that includes requirements for standard of care

monitoring and a *Post-Construction Site Management Plan* detailing agency notification and soil handling obligations for future cap or utility repairs. The impervious cap shall consist of a minimum thickness of 4-inches of concrete underlain by a minimum thickness of 8-inches of compacted base rock. DTSC guidance for AOC consolidation and capping does not restrict the installation of utilities within the footprint of a capped area. Guidance also states that storm water runoff associated with a cap that is integrated into a site development project is no different than would be expected from the development itself and would normally be addressed through development-related storm water management requirements. The following standard protections will be put in place:

- A drainage system consisting of inlet grates and pipes will be installed to capture and divert surface waters from the cap area to control run-on and run-off. Standard subsurface storm water drainage and piping controls will be installed to collect and redirect runoff/run-on from rainfall events from the impervious concrete surface to a water garden detention basin (see Civil Engineering Sheets C5-1 and C5-3 for details). For reference, the full set of civil engineering sheets and notes describing the Remediation and Rough Grading Plan for the Hillcrest development are included as Attachment 2 of this *Environmental SMP*.
- The structural quality of the subgrade soil has been evaluated to ensure that it has adequate strength to maintain the remediation pit are and cap (MPE, 2022). The top cover material for the concrete cap will be comprised of hydraulic concrete, which serves as a hydraulic barrier as well as a physical barrier. The 8-inches of crushed base rock layer is used to support the concrete layer of the cover and will be spread and compacted over the entire area of the cap.

These remedial earthworks steps have been integrated into the development's grading plan (Ramsey, 2022; earthworks and construction details are included as Figures 2 and 3 of this <u>*Environmental SMP*</u> and a complete set of plans are included as Attachment B).

- Site soils have already been profiled and approved for landfill disposal to: 1) John Smith Class III Landfill for acceptance of 16,700-yd^3 of non-hazardous contaminated soils, and 2) Kettleman Class I Landfill for acceptance of 1,500- yd^3 of California haz-waste classified soils.
- Rough grading/trenching for subsurface utilities within the capped footprint will follow the same requirements described in this SMP for the environmental earthworks and construction of the mitigation pit, including dust monitoring and placement of the separation fabric. Utility fill soils must be designated as clean (i.e., from a quarry or characterized as clean through clean borrow fill testing, DTSC 2001). Any surplus soils generated from utility trenching have already been included with the soil profile for the site and are approved for landfill disposal to John Smith Class III (non-hazardous) Landfill. The concrete cap above utilities within the cap-designated footprint must be installed in accordance with the design to maintain its integrity (i.e., of 4-inches of concrete underlain by a minimum thickness of 8-inches of compacted base rock – see Section 1.1 for details).

- Remedial & site development activities (digging, stockpiling, loading, & trucking) can begin immediately following agency approval of the *Renewed RAP*. A Site-specific, *Stormwater Pollution Protection Plan* (SWPPP) will be managed throughout the earthworks project.

A Licensed surveyor shall stake the limits of the fill pit to verify that the bottom elevation is 26 MSL, and that the appropriate footprint is maintained. The surveyor shall verify the footprint area of the remediation pit for every 5-ft of vertical fill to ensure the footprint is being maintained and verify the final elevation and lateral limits of the fill pit. The earthworks contractor will use GPS technology to verify the contaminated (non-hazardous) soils are placed in the correct location during the filling process.

1.2 Project Team Roles and Responsibilities

This section describes the general project team relevant to the excavation, handling, transportation, off-site disposal of contaminated materials and, as applicable, soil reuse.

1.2.1 General Contractor

Don Chapin Company, a licensed contractor (State contractor's License #406512 with Haz-Certification), has been selected as the General Contractor (Contractor) for the remedial and development earthworks (construction earthworks and utility grading). Because future planned construction activities will encounter soil with documented contaminants, the Contractor will be required to implement this *Environmental SMP* addressing excavation and management, direct-loading, temporary stockpiling, possible off-site disposal, and measures to protect worker (construction earthworks and utility installation workers) and public health and the environment from impacts caused by the Contractor's activities. The Contractor shall be responsible for assigning qualified personnel to execute the work, and for selecting and supervising the work of other subcontractors assigned to the project.

The Contractor shall provide a site Superintendent, who will be responsible for site activities. The site Superintendent's responsibilities will include oversight of equipment, labor, materials, and resources needed to complete the project as it involves the impacted materials.

1.2.2 Subcontractors

The Contractor may utilize subcontractors to execute subtasks of this project. The supervision, inspection, and approval of such subcontractor work will be the responsibility of the Contractor.

1.2.3 Environmental Consultant

Weber, Hayes and Associates has been selected as the qualified environmental professional (Environmental Consultant) to provide environmental oversight services for site construction activities involving contaminated soil. During ground disturbing activities in areas where soil contamination has been identified, the Consultant will be onsite to periodically oversee, assist with, and confirm implementation of this SoMP. The Environmental Consultant will also advise the Contractor how to recognize previously unknown soil contamination. If previously unknown soil contamination is found, Environmental Consultant will provide guidance to the Contractor on segregation of materials as necessary and assist in characterizing and profiling if such materials are proposed to be transported and disposed of offsite. The Contractor and/or Environmental Consultant will document soil excavation, disposal, and import activities on daily field reports, which will be maintained onsite and made available to the CSCEHD upon request

1.3 Report Organization

This *Environmental SMP* is organized as follows:

- Section 2: Provides a brief background of the Site's land use history and the follow-up evaluation testing of subsurface groundwater and soil media.
- Section 3: Provides an overview of the site-specific, *Environmental Site Safety Plan* (SSP) prepared for earthwork activities covered by this *Environmental SMP*.
- Section 4: Provides procedures for air monitoring of site-specific, contaminants of concern in the breathing zone of workers (construction earthworks and utility installation workers) performing earthwork activities and along the perimeter boundary of the project.
- Section 5: Provides construction dust control and suppression measures for earthwork activities.
- Section 6: Provides soil and groundwater management protocols for earthwork activities covered by this *Environmental SMP* including:
  - Surplus soils to be off-hauled.
  - Fill imported to the Site. And
  - Site conditions requiring notification.

Figures include an aerial vicinity map, and a site map. Supporting appendices include a copy of pertinent civil drawings, a summary of previous site conditions, and a *Site Safety Plan.*

2.0 BACKGROUND

Standard of care, land use assessment tasks were previously completed to identify historical land uses at the 11.3-acre, subject Site. Historical aerial photographs document that the subject Site was undeveloped, possibly used as grazing lands in the 1930s, and remained so until sometime between 1956 and 1968 (WHA, 2016). By 1968, the Site contained a mixture of automotive wrecking and salvage operations on the western and central portions of the property. Automotive salvage operations continued until approximately 2016 when the majority of vehicles, structures and trees were removed from the property in preparation for redevelopment. All structures, foundations and stored equipment were removed in 2017 and all areas of the Site remain accessible by the historic access road network, which will be utilized during remedial action activities.

2.1 Contaminant Characterization (groundwater, soil and soil vapor)

Residual contaminants that have been characterized through multiple rounds of soil and groundwater sample collection and testing. These investigations included laboratory analysis of 249 soil samples collected from 145 locations across the Site (WHA, 2022). Investigation results indicated:

- Grab groundwater samples collected from 14 locations as well as the on-site domestic water supply well was not impacted by current/historical land-use activities.
- Long-term land-use impacts have not caused significant negative impacts to Site soils. Summary tables of the multiple environmental investigation results (WHA, 2022) show that impacted soils are generally limited to the top one to two feet bgs and *COPCs* are typically localized in isolated areas. Four *COPCs* were identified based on concentration exceedances of conservative, Tier-1 agency-established thresholds that are designed to be protective of human health and the environment (i.e., the RWQCB-ESLs). These four *COPCs* include: Lead (up to 5,400 mg/kg), TPH-diesel (up to 670 mg/kg), TPH-Motor Oil (up to 97,000 mg/kg), and Naphthalene (up to 1.5 mg/kg). However as noted above, the preponderance of elevated detections are largely limited to shallow depths (<2 feet).
- Soil vapor has been evaluated as a potential contaminant but is not considered a transport pathway of concern since test results showed only trace to non-detectable volatile contaminant compounds were detected in soils (no volatile compounds have been identified as *COPCs.*
- A statistical evaluation of the collected concentration data concluded that based on the population of soil sample concentrations, Site-related releases of three naturally occurring metals (Arsenic, Cr(IV), and Nickel) have not occurred at the Site. Calculated *Background Threshold Values* for Arsenic, Cr(IV), and Nickel are 13.97, 5.2 mg/kg, and 168.1 mg/kg, respectively.
- Transport modeling based on site-specific soil quality data show the migration of the site COPCs vertically towards the water table will occur at extremely slow rates meaning the COPCs will not impact groundwater in any reasonable timeframe. Therefore, a remedial alternative that includes of on-site burial with an engineered cap/cover system (with a 15-foot separation to groundwater) is considered a reasonable and viable option.

3.0 HEALTH AND SAFETY PLAN

A Site-specific Safety Plan (SSP) has been prepared for earthwork activities covered by this *Environmental SMP* (included as SMP Attachment 1). The *Environmental SSP* is intended provide general worker health and safety awareness solely with respect to environmental contamination and earthwork activities (i.e., construction earthworks and utility installation workers) and is general enough to allow the Contractor to implement appropriate safety measures that are specific to the contamination that may be encountered.

All contractors and authorized visitors to the Site are responsible for maintaining normal construction safety using their own standard of care, construction *Health & Safety Plan*. The supplemental *Environmental SSP* is designed to provide additional worker right to know information regarding the Site-specific COCs as well as generic due diligence overview of safety issues associated with contamination.

Tailgate meetings are to be conducted to orient all on-site staff working with the soils (i.e., grading, utility trenching, and other earthworks) and daily throughout the earthworks portion of the redevelopment project to go over project-specific, *Health and Safety* issues related to this *Environmental SMP*.

Reference pages from the NIOSH *Pocket Guide to Chemical Hazards* are included with the *Environmental SSP* (Attachment A) that provide chemical-specific information regarding Site COCs including chemical properties, exposure limits for field monitoring, and potential routes of exposure and symptoms.

4.0 AIR MONITORING

Standard of care, construction mitigation measures recommended by air resources districts will be followed for this project and are described in Section 5.0. Air monitoring details presented below have been reviewed by Santa Cruz Environmental Health Services Agency. This information is also included in the *Environmental SSP* for easy reference.

4.1 Respirable Dust Hazards (perimeter monitoring for dust)

Control of dust and airborne lead, arsenic, hexavalent chromium, nickel, and cobalt is a required task for this project. During active Site cleanup activities, air monitoring will be performed at the Site perimeter (between active grading and the existing live/work facility to evaluate if dust control methods applied by the Contractor are adequately protecting the residential complex to the west of the earthworks from exposure to dust and airborne arsenic. Additionally, if earthworks activities come within 200 ft. of a property line, dust monitoring equipment will be deployed downwind of operations to ensure protection of on-site and surrounding receptors.

OSHA has established *Permissible Exposure Limits* (PEL) for chemicals of potential concern (COPC; i.e., Lead, Arsenic, Hexavalent Chromium, Cobalt, Nickel) which have been calculated as time weighted average concentration for a worker exposed to a COPC in a standard 8-hour workday (see table below). An OSHA "Action Level" is an analyte-specific concentration that initiates required activities designed to protect employee health (e.g., dust exposure monitoring and, if exposed for >30 days a year, medical surveillance). Cal-OSHA publishes action levels for select analytes, however not all analytes have defined action levels. In those cases, the action level is generally calculated as one-half the PEL. [1 2]

The Dust Action Level represents the trigger level of exposure at which point work will stop and site control measures will take place. This value represents the amount of dust in ppm that contains a concentration of a given analyte that would exceed the action level in an 8 hour workday. Calculations are made in the following section, noting that nuisance dust represents the **lowest dust action levels at 2.5 mg/m3 for on Site workers, and 0.5 mg/m3 for offsite non-workers, and therefore will be the triggering action levels for on-site activities.**

4.2 Respirable Dust Evaluation

Air monitoring action levels for the excavation work were developed using the primary chemicals of potential concern (COPC) identified at the Site that would reasonably drive air monitoring. Action Levels were generated for:

1. Ambient air quality at the Site perimeter based on US EPA Regional Screening Levels (RSLs) or DTSC Screening Levels (SLs); and,
2. For Site construction workers in the work zone based on OSHA *permissible exposure levels* (PELs)

4.2.1 Site Perimeter Fugitive Dust

SCREENING LEVES FOR DUST IN AMBIENT AIR AT THE SITE PERIMETER

Table 1: Site Perimeter Fugitive Dust Action Levels

Chemical of Potential Concern	**On-Site Soil Concentrations** (mg/kg)		**Inhalation Screening Level (2)** (mg/m^3)	**Reference**	**Calculated Chemical-specific, Dust Action Level (4)** (mg/m^3)
	Maximum Concentration	**UCL-95% (1)**			
Lead	5,400	220.8	0.00015	Non-Cancer RSL	0.68
Arsenic	38.6	6.3	0.000016	Non-Cancer RSL	2.5
Hexavalent Chromium	4.9	2.2	0.0001	Non-Cancer RSL	45.5
Nickel	209	77.7	0.000094	Non-Cancer RSL	1.2

[1]: For example: The OSHA published PEL for lead is .05 mg/m^3, while the published *action level* for lead is .03 mg/m^3. Note in this case, if we calculated the action level to be one-half the PEL, our action level (.025 mg/m^3) would be *more conservative* than OSHA's published value.
- https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=10030

[2]: For Arsenic: The OSHA published PEL for arsenic is 0.01 mg/m^3, and the published *action level* for arsenic is .005 mg/m^3.
- https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10023

Chemical of Potential Concern	On-Site Soil Concentrations (mg/kg)		Inhalation Screening Level (2) (mg/m³)	Reference	Calculated Chemical-specific, Dust Action Level (4) (mg/m³)
	Maximum Concentration	UCL-95% (1)			
Cobalt	36.5	12.9	0.0000063	Non-Cancer RSL	**0.49** (4)
Naphthalene	1.5	0.09	0.0031	Non-Cancer RSL	34,444.
Total Dust (PM10)	--		--	--	0.5

Table 1 notes for dust monitoring in the ambient air at the site perimeter:

1. 95% Upper Confidence Limit (UCL): The upper boundary (or limit) of a confidence interval of a parameter of interest such as the population mean.
2. Selected inhalation screening levels are obtained from the *Regional Screening Levels* (RSLs) / *DTSC-modified Screening Levels* (DTSC-modified SLs) for residential air. Reference identifies whether the screening level is based on non-cancer or cancer health effects. Non-cancer threshold based on a target hazard quotient of 1.0 (U.S. EPA, 2018).
3. The non-cancer RSLs are developed based on an exposure time of 12 months. EPA guidance states that the averaging time for noncancer is to be set at the same length as exposure duration, even if the exposure duration is less than one year. Exposure Adjustment Factor is set to 1.
4. Chemical-specific, Dust Action Levels were calculated for ambient air at the Site perimeter using the formula:

$$\text{Chemical-Specific Dust Action Level } (\text{mg/m}^3) = \frac{\textit{Inhalation Screening Level } (\text{mg/m}^3) \times \text{Exposure Adjustment Factor} \times 10^6 \ (\text{mg/kg})}{\text{UCL-95\%}}$$

5. Property line action level based on lowest, chemical-specific dust action level (i.e., potential Cobalt concentrations in dust = 0.49 mg/m³). Note: Fugitive dust is visible in air at 0.5 mg/m³.

4.2.2 Work Zone Dust

The OSHA *permissible exposure levels (PELs)* for the primary constituents detected in site soil are listed below (Table2) along with the maximum potential concentrations of each of these constituents in air which equates to maximum (worst case) construction worker potential exposure concentrations. These values were calculated assuming that dust is present in air at the OSHA PEL limit of 10 mg/m3 and contains the maximum concentration of each constituent listed.

SCREENING LEVES FOR DUST IN N WORK ZONE AIR

Table 2: Work Zone Dust Action Levels

Chemical of Potential Concern	Maximum Concentration Detected in On-site Soil (mg/kg)	Cal-OSHA PEL (1) (mg/m³)	Calculated Chemical-specific, Dust Action Level (2) (mg/m3)
Lead	5,400	0.05	9.25
Arsenic	38.6	0.01	259

Chemical of Potential Concern	Maximum Concentration Detected in On-site Soil (mg/kg)	Cal-OSHA PEL (1) (mg/m^3)	Calculated Chemical-specific, Dust Action Level (2) (mg/m3)
Hexavalent Chromium	4.9	0.005	1,020
Nickel	209	0.05	239
Cobalt	36.5	0.02	547
Naphthalene	1.5	0.1	66,667
Total Dust (PM10)	--	10	2.5 (3)
Respirable Dust (PM10)	--	5	**2.5** (3)

Table 2 Notes: (below)

1. *Permissible Exposure Limit*s (PELs) published by California Division of Occupational Safety and Health (OSHA), *https://www.osha.gov/dsg/annotated-pels/tablez-1.html*. A PEL is a time-weighted average (TWA) concentration that describes a worker's average airborne exposure in any 8-hour work shift of a 40-hour work week which shall not be exceeded. The 8-hour TWA PEL is the level of exposure established as the highest level of exposure an employee may be exposed to without incurring the risk of adverse health effects.
2. Chemical-specific, Dust Action Levels for construction workers in the work area calculated using the formula:

$$\text{Chemical-Specific Dust Action Level } (mg/m^3) = \frac{\textit{Permissible Exposure Limits } (mg/m^3) \times 10^6 \ (mg/kg)}{\text{Maximum Soil Concentration } (mg/kg)}$$

3. The construction worker action level for respirable dust during remedial grading is based on nuisance only factor. The selected airborne Action Level is conservatively set at ½ the OSHA PEL of 5 mg/m3 (i.e., = 2.5mg/m3)

Trigger Actions: Below is a summary of the measures to be taken if the Action Levels for dust, lead, arsenic, Hexavalent Chromium, nickel, or cobalt are exceeded during Site cleanup.

- OSHA has established ***Permissible Exposure Limits (PEL)* of 5 mg/m^3 for *respirable* dust** ("PM10"), based on time weighted averages for an 8-hour workday (see attached NIOSH sheet). The trigger concentration for this grading project in the ***work zone*** will be one-half the established *Permissible Exposure Limits (PEL)* of 5 mg/m^3 (i.e., **2.5 mg/m^3**), The earthworks contractor will stop work and re-assess Site activities and improve dust control measures should the 2.5 mg/m^3 action level be triggered.
- Air monitoring action levels for the site perimeter were developed for ambient air quality based on *US EPA Regional Screening Levels* (RSLs) or *DTSC Screening Levels* (DTSC-SLs) for on Site COPCs (see Table 1). The ***property line action level*** is based on lowest, chemical-specific dust action level (i.e., potential Cobalt concentrations in dust = 0.49 mg/m^3). Note: Fugitive dust is visible in air at 0.5 mg/m^3. This not to exceed threshold of **0.49 mg/m^3** will be implemented on the dust meters deployed at the perimeter of the site to ensure the safety of the public.

Increased dust control measures will be implemented in the case of an exceedance which include: increased watering of soils in the excavation and loading zones, confirming wind speed and direction are within the conditions needed to keep the dust at bay, and increased monitoring frequency of the meters assuring the alarm system on the meters are working properly which will alert on Site workers and staff if specific dust action levels are being exceeded.

Table 8-1 Basic Construction Mitigation Measures Recommended for ALL Proposed Projects	
1.	All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2.	All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3.	All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4.	All vehicle speeds on unpaved roads shall be limited to 15 mph.
5.	All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6.	Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7.	All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
8.	Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Two perimeter air monitoring stations will be located along the Site perimeter at locations between the residential complex to the west of earthworks grading work area (one upwind and one downwind, adjusted to target perimeter locations to ongoing earthworks). Sampling for total dust and PM10 (respirable) dust will continue using a data logging, direct reading dust monitor. Dust monitoring will be employed continuously during all remedial activities. Air monitoring procedures are described in the Site Monitoring section of this plan.

5.0 DUST CONTROL & SUPPRESSION MEASURES

Dust suppression protocols during Site earthworks will follow protocols established in the Bay Area Air Quality Management District (BAAQMD) guideline document (BAAQMD, 2011). Specifically, the following construction dust suppression procedures will be observed:

- Dust suppression will be performed to keep dust from migrating beyond the work zone by lightly spraying or misting the work areas (such as the excavation, soil handling areas and haul roads) with water. Misting may also be used on soil placed in the transport trucks.
- All stockpiled soils will be placed on and covered with plastic sheeting (or equivalent) in order to avoid inadvertent dust nuisance or potential airborne particulate hazard. In the event of wet weather conditions, the perimeter of the soils stockpiled may be lined with straw wattles.
- Efforts will be made to minimize the soil drop height from the excavator's bucket onto the soil pile or into the transport trucks. The excavator will be positioned so as to load from the leeward side.
- After the soil is loaded into the transport trucks, the soil will be covered to prevent soil from spilling out of the truck during transport to the disposal facility. Soil stockpile(s) will remain covered at all times except when soil from a stockpile is being loaded into a transport truck.

6.0 SOIL AND GROUNDWATER MANAGEMENT

6.1 Landfill Disposal

Aside from a limited area in the southwestern corner of the Site where approximately 1,500 yd^3 of soil is documented to contain hazardous waste levels of Lead in shallow soil, the remaining soils have been characterized as having only low concentration detections of relic contaminants (described in Section 2.1; see *Site Environmental Grading Plan,* Figure 2). Because of the regulated status of the 511 Ohlone Parkway property, surplus soils must be managed so as to document off-site disposal locations and volumes.

- Records of surplus soil testing and offsite disposal will be maintained and documented in the summary *Remedial Action Completion Report*.
- As noted above, aside from the 1,500 yd^3 of soil documented to contain hazardous waste levels of Lead located in the southwest corner of the development (see *Site Environmental Grading Plan,* Figure 2), It is appropriate to dispose of the on-site soils at a non-hazardous, Class III sanitary landfill.
- Soil stockpiles that are not actively in use must be covered.

For landfill disposal, it will be necessary to coordinate with the landfill's acceptance engineer to determine profiling requirements (i.e., soil sample frequency, and laboratory analyses). Soil sampling can be performed from stockpiled soil or in-situ prior to earthwork activities.

6.2 Off-Site Reuse

It may be acceptable to dispose of on-site surplus soils to another site as long as there is a paper trail documenting disclosure, testing, and transport.

- <u>Disclosure</u>: The accepting party needs to sign an acknowledgement that the soils originated from a regulated site.
- <u>Testing</u>: In addition, documentation testing needs to confirm that no unacceptable soils are being transported to a commercial or residential zoned site. Clean-clearance of soils from a regulated site requires a higher frequency of sampling/testing than a landfill and may vary depending on the accepting party. Test results should be below unrestricted land use *Environmental Screening Levels* (ESLs).
- <u>Transport</u>: A record of transport tags must document the volume and location where soils are being transported. The soil balance for the Site development has a significant surplus so the use of imported fill is not anticipated during construction and redevelopment activities.

6.3 Final Documentation of Any Soil Off-Haul

Surplus soil testing and off-haul documentation must be provided prior to completion of the project. Submitted records should include any profile (lab) testing reports, copies of transport records (bill of lading/transporter tags) and landfill weight tags (if disposed of at a landfill).

6.4 Imported Fill

In the event imported fill is brought to the Site, the Contractor shall provide:

- Documentation of the source (quarry),
- If from a private fill source, testing documentation showing the import is certified clean. And ,
- The on-site location(s), where the imported fill was used.

These requirements do not apply to landscaping materials or quarry base rock for roadways.

6.5 Groundwater

Groundwater is not anticipated to be encountered during construction and redevelopment. Should groundwater be encountered, it should be containerized and labeled with date of collection and generator contact information. At a minimum, the containerized groundwater must be tested for chlorinated VOCs using EPA Test Method 8260 to determine appropriate handling and disposal methods. Additional testing may be required for disposal. Potential disposal options may include:

- For small volumes: On-site containerization for subsequent transport via a licensed waste hauler and disposal to an appropriate disposal facility.
- For larger volumes: Discharge to the city sanitary sewer under permit (typically via a city permit for larger volumes of water).
- For dewatering operations: On-site treatment and disposal to the city storm sewer under permit (typically via a NPDES permit issued by the Regional Water Quality Control Board).

6.6 Site Conditions Requiring Notification

The Contractor will notify WHA:

1.) If soils are encountered that are visibly stained, have an oily appearance, or are discolored and/or have a noticeable chemical odor. And/or,

2.) In the unlikely event that groundwater is encountered during earthworks or dewatering operations become necessary.

WHA will provide an initial field assessment and determine appropriate next steps (i.e., removal, confirmation sampling, waste characterization, off-site disposal, agency notification (Santa Cruz Environmental Health Services and/or the Central Coast Regional Water Quality Control Board).

As needed, on-call Haz-Mat support services will be readily available should unexpected contamination be discovered during grading/excavation (i.e., soils with odors, staining) and potential handling of soils containing haz-waste levels of contaminants.

6.7 Documentation

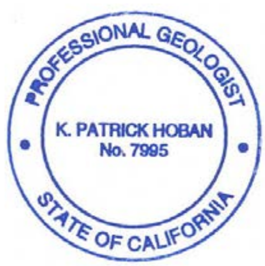
To satisfy project/agency documentation reporting, WHA will complete a summary completion report that will document site monitoring, surplus soil removal, and any unexpected haz-mat condition (if they occur). Records will be compiled that include documentation of surplus soil testing and off-haul, any laboratory testing reports, transport records (bill of lading/transporter tags) and landfill weight tags (if soils are disposed of at a landfill).

LIMITATIONS

Our service consists of professional opinions and recommendations made in accordance with generally accepted geologic and engineering principles and practices. This warranty is in lieu of all others, either express or implied. The analysis and conclusions in this report are based on sampling and testing which are necessarily limited. Additional data from future work may lead to modification of the opinions expressed herein. If you have any questions regarding this report, or any aspect of this project, please contact us at (831) 722-3580.

Sincerely,

WEBER, HAYES AND ASSOCIATES



Pat Hoban, PG
Principal Geologist

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Bay Area Air Quality Management District (BAAQMD),

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- (CCR, 2021) Subchapter 7, Group 16, Article 107, Section 5155, Table AC-1 (copy in Appendix C).
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California Department of Toxic Substances Control (DTSC), Human and Ecological Risk Office, Human Health Risk Assessment:

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- (DTSC, 2020), *Human Health Risk Assessment (HHRA), Note Number: 3, DTSC-modified Screening Levels*, June <https://dtsc.ca.gov/wp-content/uploads/sites/31/2019/04/HHRA-Note-3-June-2020-A.pdf>

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FIGURES

(SOIL MANGEMENT PLAN)

Figure 1

Project 2t159

Vicinity Map

--Soil Management Plan (2022)

Site: Former Clusters Storage Yard

Address: 511 Ohlone Parkway, Watsonville

Date: February 2022

Revisions/Notes:

Weber, Hayes & Associates

Hydrogeology and Environmental Engineering

120 Westgate Drive, Watsonville, CA

831.722.3580 www.weber-hayes.com

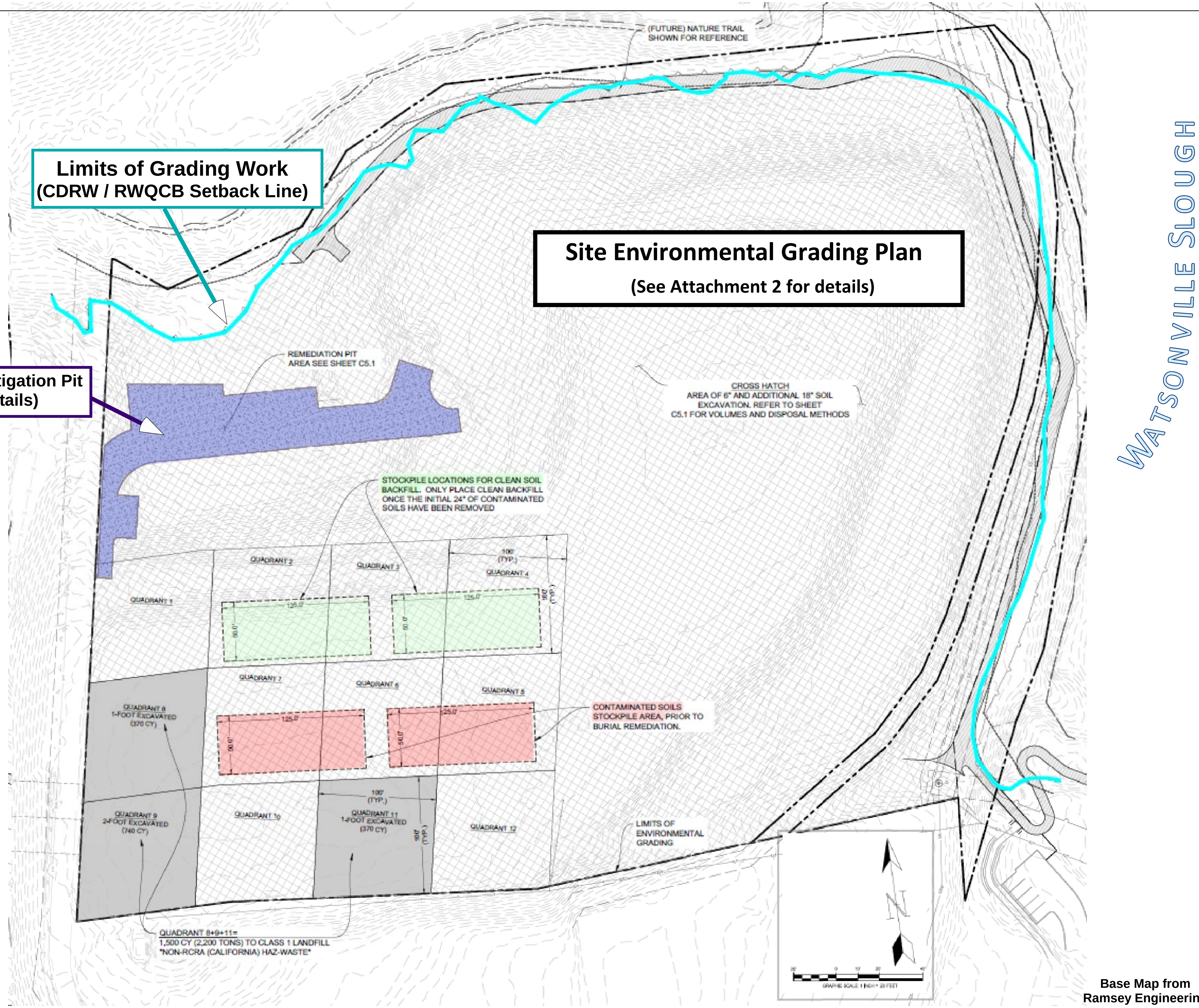


Figure 2

Project 2t159

Site Environmental Grading Plan

--Soil Management Plan(2022)

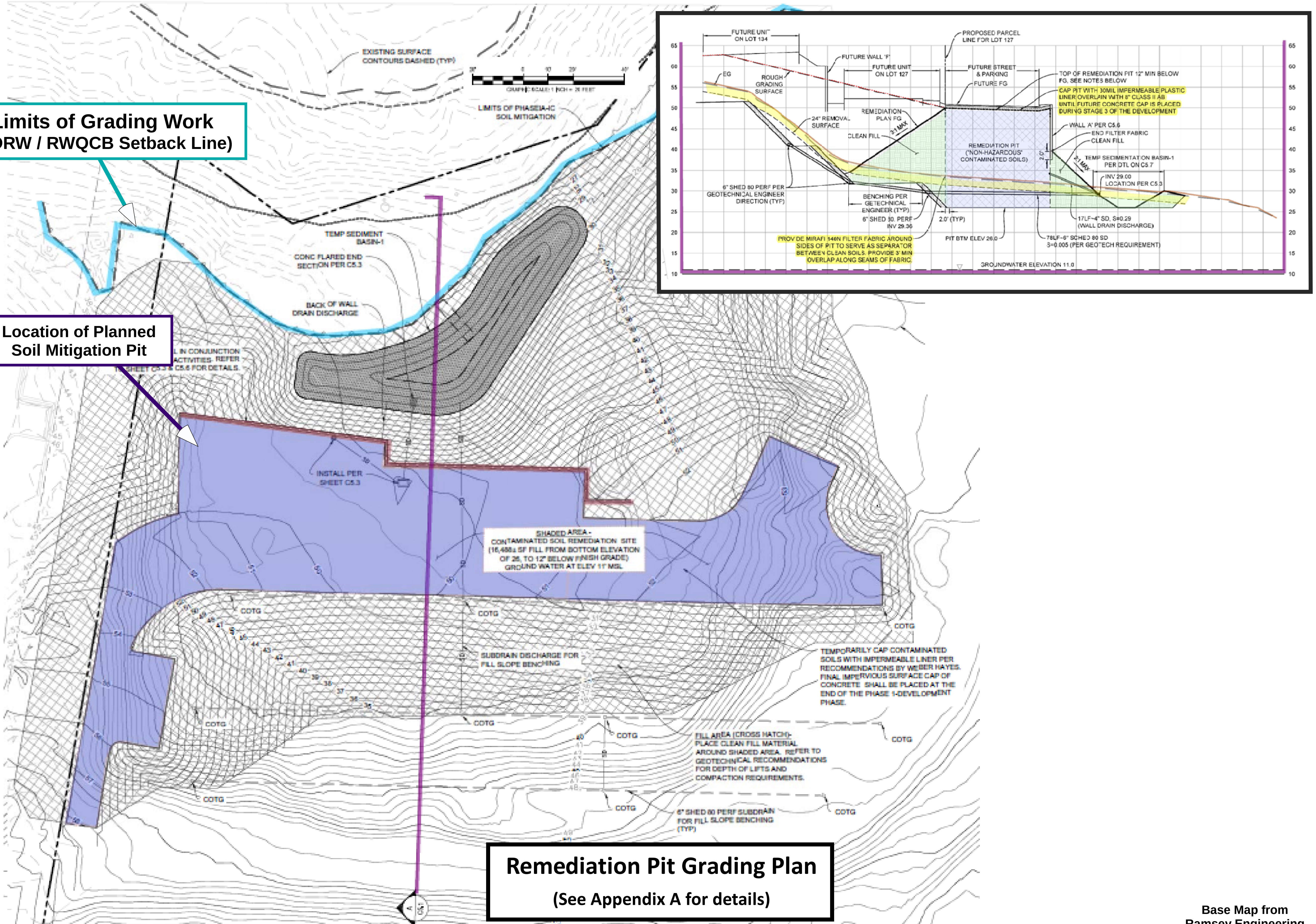
Site: Former Clusters Storage Yard

Address: 511 Ohlone Parkway, Watsonville

Date: February 2022

Revisions/Notes:

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Drive, Watsonville, CA
831.722.3580 www.weber-hayes.com



Base Map from
Ramsey Engineering

Figure 3

Project 2t159

Soil Mitigation Pit Plan

-Soil Management Plan(2022)

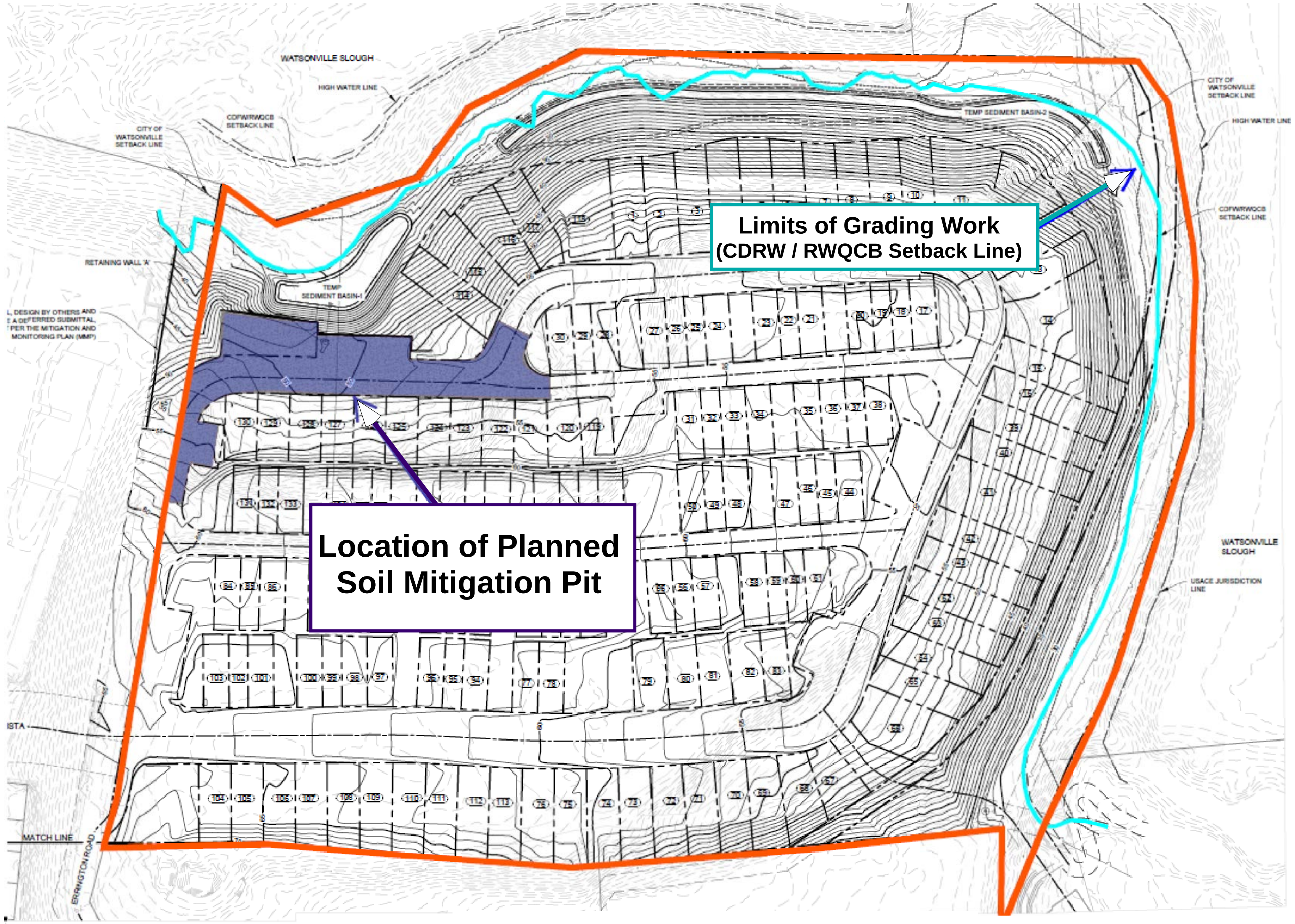
Site: Former Clusters Storage Yard

Address: 511 Ohlone Parkway, Watsonville

Date: February 2022

Revisions/Notes:

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Drive, Watsonville, CA
831.722.3580 www.weber-hayes.com



Remediation Pit Grading Plan

(See Figure 3 for construction details)

Base Map from
Ramsey Engineering

Site Development Plan

- Showing Capped Site Mitigation Pit Location

Site: Former Clusters Storage Yard

Address: 511 Ohlone Parkway, Watsonville

Date: February 2022

Revisions/Notes:

Figure 4

Project 2t159

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ATTACHMENT A

(SOIL MANGEMENT PLAN)

Environmental Site Safety Plan (SSP)
& Dust Monitoring Plan
-
Chemical Hazards Information for COCs
(NIOSH Pocket Guide)

Weber, Hayes & Associates
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SITE HEALTH & SAFETY PLAN

Soil Remediation (earthworks grading, stockpiling, & landfill disposal) for Lead and Total Petroleum Impacted Soils
(includes additional evaluation of naturally-occurring Arsenic & Hexavalent Chromium)

This *Site Health and Safety Plan* has been prepared pursuant to the U.S. Department of Labor Occupational Safety & Health Administration (OSHA's) *Hazardous Waste Operations and Emergency Response* HAZWOPPER guidelines (29 CFR 1910.120) and the related California OSHA guidelines (Title 8, Section 5192)

Job Name and Job Number: Site Preparation Tasks for Redevelopment / 2t159
Client: Hillcrest Residential Development Project
Site Location: 511 Ohlone Parkway, Watsonville
Type of Facility/Current Usage of Property: Proposed Residential – Former Auto Salvage Yard

Subcontractors On Site:

Prime Contractor
LANDCO Hillcrest, LLC.
c/o: Mark Lester, Lisa Li
Twenty Park Road
Burlingame, California 94010

Haz-Mat Earthworks Contractor
Don Chapin Company
Contractor's Lic. #406512 (Haz-Certified)
c/o: Caroline Chapin
560 Crazy Horse Canyon Road
Salinas, California 93907

Regulatory Agencies:

Lead Regulatory Agency:
John Gerbrandt, P.G., R.E.H.S. | Environmental Health Specialist II
Santa Cruz County Environmental Health Service
Hazardous Materials Division
701 Ocean Street, Room 312, Santa Cruz, CA 95060
831-454-2731

1.0 Scope of Work

Soil Excavation, Stockpiling, and Reuse and/or Landfill Off-Hauling (Site-wide grading to remove impacted soils:

- Phase I(a) Soil Removal: 1,500-yd3 of the 35,200-yd3 of remediation soils (i.e., upper two feet of soil from the site has been characterized as hazardous and will be excavated and transported to Kettleman Class I Landfill in Kettleman City.
- Phase I(b) Soil Removal: All remaining soils to be remediated are characterized as non-hazardous, with relatively low-concentration contaminants. Initial work will involve grubbing, scraping of the initial 6-inches of soil, and removal of any buried debris that is uncovered during the initial grading of soils across the Site. This phase of soil removal is estimated to generate approximately 8,240-yd3 (~11,500 tons; based on 1 yd3 = 1.4 tons) of soil which would be stockpiled, profiled for landfill acceptance, and transported to the nearest accepting landfill(s). The goal behind this initial round of

scrapping is to consolidate/stockpile the worst-case impacts for landfill acceptance and provide a more transparent, unobstructed view of the underlying soils (and debris). Any accessible debris would be unearthed and separately stockpiled and any areas where chemical staining or odors would be mapped and targeted for further assessment. Details of this Phase I soils removal were described in a recent Limited Interim Remedial Action report (WHA, 2017 rev.) but is being incorporated into this Renewed Rap.

- Phase I(c) Additional Soil Removal: This second step would involve scraping off and additional 18-inches of soil from across the entire Site and stockpiling it in pre-planned locations. This phase of soil removal is estimated to generate approximately 25,460 yd3 (~35,600 tons) of soil which would be stockpiled, profiled for landfill acceptance and project documentation.
- In addition, deeper excavations would be completed if any visibly-impacted areas were discovered (i.e., any soils with chemical staining/odors) as well as at locations where previous testing showed deeper contamination (Figures 4b/4c). Specifically, deeper excavations will dig until no visible signs of contamination are present, or one foot below the sample depth of detected COPC in exceedance of regulatory screening levels.

When compared with multiple environmental databases that address leachability (surface and groundwater protection), ingestion/inhalation/dermal (health-based protection), sampling showed localized, mostly shallow, soil-impacted areas containing elevated concentrations of lead, arsenic, hexavalent chromium, cobalt, nickel, TPH-as motor oil, and naphthalene that require haz-mat handling. The 95% Upper Confidence Limit (95%-UCL) analysis indicates arsenic and hexavalent chromium are present at naturally occurring concentrations (Site-wide arsenic below 2 feet is 7.27 mg/kg and hexavalent chromium is 2.94 mg/kg which are similar to other local soils).

Key Field Personnel:

Jered Cheney (Weber, Hayes and Associates)	Project Geologist & Site Safety Officer	Office: (831) 722-3580 Cell: (831) 254-1747
Pat Hoban (Weber, Hayes and Associates)	Senior Geologist, Project Mgr.	Office: (831) 722-3580 Cell: (831) 254-7022
Harrison Hucks (Weber, Hayes and Associates)	Staff Scientist & Alternate Site Safety Officer	Office: (831) 722-3580 Cell: (831) 840-7860

2.0 Hazard Assessment & Site Control Measures

The Site contains localized concentrations of TPH as motor oil, metals (arsenic, lead, cobalt, nickel), naphthalene, and various volatile organic compounds in concentrations that exceed regulatory screening thresholds. With soil disturbance, there is a potential for pollutants to become airborne. The primary health and safety concerns at the Site will be from physical activities with equipment and exposure to dust generated during excavation, load-out, and backfill activities. The exposure pathways of concern are inhalation of fugitive dust, ingestion, and dermal contact.

Site Tasks:

- Remove approximately shallow, impacted soils to depths ranging from surface to 2 feet below ground surface (bgs) using heavy equipment (loaders, excavators). Soils will be stockpiled in separate quadrants of the Site to consolidate similar impacted soils for disposal to an appropriate landfill. Some limited deeper excavation will address a few areas having documented deeper impacts.

- Soil Stockpiling
- Soil loading and off-hauling
- Excavation sampling – soil sampling

Anticipated Physical Hazards:

- **Traffic:** Truck and heavy equipment traffic hazards within exclusion zone will be avoided by maintaining eye contact and using hand signals. All heavy equipment will be required to have working audible reverse signals. Trucks will move on and off site with aid of traffic flaggers at all times.
- **Heavy Equipment:** Potential physical hazards associated with excavation equipment and noise will be mitigated with proper class D PPE and exclusion of personnel other than those authorized in the excavation areas.
- **Underground Hazards:** Utilities to be cleared by Underground Service Alert (USA)

Anticipated Chemical Hazards:

Name (CAS # if applicable)	EXPECTED CONCENTRATION YSoil ❒ Water ❒ Air	Construction Worker ESL (& basis)
Lead (7439-92-1)	**Shallow Lead:** – Up to 3,200 mg/kg	**Lead** = 160 mg/kg (blood-Lead)
Arsenic (7440-38-2)	**Shallow Arsenic:** – Up to 14 mg/kg (The site's *95% Upper Confidence Limit* (95%-UCL)[1] for Arsenic is 6.07 mg/kg, which is below Watsonville background level of 7.48)	**Arsenic =** (0.98 mg/kg (non-cancer)
Hexavalent-Chromium (18540-29-9)	**Hexavalent-Chromium (Cr-VI):** – Up to 4.9 mg/kg (The site's 95%-UCL for Cr-VI is 2.2 mg/kg, which is similar to a nearby (background) Watsonville site which has a 95%-UCL of 2.34 mg/kg)	**Hexavalent-Chromium** = 2.8 mg/kg (cancer))
Nickel (7440-02-0)	**Nickel** (TTLC up to 150 mg/kg)	**Nickel =** 86 mg/kg (non-cancer)
TPH-Diesel	**TPH-Diesel:** – Up to 670 mg/kg	**TPH-Diesel=** 880 mg/kg (non-can)
TPH-Motor Oil	**TPH-Motor Oil:** – Up to 97,000 mg/kg	**TPH-Motor Oil =** 32,000 mg/kg (non-can)
Naphthalene (91-20-3)	**Naphthalene:** – Up to 1.5 mg/kg	**Naphthalene =** 350 mg/kg (cancer)

Refer to ATTACHED NIOSH guide describing chemical hazards for each individual compound

ESLs: Agency-established, *Environmental Screening Limits* (ESLs) are risk-based screening limits established for different land uses as well as for construction worker health and safety[2]

---

[1]: A ***Confidence Interval*** measures the probability that a statistical parameter will fall between the upper and lower bound of a probability distribution and is calculated using the average mean and the standard deviation. A 95th percentile upper-confidence limit (UCL-95%) is a risk-based calculation establishing the upper (maximum) concentration that will be encountered within a sampling footprint, 95% of the time.

[2]: CRWQCB guideline: *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater*, December 2013 (see footnote #4 for additional details):
< http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.shtml >

United States EPA-Region 9, *Remedial Screening Limits (Regional Screening Table),* October 2015:
< http://www3.epa.gov/region09/superfund/prg / >

Note: There were 3 isolated detections of cobalt (**2 locations; max detection=28 mg/kg; $ESL_{construction}$= 28 mg/kg**) and cadmium (1 location; **max detection=28 mg/kg; $ESL_{construction}$= 9.3 mg/kg**) that were slightly exceeded agency thresholds and are not considered a risk based on the substantial testing across the site.

Respirable Dust Hazards (Perimeter monitoring for dust)

Control of dust and airborne lead, arsenic, hexavalent chromium, nickel, and cobalt is a concern for this project. During active Site cleanup activities, air monitoring will be performed at the Site perimeter (between active grading and the existing live/work facility to evaluate if dust control methods applied by the Contractor are adequately protecting the residential complex to the west of the earthworks from exposure to dust and airborne arsenic. Additionally, if earthworks activities come within 200 ft. of a property line, dust monitoring equipment will be deployed downwind of operations to ensure protection of on-site and surrounding receptors.

OSHA has established *Permissible Exposure Limits* (PEL) for chemicals of potential concern (COPC; i.e. Lead, Arsenic, Hexavalent Chromium, Cobalt, Nickel) which have been calculated as time weighted average concentration for a worker exposed to a COPC in a standard 8-hour workday (see table below). An OSHA "*Action Level"* is an analyte-specific concentration that initiates required activities designed to protect employee health (e.g. dust exposure monitoring and, if exposed for >30 days a year, medical surveillance). Cal-OSHA publishes action levels for select analytes, however not all analytes have defined action levels. In those cases, the action level is generally calculated as one-half the PEL.[3][4]

The Dust Action Level represents the trigger level of exposure at which point work will stop and site control measures will take place. This value represents the amount of *dust* in ppm that contains a concentration of a given analyte that would exceed the action level in an 8 hour workday. Calculations are made in the following section, noting that nuisance dust represents the **lowest dust action levels at 2.5 mg/m^3 for on Site workers, and 0.5 mg/m3 for offsite non-workers, and therefore will be the triggering action levels for on-site activities.**

3.0 Respirable Dust Evaluation

Air monitoring action levels for the excavation work were developed for:

1) ambient air quality at the Site perimeter based on US EPA Regional Screening Levels (RSLs) or DTSC Screening Levels (SLs); and,
2) for Site construction workers in the work zone based on OSHA permissible exposure levels (PELs)

using the primary chemicals of potential concern (COPC) identified at the Site that would reasonably drive air monitoring.

[3] For example: The OSHA published PEL for lead is .05 mg/m^3, while the published *action level* for lead is .03 mg/m^3. Note in this case, if we calculated the action level to be one-half the PEL, our action level (.025 mg/m^3) would be *more conservative* than OSHA's published value.
https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=10030

[4] For Arsenic: The OSHA published PEL for arsenic is 0.01 mg/m^3, and the published *action level* for arsenic is .005 mg/m^3.
https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10023

SCREENING LEVES FOR DUST IN AMBIENT AIR AT THE SITE PERIMETER

Table 1: Site Perimeter Fugitive Dust Action Levels

Chemical of Potential Concern	On-Site Soil Concentrations (mg/kg)		Inhalation Screening Level (2) (mg/m^3)	Reference	Calculated Chemical-specific, Dust Action Level (4) (mg/m^3)
	Maximum Concentration	UCL-95% (1)			
Lead	5,400	220.8	0.00015	Non-Cancer RSL	0.68
Arsenic	38.6	6.3	0.000016	Non-Cancer RSL	2.5
Hexavalent Chromium	4.9	2.2	0.0001	Non-Cancer RSL	45.5
Nickel	209	77.7	0.000094	Non-Cancer RSL	1.2
Cobalt	36.5	12.9	0.0000063	Non-Cancer RSL	**0.49** (4)
Naphthalene	1.5	0.09	0.0031	Non-Cancer RSL	34,444.
Total Dust (PM10)	--		--	--	0.5

Table 1 notes for dust monitoring in the ambient air at the site perimeter:

1. 95% Upper Confidence Limit (UCL): The upper boundary (or limit) of a confidence interval of a parameter of interest such as the population mean.
2. Selected inhalation screening levels are obtained from the *Regional Screening Levels* (RSLs) / *DTSC-modified Screening Levels* (DTSC-modified SLs) for residential air. Reference identifies whether the screening level is based on non-cancer or cancer health effects. Non-cancer threshold based on a target hazard quotient of 1.0 (U.S. EPA, 2018).
3. The non-cancer RSLs are developed based on an exposure time of 12 months. EPA guidance states that the averaging time for noncancer is to be set at the same length as exposure duration, even if the exposure duration is less than one year. Exposure Adjustment Factor is set to 1.
4. Chemical-specific, Dust Action Levels were calculated for ambient air at the Site perimeter using the formula:

$$\text{Chemical-Specific Dust Action Level } (mg/m^3) = \frac{\text{Inhalation Screening Level } (mg/m^3) \times \text{Exposure Adjustment Factor} \times 10^6 \, (mg/kg)}{\text{UCL-95\%}}$$

5. Property line action level based on lowest, chemical-specific dust action level (i.e., potential Cobalt concentrations in dust = 0.49 mg/m^3). Note: Fugitive dust is visible in air at 0.5 mg/m^3.

SCREENING LEVELS FOR DUST IN WORK ZONE AIR

The OSHA permissible exposure levels (PELs) for the primary constituents detected in site soil are listed below (Table2) along with the maximum potential concentrations of each of these constituents in air which equates to maximum (worst case) construction worker potential exposure concentrations. These values were calculated assuming that dust is present in air at the OSHA PEL limit of 10 mg/m3 and contains the maximum concentration of each constituent listed.

Table 2: Work Zone Dust Action Levels

Chemical of Potential Concern	Maximum Concentration Detected in On-site Soil (mg/kg)	Cal-OSHA PEL [(1)] (mg/m^3)	Calculated Chemical-specific, Dust Action Level [(2)] (mg/m3)
Lead	5,400	0.05	9.25
Arsenic	38.6	0.01	259
Hexavalent Chromium	4.9	0.005	1,020
Nickel	209	0.05	239
Cobalt	36.5	0.02	547
Naphthalene	1.5	0.1	66,667
Total Dust (PM10)	--	10	2.5 [(3)]
Respirable Dust (PM10)	--	5	**2.5** [(3)]

Table 2 Notes: (below)

1. Permissible Exposure Limits (PELs) published by California Division of Occupational Safety and Health (OSHA), https://www.osha.gov/dsg/annotated-pels/tablez-1.html. A PEL is a time-weighted average (TWA) concentration that describes a worker's average airborne exposure in any 8-hour work shift of a 40-hour work week which shall not be exceeded. The 8-hour TWA PEL is the level of exposure established as the highest level of exposure an employee may be exposed to without incurring the risk of adverse health effects.
2. Chemical-specific, Dust Action Levels for construction workers in the work area calculated using the formula:

$$\underset{(mg/m^3)}{\text{Chemical-Specific Dust Action Level}} = \frac{\textit{Permissible Exposure Limits}\ (mg/m^3) \times 10^6\ (mg/kg)}{\text{Maximum Soil Concentration}\ (mg/kg)}$$

3. The construction worker action level for respirable dust during remedial grading is based on nuisance only factor. The selected airborne Action Level is conservatively set at ½ the OSHA PEL of 5 mg/m3 (i.e. = 2.5mg/m3)

Trigger Actions: Below is a summary of the measures to be taken if the Action Levels for dust, lead, arsenic, Hexavalent Chromium, nickel, or cobalt are exceeded during Site cleanup.

- OSHA has established ***Permissible Exposure Limits (PEL)* of 5 mg/m^3 for *respirable* dust** ("PM10"), based on time weighted averages for an 8-hour workday (see attached NIOSH sheet). The trigger concentration for this grading project in the ***work zone*** will be one-half the established *Permissible Exposure Limits (PEL)* of 5 mg/m^3 (i.e., **2.5 mg/m^3**), The earthworks contractor will stop work and re-assess Site activities and improve dust control measures should the 2.5 mg/m^3 action level be triggered.
- Air monitoring action levels for the site perimeter were developed for ambient air quality based on *US EPA Regional Screening Levels* (RSLs) or *DTSC Screening Levels* (DTSC-SLs) for on Site COPCs (see Table 1). The ***property line action level*** is based on lowest, chemical-specific dust action level (i.e., potential Cobalt concentrations in dust = 0.49 mg/m^3). Note: Fugitive dust is visible in air at 0.5 mg/m^3. This

not to exceed threshold of **0.49 mg/m³** will be implemented on the dust meters deployed at the perimeter of the site to ensure the safety of the public.

Increased dust control measures will be implemented in the case of an exceedance which include: increased watering of soils in the excavation and loading zones, confirming wind speed and direction are within the conditions needed to keep the dust at bay, and increased monitoring frequency of the meters assuring the alarm system on the meters are working properly which will alert on Site workers and staff if specific dust action levels are being exceeded.

Two perimeter air monitoring stations will be located along the Site perimeter at locations between the residential complex to the west of earthworks grading work area (one upwind and one downwind, adjusted to target perimeter locations to ongoing earthworks). Sampling for total dust and PM10 (respirable) dust will continue using a data logging, direct reading dust monitor. Dust monitoring will be employed continuously during all remedial activities. Air monitoring procedures are described in the Site Monitoring section of this plan.

4.0 Site Control Measures:

Dust Control & Suppression Measures:

- Dust suppression will be performed to keep dust from migrating beyond the work zone by lightly spraying or misting the work areas (such as the excavation, soil handling areas and haul roads) with water. Misting may also be used on soil placed in the transport trucks.
- Efforts will be made to minimize the soil drop height from the excavator's bucket onto the soil pile or into the transport trucks. The excavator will be positioned so as to load from the leeward side.
- After the soil is loaded into the transport trucks, the soil will be covered to prevent soil from spilling out of the truck during transport to the disposal facility. Stockpile(s) will remain covered at all times.

Ingestion Exposure & Control Measures:

- Ingestion of impacted materials is a primary exposure route of concern. This exposure pathway can be controlled with the implementation of proper hygienic practices (i.e., wearing gloves and washing before eating, smoking, or using the restroom).
- Traffic Control Measures (pedestrian and vehicle):
- No pedestrians will be allowed in the work area other than authorized personnel;
- Trucks will move on and off site with aid of traffic flaggers at all times;
- Truck and heavy equipment traffic hazards within exclusion zone will be avoided by maintaining eye contact and using hand signals. All heavy equipment will be required to have working audible reverse signals

Decontamination Procedures:

- All equipment in contact with contaminated or potentially contaminated soils will include a triple rinse with liquinox solution/ fresh water / D.I. water. All decon water will be properly containerized and properly disposed of following the field investigation.

5.0 Personal Protective Equipment and Site Monitoring

Personal Protective Equipment:

(see required Personal Protective Equipment below).

Based on the scope and nature of this field program the following aappropriate level of personal protective equipment is required A: ❒ B: ❒ C: ❒ D *Yes*

R = required, A = As needed

Hard Hat **R**	Eyewear (type) **A**
Safety Boots **R**	Respirator (type) **A** *(½-face minimum)*
Orange Vest **R**	Filter (type) **A** (organic vapor & particulate)
Hearing Protection **A**	Gloves (type) **A** nitrile
Tyvek Coveralls **A**	

<u>Site Monitoring:</u>

Air Monitoring:

- An aerosol monitor or monitors capable of measuring total dust and total respirable dust (PM10) will be used (e.g., TSI, Inc. DustTrak DRX Model 8533 or equivalent). Additionally, these meters project and display a calculated time weighted average (TWA) at all times during the work day. This sampler will be used to assess whether the PM10 (respirable) 8-hour Action Level is being met. PM10 monitoring will occur over approximately 8-hour periods (e.g., from the beginning of a workday to the end of the workday). The aerosol monitor will provide for real-time PM10 results, and these results will also be recorded in a data logger. The stored data will be downloaded at the end of each workday and the 8-hour average concentration will be compared to the Action Levels established in this plan (above). The work zone monitor will be positioned at breathing height level (approximately 5-feet above the ground surface) in the work zone.
- Meters are equipped with alarm capabilities and will be setup to alert on site workers and staff if site specific air action levels are exceeded at any time (alarms will be set appropriately for on site workers and perimeter monitoring).
- Continuously measured particulate monitoring data will be reviewed with every hourly inspection. Any exceedances will be documented in the daily field log (daily charts will also be included as part of the record). In addition, any stop work trigger actions (dust control measures) will also be documented. SC-HAS staff will be regularly updated of the collected data, exceedances, and resulting dust control measures taken.
- Wind monitoring via Wind Socks will be set up at the Site for continuous monitoring of wind speed throughout each workday. The Wind Socks will become fully erect when wind speeds reach 15 mph. Wind Socks will be positioned around the property, specifically, around the work area.
    - When the Wind Socks are full erect due to wind (i.e., 15 mph), moving of soil will cease, exposed soils will be additionally wetted, and stockpiles will be covered until the wind subsides and the dust can be controlled.
- Personnel monitoring will be conducted by means of the “buddy system”. Appropriate precautions and/or medical/emergency response will be implemented if signs of co-worker distress or fatigue are apparent, or injury occurs.

<u>Confined Space Entry Procedures</u>

Confined space entry is not a component of this field investigation.

6.0 Personnel Training Requirements

The environmental site safety officer supervising the earthworks is trained in accordance with U.S. Department of Labor OSHA's *Hazardous Waste Operations and Emergency Response* HAZWOPPER guidelines (29 CFR 1910.120), which includes completion of the 40-Hour Hazardous Waste Operations (HAZWOPER) training, 24 hours of supervised on the job training, and annual eight-hour HAZWOPER refresher courses.

The earthworks contractor is a California licensed contractor maintaining active *Hazardous Substances Removal Certification*. All workers and other personnel entering the work area shall be informed of the Site hazards in tail gate safety meetings.

Note: The Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) training requirements apply to five (5) distinct groups of employers and their employees[5] that do not apply to the grading work being conducted. HAZWOPER training is required for any employees who are engaged in one of the following operations and who are exposed or potentially exposed to hazardous substances & hazardous waste:

1. Agency Required Cleanups at Uncontrolled Haz-Waste Sites: Clean-up operations -- required by a governmental body, whether federal, state, local, or other involving hazardous substances -- that are conducted at uncontrolled hazardous waste sites;
2. RCRA Sites: Corrective actions involving clean-up operations at sites covered by RCRA; Voluntary-Cleanup Program Cleanups at Uncontrolled Haz-Waste Sites: Voluntary clean-up operations at sites recognized by federal, state, local, or other governmental body as uncontrolled hazardous waste sites;
3. TSD Waste Operations: Operations involving hazardous wastes at RCRA-permitted, treatment, storage, and disposal (TSD) facilities; and
4. Emergency Response: Emergency response operations for releases of, or substantial threats of releases of hazardous substances regardless of the location of the hazard.

Source: U.S. Department of Labor Occupational Safety & Health Administration (Hazardous waste operations and emergency response. - 1910.120)

This Site Redevelopment project is not an agency required cleanup. The earthworks staff are considered "skilled support personnel"[6] for this Site Redevelopment project who are needed temporarily to perform immediate support work as part of cost-effective improvements to the property.

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[5]: EPA Frequently Asked Questions: *Who is covered by OSHA's HAZWOPER standard?* < www.osha.gov/html/faq-hazwoper.html >

[6]: *Skilled support personnel* [1910.120(q)(4)]. Personnel, not necessarily an employer's own employees, who are skilled in the operation of certain equipment, such as mechanized earth moving or digging equipment or crane and hoisting equipment, and who are needed temporarily to perform immediate emergency support work that cannot reasonably be performed in a timely fashion by an employer's own employees, and who will be or may be exposed to the hazards at an emergency response scene, are not required to meet the training required in this paragraph for the employer's regular employees. However, these personnel shall be given an initial briefing at the site prior to their participation in any emergency response. The initial briefing shall include instruction in the wearing of appropriate personal protective equipment, what chemical hazards are involved, and what duties are to be performed. All other appropriate safety and health precautions provided to the employer's own employees shall be used to assure the safety and health of these personnel.
< https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=9765 >

7.0 Tailgate Meetings:

The Field Superintendent will conduct daily Tailgate Safety Meetings prior to commencing work at the Site. In addition, the following minimum information will be provided to all Site personnel involved with the project:

- Name of personnel and alternate responsible for Site safety and health
- Safety, health, and other hazards present at the Site
- Hospital directions
- General safety procedures and practices to minimize risks from hazards at the Site
- Task specific procedures and practices
- Instructions for safe use of engineering controls and equipment
- Instructions for safe use of personnel protective equipment
- Medical surveillance requirements including recognition of symptoms and signs, which might indicate overexposure to hazards
- Site control measures
- Standard operating procedures (i.e., lock-out/tag-out)
- Emergency/Contingency procedures

8.0 Medical Surveillance and Emergency Response

Standard Level D Personal Protective Equipment (PPE) will be donned on an as needed basis to mitigate potential physical hazards. In the event of minor physical injury, appropriate first aid will be administered and worker transport to the emergency room, if necessary. In the event of significant physical injury beyond the level of first aid response, emergency response personnel will be contacted immediately by calling.

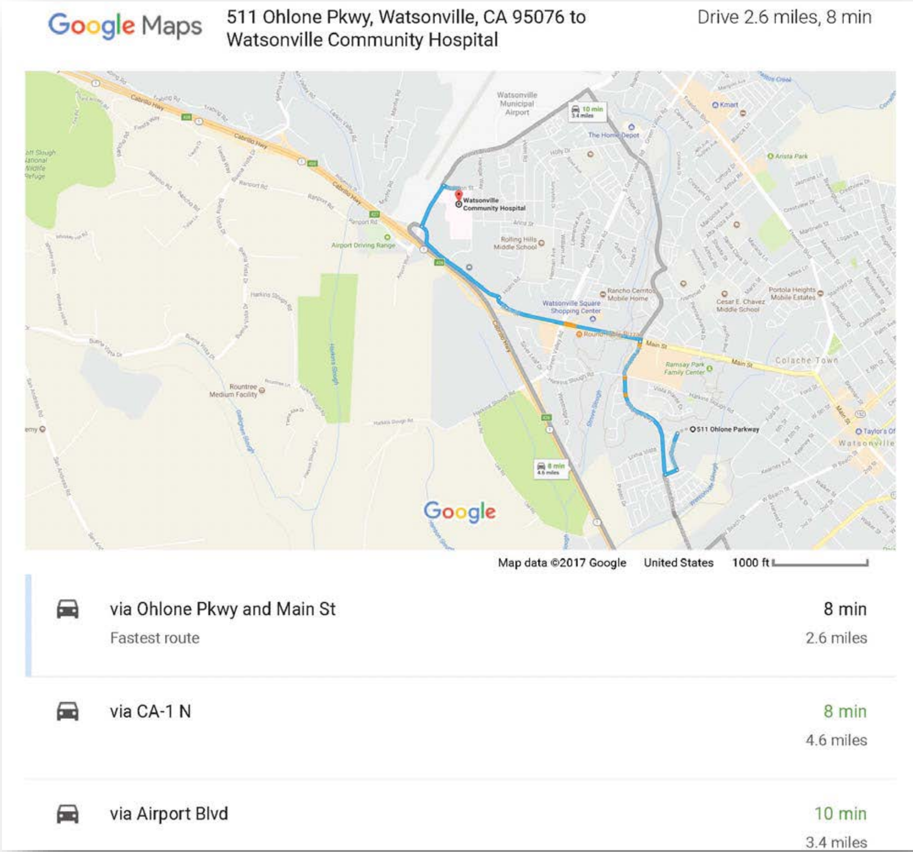
Any required employee medical surveillance for workers exceeding 30-days at sites exceeding an OSHA Action Limit will be maintained by the employer in accordance with Title 8 California Code of Regulations, Section 5192(c)(4)(B). No medical surveillance will be necessary for this project, as monitoring will ensure that no personnel will be exposed to concentrations above OSHA PELs for greater than 30 days.

Hospital Directions: See Attached Map

Hospital/Clinic: Watsonville Community Hospital
511 Ohlone Parkway,
Watsonville, CA - (831) 724-4741
(See attached directions sheet)

Fire Department Phone Number: *911***Paramedic Phone Number**: *911*
Paramedic Phone Number: *911*
Police Department Phone Number: *911*

Disclaimer and Signatures



Site Hazard Information Provided By: Pat Hoban – Site Safety Officer

Pat Hoban

Pat Hoban, Site Safety Officer

Date: February 14, 2022

Note: All contractors and authorized visitors to the site are responsible for maintaining their safety using standard of care construction site safety procedures. This site safety plan is designed to provide worker right to know information on site contaminants of concern and a generic due diligence overview of safety issues. Neither the professional activities of Weber, Hayes and Associates, nor the presence of Weber, Hayes and Associates employees and subcontractors, shall be construed to imply Weber, Hayes and Associates has any responsibility for methods of work performance, superintendence, sequencing of construction, or safety in on or about the job site.

PRINT NAME & INITIAL FOLLOWING TAILGATE MEETING AND SAFETY INSPECTION:

PRINT NAME & INITIAL FOLLOWING TAILGATE MEETING AND SAFETY INSPECTION:

Cal-OSHA PEL Information
&
Dust Monitor Specifications

Particulates Not Otherwise Regulated (Respirable Fraction)

General Description

Synonyms: Dust (respirable nuisance); "Inert" dusts; Nuisance dusts; PNOR (Note: includes all inert or nuisance dusts, whether mineral, inorganic, not listed specifically in 1910.1000)
OSHA IMIS Code Number: 9130 (IMIS Name History: Dust [respirable nuisance] prior to 9/1/89)
NIOSH Pocket Guide to Chemical Hazards - Particulates Not Otherwise Regulated: Physical description, chemical properties, potentially hazardous incompatibilities, and more

Exposure Limits and Health Effects

Exposure Limit	Limit Values	HE Codes	Health Factors and Target Organs
OSHA Permissible Exposure Limit (PEL) - General Industry See 29 CFR 1910.1000 Table Z-1 (PNOR) and 29 CFR 1910.1000 Table Z-3 (Inert or Nuisance Dust)	5 mg/m^3 (15 mppcf*) TWA	HE10	Lung disease
OSHA PEL - Construction Industry See 29 CFR 1926.55 Appendix A	Not established		
OSHA PEL - Shipyard Employment See 29 CFR 1915.1000 Table Z-Shipyards	Not established		
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL) See Appendix D	Not established		
American Conference of Governmental Industrial Hygienists (ACGIH) Guideline	3 [illegible] ([illegible] particles)		[illegible] compromised airway clearance
CAL/OSHA PEL	5 mg/m^3 TWA		

Action Level (AL) For Remedial Grading Air Monitoring
AL = Selected airborne Action Level [mg/m3] = 1/2 the OSHA PEL (5 mg/m3)

= 2.5 mg/m3

Particulates Not Otherwise Regulated (Total Dust)

General Description

Synonyms: Dust (total); "Inert" dusts; Nuisance dusts; PNOR (Note: includes all inert or nuisance dusts, whether mineral, inorganic, not listed specifically in 1910.1000)
OSHA IMIS Code Number: 9135 (IMIS Name History: Dust [total] prior to 9/1/89)
NIOSH Pocket Guide to Chemical Hazards - Particulates Not Otherwise Regulated: Physical description, chemical properties, potentially hazardous incompatibilities, and more

Exposure Limits and Health Effects

Exposure Limit	Limit Values	HE Codes	Health Factors and Target Organs
OSHA Permissible Exposure Limit (PEL) - General Industry See 29 CFR 1910.1000 Table Z-1 (PNOR) and 29 CFR 1910.1000 Table Z-3 (Inert or Nuisance Dust)	15 mg/m^3 (50 mppcf*) TWA	HE10	Lung disease
OSHA PEL - Construction Industry See 29 CFR 1926.55 Appendix A	15 mg/m^3 TWA	HE10	Lung disease
OSHA PEL - Shipyard Employment See 29 CFR 1915.1000 Table Z-Shipyards	15 mg/m^3 TWA	HE10	Lung disease
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL) See Appendix D	Not estab		
American Conference of Governmental Industrial Hygienists (ACGIH) Guideline	10 mg/m^3 TWA (inh particles)		irritation
CAL/OSHA PELs	10 mg/m^3 TWA	HE16	Eye, skin, and respiratory irritation

Action Level (AL) For Worker Air Monitoring

_AL = Selected airborne Action trigger level [mg/m3] = 1/2 the OSHA PEL (10 mg/m3)

= 5 mg/m3

Lead, Inorganic (as Pb)

General Description

Synonyms: Synonyms vary depending upon specific compound (e.g., Lead oxide, Lead arsenate, Lead chromate)

OSHA IMIS Code Number: 1591

Chemical Abstracts Service (CAS) Registry Number: 7439-92-1; 1317-36-8 (lead oxide); 7758-97-6 (lead chromate); 7784-40-9 (lead arsenate); 18454-12-1 (lead chromate oxide)

NIOSH Registry of Toxic Effects of Chemical Substances (RTECS) Identification Number: OF7525000

NIOSH Pocket Guide to Chemical Hazards - Lead: Chemical description, physical properties, potentially hazardous incompatibilities, and more

U.S. Environmental Protection Agency (EPA) Hazard Summary - Lead Compounds: Uses, sources and potential exposure, acute and chronic health hazard information, and more

Chemical Sampling Information (CSI)

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By CAS Number

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- Field Label Abbreviations & Descriptions
- OSHA Occupational Chemical Database

Exposure Limits and Health Effects

Exposure Limit	Limit Values	HE Codes	Health Factors and Target Organs
OSHA Permissible Exposure Limit (PEL) - General Industry See 29 CFR 1910.1025 Note: OSHA considers "lead" to mean elemental lead, all inorganic lead compounds, and a class of organic lead compounds called lead soaps. This standard does not apply to other organic lead compounds. Note: Large nonferrous foundries (20+ employees) are required to achieve the PEL of 0.05 mg/m^3 by means of engineering and work practice controls. Small nonferrous foundries (<20 employees) are required to achieve an 8-hour TWA of 0.075 mg/m^3 by such controls.	0.05 mg/m^3 TWA 0.03 mg/m^3 Action Level	HE3	Nephrotoxicity
		HE5	Reproductive hazards
		HE7	Cumulative neurologic effects
		HE12	Cumulative blood effects
OSHA PEL - Construction Industry See 29 CFR 1926.62	0.05 mg/m^3 TWA 0.03 mg/m^3 Action Level	HE3	Constipation, nausea, pallor
		HE5	Reproductive risks
		HE7	Nervous irritability, hyperactivity, anxiety, insomnia, headache, weakness, numbness, dizziness
OSHA PEL - Shipyard Employment See 29 CFR 1915.1025	0.05 mg/m^3 TWA 0.03 mg/m^3 Action Level	HE3	Nephropathy, loss of kidney function, increased blood pressure
		HE5	Reduced sperm count and male sterility
		HE7	Subclinical and clinical peripheral neuropathy (muscle weakness, pain, and paralysis of extremities)
		HE12	Disruption of hemesynthesis, anemia
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL) See Appendix C Note: NIOSH considers "lead" to mean metallic lead, lead oxides, and lead salts (including organic salts such as lead soaps but excluding lead arsenate).	0.05 mg/m^3 TWA Air concentrations should be maintained so that worker blood lead remains less than 0.06 mg Pb/100 g of whole blood	HE5	Reproductive toxicity, nephrotoxicity, cardiovascular toxicity, gastrointestinal toxicity
		HE7	Neurotoxicity
		HE12	Hematologic toxicity
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) (2001)	0.05 mg/m^3 TWA	HE3	Cardiovascular toxicity, hypertension, cerebrovascular disease,

Exhibit B

	A3; BEI		nephrotoxicity
		HE5	Reproductive toxicity
		HE7	Neurologic and neurobehavioral toxicity
		HE12	Blood dyscrasias
CAL/OSHA PELs (See also Section 5198)	0.05 mg/m^3 Lead (metallic and inorganic compounds), dust and fume, (as Pb)	HE3	Cardiovascular toxicity, hypertension, cerebrovascular disease, nephrotoxicity
		HE5	Reproductive toxicity
		HE7	Neurologic and neurobehavioral toxicity

National Toxicology Program (NTP) carcinogenic classification: Reasonably anticipated to be a human carcinogen [7 MB PDF, 529 pages]

International Agency for Research on Cancer (IARC) carcinogenic classification: Group 2B [237 KB PDF, 3 pages] (possibly carcinogenic to humans)

EPA carcinogenic classification: Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals

EPA Inhalation Reference Concentration (RfC): Not established

Agency for Toxic Substances and Disease Registry (ATSDR) Inhalation Minimal Risk Level (MRL): Not established

NIOSH Immediately Dangerous to Life or Health (IDLH) concentration: 100 mg/m^3 (as Pb)

Notes on Other Potential Health Effects and Hazards

1. Exposure to high levels of lead may cause miscarriage in pregnant women (ATSDR 2007).
2. High Petrol-Lead Emission Areas (PLEA) might result in an increase in the incidence rate of brain cancer resulting from high lead exposures (Wu et al. 2012).
3. Lead exposure below 70 mg/100 ml reduced neurobehavioral abilities, particularly visuospatial abilities and executive functions (Barth et al. 2002).
4. Both NTP and IARC found limited evidence for carcinogenicity of lead smelter and battery industries, concluding that evidence from epidemiological studies is compatible with small increases in the risk of lung or stomach cancer (NTP 2010, IARC 2006).
5. The OSHA lead standard targets a lead in blood level below 40 µg/dL, directing medical removal at a three test moving average of 50 µg/dL.
6. The NTP concludes that there is sufficient evidence for adverse health effects in adults at blood Pb levels <10 µg/dL (increased blood pressure, tremor), and <5 µg/dL (kidney effects, developmental effects) as well, (NTP 2012).

Literature Basis

- ACGIH: Documentation of the Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs) - Lead and Inorganic Compounds. 2001.
- ATSDR: Toxicological Profile for Lead [5 MB PDF, 582 pages]. August 2007.
- Barth, A. et al.: Reduced cognitive abilities in lead-exposed men. Int. Arch. Occup. Environ. Health 75(6): 394-398, 2002.
- IARC Monograph 87 Organic and Inorganic Lead Compounds, 2006 [7 MB PDF, 529 pages].
- NIOSH: Adult Blood Lead Epidemiology and Surveillance (ABLES).
- NIOSH: Occupational Safety and Health Guideline for Inorganic Lead. 1988.
- NIOSH/IPCS: International Chemical Safety Cards - Lead. August 10, 2002.
- NTP Monograph on Low Level Effects of Lead, 2012 [3 MB PDF, 176 pages]
- NTP 12th Report on Carcinogens, Lead and Lead Compounds, 2011 [196 KB PDF, 5 pages]
- OSHA: Abrasive Blasting Hazards in Shipyard Employment. December 2006.
- OSHA: Lead in Construction [488 KB PDF*, 40 pages]. 2004.
- OSHA: Occupational Safety and Health Standards, Substance Safety Data Sheet for Occupational Exposure to Lead. 1910.1025 App A. May 31, 1991.
- Wu, W.T., Lin, Y.J., Liou S.H., Yang, C.Y., Cheng, K.F., Tsai, PJ, and Wu T.N.: Brain cancer associated with environmental lead exposure: evidence from implementation of a National Petrol-Lead Phase-Out Program (PLPOP) in Taiwan between 1979 and 2007. Environ Int. 40: 97-101, 2012.

Date Last Revised: 12/11/2012

Monitoring Methods used by OSHA

Laboratory Sampling/Analytical Method:

- **sampling media:** Mixed Cellulose Ester Filter (MCEF) 0.8 microns
  maximum volume: 960 Liters
  minimum volume: 480 Liters
  maximum flow rate: 2.0 L/min
  current analytical method: Atomic Absorption Spectroscopy; AAS
  method reference: OSHA Manual of Analytical Methods (OSHA ID-121)
  method classification: Fully Validated

- **alternate analytical method:** Inductively Coupled Argon Plasma; ICP-AES/MS, AAS
  method reference: OSHA Manual of Analytical Methods (OSHA ID-125G, OSHA ID-206, OSHA ID-105, OSHA 1006)
  method classification: Fully Validated
  note: If the filter is not overloaded, samples may be collected up to an 8-hour period.

On-Site Sampling Techniques/Methods:

- **note:** On-site surface sampling test kits are commercially available. OSHA neither endorses these kits nor recommends their use. The effectiveness and applicability of these kits are the responsibility of the user.

Wipe Sampling Method:

- **sampling media:** Ghostwipe - Whatman Smear Tab filter. Moistened with Distilled Water.

Nickel metal and other compounds (as Ni)

Synonyms & Trade Names Nickel metal: Elemental nickel, Nickel catalyst
Synonyms of other nickel compounds vary depending upon the specific compound.

CAS No. 7440-02-0 (Metal)	RTECS No. QR5950000 (Metal) (/niosh-rtecs/QR5ACA30.html)	DOT ID & Guide
Formula Ni (Metal)	Conversion	IDLH Ca [10 mg/m3 (as Ni)] See: 7440020 (/niosh/idlh/7440020.html)

Exposure Limits NIOSH REL *: Ca TWA 0.015 mg/m3 See Appendix A (nengapdxa.html) [*Note: The REL does not apply to Nickel carbonyl.]
OSHA PEL *† (nengapdxg.html) : TWA 1 mg/m3 [*Note: The PEL does not apply to Nickel carbonyl.]

Measurement Methods
NIOSH 7300 (/niosh/docs/2003-154/pdfs/7300.pdf) , 7301 (/niosh/docs/2003-154/pdfs/7301.pdf) , 7303 (/niosh/docs/2003-154/pdfs/7303.pdf) , 9102 (/niosh/docs/2003-154/pdfs/9102.pdf) ;
OSHA ID121 (http://www.osha.gov/dts/sltc/methods/inorganic/id121/id121.html) (http://www.cdc.gov/Other/disclaimer.html) , ID125G (http://www.osha.gov/dts/sltc/methods/inorganic/id125g/id125g.html) (http://www.cdc.gov/Other/disclaimer.html)
See: NMAM (/niosh/docs/2003-154/) or OSHA Methods (http://www.osha.gov/dts/sltc/methods/index.html) (http://www.cdc.gov/Other/disclaimer.html)

Physical Description Metal: Lustrous, silvery, odorless solid.

MW: 58.7	BP: 5139°F	MLT: 2831°F	Sol: Insoluble	VP: 0 mmHg (approx)	IP: NA
Sp.Gr: 8.90 (Metal)	Fl.P: NA	UEL: NA	LEL: NA		

Metal: Combustible Solid; nickel sponge catalyst may ignite SPONTANEOUSLY in air.

Incompatibilities & Reactivities Strong acids, sulfur, selenium, wood & other combustibles, nickel nitrate

Exposure Routes inhalation, ingestion, skin and/or eye contact

Symptoms sensitization dermatitis, allergic asthma, pneumonitis; [potential occupational carcinogen]

Target Organs Nasal cavities, lungs, skin

Cancer Site [lung and nasal cancer]

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People.™

Search the Pocket Guide

SEARCH

Enter search terms separated by spaces.

Arsenic (inorganic compounds, as As)

Synonyms & Trade Names Arsenic metal: Arsenia
Other synonyms vary depending upon the specific As compound. [Note: OSHA considers "Inorganic Arsenic" to mean copper acetoarsenite and all inorganic compounds containing arsenic except ARSINE.]

CAS No. 7440-38-2 (metal)	**RTECS No.** CG0525000 (metal) (/niosh-rtecs/CG802C8.html)	**DOT ID & Guide** 1558 152 (http://wwwapps.tc.gc.ca/saf-sec-sur/3/erg-gmu/erg/guidepage.aspx?guide=152) (http://www.cdc.gov/Other/disclaimer.html) (metal) 1562 152 (http://wwwapps.tc.gc.ca/saf-sec-sur/3/erg-gmu/erg/guidepage.aspx?guide=152) (http://www.cdc.gov/Other/disclaimer.html) (dust)
Formula As (metal)	**Conversion**	**IDLH** Ca [5 mg/m3 (as As)] See: 7440382 (/niosh/idlh/7440382.html)

Exposure Limits NIOSH REL : Ca C 0.002 mg/m3 [15-minute] See Appendix A (nengapdxa.html) OSHA PEL : [1910.1018] TWA 0.010 mg/m3	**Measurement Methods** NIOSH 7300 (/niosh/docs/2003-154/pdfs/7300.pdf) , 7301 (/niosh/docs/2003-154/pdfs/7301.pdf) , 7303 (/niosh/docs/2003-154/pdfs/7303.pdf) , 7900 (/niosh/docs/2003-154/pdfs/7900.pdf) , 9102 (/niosh/docs/2003-154/pdfs/9102.pdf) ; OSHA ID105 (http://www.osha.gov/dts/sltc/methods/inorganic/id105/id105.html) (http://www.cdc.gov/Other/disclaimer.html) See: NMAM (/niosh/docs/2003-154/) or OSHA Methods (http://www.osha.gov/dts/sltc/methods/index.html) (http://www.cdc.gov/Other/disclaimer.html)

Physical Description Metal: Silver-gray or tin-white, brittle, odorless solid.

MW: 74.9	BP: Sublimes	MLT: 1135°F (Sublimes)	Sol: Insoluble	VP: 0 mmHg (approx)	IP: NA
Sp.Gr: 5.73 (metal)	Fl.P: NA	UEL: NA	LEL: NA		

Metal: Noncombustible Solid in bulk form, but a slight explosion hazard in the form of dust when exposed to flame.

Incompatibilities & Reactivities Strong oxidizers, bromine azide [Note: Hydrogen gas can react with inorganic arsenic to form the highly toxic gas arsine.]

DUSTTRAK™ DRX AEROSOL MONITORS MODELS 8533, 8533EP AND 8534

REAL-TIME DUST AND AEROSOL MONITORING FOR ANY ENVIRONMENT, ANY APPLICATION

Only DustTrak™ DRX Aerosol Monitors can simultaneously measure both mass and size fraction–no other monitor can do both. DustTrak DRX monitors are battery-operated, data-logging, light-scattering laser photometers that give you real-time aerosol mass readings. They use a sheath air system that isolates the aerosol in the optics chamber to keep the optics clean for improved reliability and low maintenance. From desktop with external pump models to a handheld model, the DustTrak DRX offers a suitable solution for harsh industrial workplaces, construction and environmental sites and other outdoor applications, as well as clean office settings. DustTrak DRX monitors measure aerosol contaminants such as dust, smoke, fumes and mists.

Features and Benefits

All Models

+ Real-time mass concentration and size fraction readings, as well as data-logging allow for data analysis during and after sampling.
+ Simultaneously measure size-segregated mass fraction concentrations corresponding to PM1, PM2.5, Respirable, PM10, and Total PM size fractions
+ Easy-to-use graphical user interface with color touch-screen for effortless operation

Handheld Model (8534)

+ Long life internal pump for continuous sampling
+ Single-point data collection for walk through surveys
+ Lightweight design with ergonomic handle for portable applications

Desktop Models (8533 and 8533EP)

+ Energy-efficient, long lasting external pump for continuous, unattended, 24/7, outdoor monitoring applications (Model 8533EP only)
+ Long life internal pump for shorter work-shift or IAQ sampling applications (Model 8533)
+ Gravimetric reference sampling capability for custom reference calibrations
+ Automatic zeroing (with optional zero module) to minimize the effect of zero drift
+ STEL alarm setpoint for tracking 15-minute average mass concentrations
+ Standard and advanced calibration capabilities for consistent accuracy
+ Environmental protected and tamper-proof secure (with an optional environmental enclosure)
+ Inlet sample conditioning (with optional heated inlet sample conditioner) to reduce the effect of humidity on photometric mass measurements (for use with an environmental enclosure)
+ Cloud Data Management System hosted by Netronix™

UNDERSTANDING, ACCELERATED

Unsurpassed Technology and Performance

DustTrak DRX monitors are laser photometers that simultaneously measure five size segregated mass fraction concentrations at once–something no other monitor can do. The desktop, desktop with external pump and handheld monitors are continuous, real-time, 90°, light-scattering laser photometers that simultaneously measure size-segregated mass fraction concentrations corresponding to PM1, PM2.5, Respirable, PM10, and Total PM fractions. They combine both particle cloud (total area of scattered light) and single particle detection to achieve mass fraction measurements.

This size-segregated mass fraction measurement technique is superior to either a basic photometer or optical particle counter (OPC). It delivers the mass concentration of a photometer and the size resolution of an OPC. Typically, photometers can be used at high mass concentration, but they do not give any size information (unless used with size selective inlet conditioners) and significantly underestimate large particle mass concentrations. OPC's provide size and count information; however, they do not provide any mass concentration information and cannot be used in high mass concentration environments. The DustTrak DRX can do both.

Handheld Models: Perfect for Walk-Through Surveys and Single-Point Data Collection Applications

The DustTrak DRX handheld Model 8534 is lightweight and portable. It is perfect for industrial hygiene surveys, point source location monitoring, indoor air quality investigations, engineering control evaluations/validation, and for baseline trending and screening. Like the desktop models, it has manual and programmable data logging functions. In addition, the handheld model also has a single-point data logging capability for walk-through industrial hygiene surveys and indoor air quality investigations.

Desktop Models: Ideal for Long-Term Surveys and Remote Monitoring Applications

The DustTrak DRX is also offered as a standard desktop (Model 8533), as well as a desktop with external pump (Model 8533EP.) Both models have manual and programmable data logging functions, making them ideal for unattended applications. The standard desktop model is most suitable for indoor, continuous monitoring, while the desktop with external pump is designed for 24/7 unattended, remote monitoring outdoors.

The DustTrak DRX desktop models come with USB (device and host), Ethernet, and analog and alarm outputs allowing remote access to data. User adjustable alarm setpoints for instantaneous or 15-minute short-term excursion limit (STEL) are also available on desktop models. The alarm output with user-defined setpoint alerts you when upset or changing conditions occur.

The DustTrak DRX Desktop Monitors have several unique features:

+ External pump (Model 8533EP) with low power consumption for continuous, unattended monitoring in remote outdoor locations.
+ Gravimetric sampling capability using a 37-mm filter cassette which can be inserted in-line with the aerosol stream allowing you to perform an integral gravimetric analysis for custom reference calibrations.
+ Zeros automatically using the external zeroing module. This optional accessory is used when sampling over extended periods of time. By zeroing the monitor during sampling, the effect of zero drift is minimized.
+ STEL alarm feature for tracking 15-minute average mass concentrations when alarm setpoint has been reached for applications like monitoring fugitive emissions at hazardous waste sites.
+ Provide for environmental protection and tamper-proof security using an environmental enclosure. This optional accessory encloses the instrument within a waterproof, lockable, custom-designed case.
+ Condition the sample air stream before entering the instrument optics using a heated inlet sample conditioner (designed for use with the environmental enclosure.) This optional accessory is used in humid environments. By conditioning the sample, the humidity and water vapor are minimized.
+ Standard and advanced calibration capabilities. The DustTrak DRX Aerosol Monitor has two calibration factors: a photometric calibration factor (PCF) and a size calibration factor (SCF). The PCF accounts for the photometric response difference between A1 Test Dust and the aerosol under measurement, while the SCF accounts for the aerodynamic size difference.
  - The primary goal of the standard calibration is to obtain the SCF for the aerosol of interest. The standard calibration process is very easy and does not require comparison to gravimetric samples. Measure with and without a PM2.5 impactor, and the instrument takes the ratio of these two size distributions and compares this reading to the PM2.5 impactor transmission efficiency curve to calculate the SCF. However, the absolute mass concentration may not be as accurate as the advanced calibration.
  - The advanced calibration method yields high size segregated mass concentration accuracy. It involves two separate gravimetric measurements to obtain PCF and SCF in sequence. The advanced calibration will accurately measure size segregated mass concentrations.

Applications	Desktop	Handheld
Aerosol research studies	+	+
Baseline trending and screening	+	+
Engineering control evaluations		+
Engineering studies		+
Epidemiology studies	+	+
Indoor air quality investigations	+	+
Industrial/occupational hygiene surveys	+	+
Point source monitoring		+
Outdoor environmental monitoring	+	
Process monitoring	+	+
Remote monitoring	+	

DustTrak DRX Aerosol Monitor Features

All Models

+ Li-Ion rechargeable batteries
+ Internal and external battery charging capabilities
+ Outlet port for isokinetic sampling applications
+ User serviceable sheath flow and pump filters
+ Logged test pause and restart feature
+ Logged test programming
    - Color touch screen–either manual mode or program mode
    - TRAKPRO™ Data Analysis Software via a PC
+ User adjustable custom calibration settings
+ Instantaneous alarm settings with visual and audible warnings
+ Real-time graph display
+ View statistical information during and after sampling
+ On-screen instrument status indicators: FLOW, LASER and FILTER
+ Filter service indicator for user preventative maintenance

Desktop Models (8533 and 8533EP)

+ Long life external pump (8533EP)
+ Internal pump (8533)
+ Hot swappable batteries
+ Gravimetric reference sample capability
+ STEL alarm setpoint

Optional Accessories

+ Auto zeroing module
+ Protective environmental enclosure (8535 and 8537)
+ Heated inlet sample conditioner (for use with an environmental enclosure)
+ Cloud Data Management System as hosted by Netronix™

Handheld Model (8534)

+ Long life internal pump
+ Single-point data collection for walk through surveys

Easy to Program and Operate

The graphical user interface with color touch-screen puts everything at your fingertips. The easy-to-read display shows real-time mass concentration and graphical data, as well as other statistical information along with instrument pump, laser and flow status, and much more. Perform quick walk-through surveys or program the instrument's advanced logging modes for long-term sampling investigations. Program start times, total sampling times, logging intervals, alarm setpoints and many other parameters. You can even set up the instrument for continuous unattended operation.

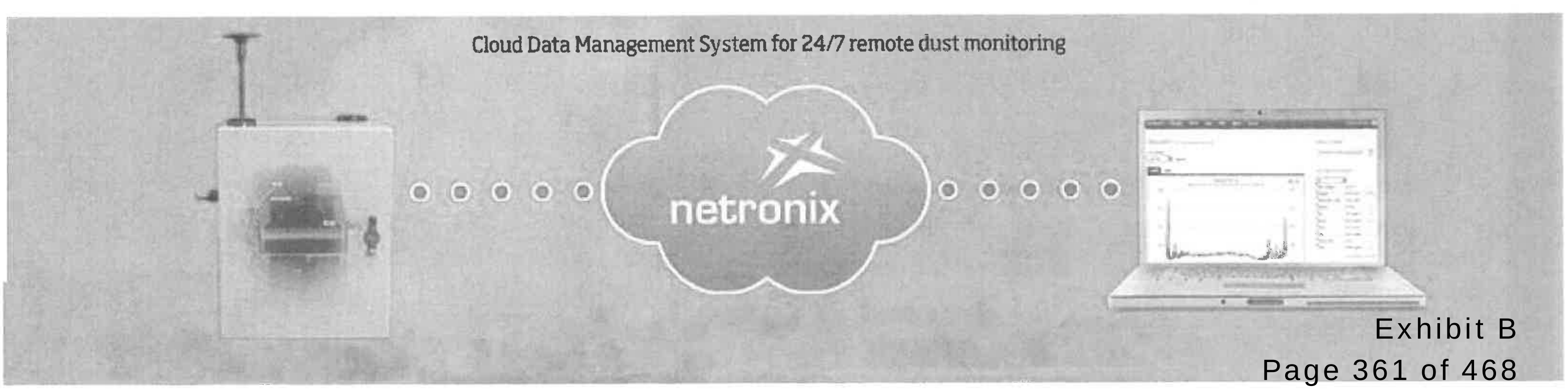
TRAKPRO™ Software Makes Monitoring Easier than Ever

TrakPro™ Data Analysis Software allows you to set up and program directly from a PC. It even features the ability for remote programming and data acquisition from your PC via wireless communication options or over an Ethernet network. As always, you can print graphs, raw data tables, and statistical and comprehensive reports for recordkeeping purposes.

Battery Performance		
Models 8533 and 8533EP (Typical) 6600 mAH Li-Ion Battery Pack (P/N 801680)	**1 Battery**	**2 Batteries**
Battery runtime (hours)	Up to 6	Up to 12
Charge time* (hours) in DustTrak	4	8
Charge time* (hours) in external battery charger (P/N 801685)	4	8

Model 8534 (Typical) 3600 mAH Li-Ion Battery Pack (P/N 801681)	**Battery**
Battery runtime (hours)	Up to 6
Charge time* (hours) in DustTrak	4
Charge time* (hours) in external battery charger (P/N 801686)	4

* Of a fully depleted battery



SPECIFICATIONS

DUSTTRAK™ DRX AEROSOL MONITORS
MODELS 8533, 8533EP AND 8534

Sensor Type
90° light scattering

Particle Size Range
0.1 to 15 µm

Aerosol Concentration Range

8533 Desktop	0.001 to 150 mg/m³
8533EP Desktop with External Pump	0.001 to 150 mg/m³
8534 Handheld	0.001 to 150 mg/m³

Display
Size Segregated Mass Fractions for PM1, PM2.5, Respirable, PM10 and Total. All displayed

Resolution
±0.1% of reading or 0.001 mg/m³, whichever is greater

Zero Stability
±0.002 mg/m³ per 24 hours at 10 sec time constant

Flow Rate
3.0 L/min

Flow Accuracy
±5% of factory set point, internal flow controlled

Temperature Coefficient
+0.001 mg/m³ per °C

Operational Temp
32 to 120°F (0 to 50°C)

Storage Temp
-4 to 140°F (-20 to 60°C)

Operational Humidity
0 to 95% RH, non-condensing

Time Constant
User adjustable, 1 to 60 seconds

Data Logging
5 MB of on-board memory (>60,000 data points)
45 days at 1 minute logging interval

Log Interval
User adjustable, 1 second to 1 hour

Physical Size (H x W x D)

Handheld	4.9 x 4.8 x 12.5 in. (12.5 x 12.1 x 31.6 cm)
Desktop	5.3 x 8.5 x 8.8 in. (13.5 x 21.6 x 22.4 cm)
External Pump	4.0 x 7.0 x 3.5 in. (10.0 x 18.0 x 9.0 cm)

Weight

Handheld	2.9 lb (1.3 kg), 3.3 lb (1.5 kg) with battery
Desktop	3.5 lb (1.6 kg), 4.5 lb (2.0 kg) - 1 battery, 5.5 lb (2.5 kg) - 2 batteries
External Pump	3.0 lb (1.4 kg)

Communications

8533	USB (host and device) and Ethernet. Stored data accessible using flash memory drive
8533EP	USB (host and device) and Ethernet. Stored data accessible using flash memory drive plus, cable assembly for external pump
8534	USB (host and device). Stored data accessible using flash memory drive

Power-AC
Switching AC power adapter with universal line cord included, 115-240 VAC

Analog Out

8533/8533EP	User selectable output, 0 to 5 V or 4 to 20 mA. User selectable scaling range

Alarm Out

8533/8533EP	Relay or audible buzzer Relay Non-latching MOSFET switch + User selectable set point + -5% deadband + Connector 4-pin, Mini-DIN connectors
8534	Audible buzzer

Screen

8533/8533EP	5.7 in. VGA color touchscreen
8534	3.5 in. VGA color touchscreen

Gravimetric Sampling

8533/8533EP	Removable 37 mm cartridge (user supplied)

CE Rating

Immunity	EN61236-1:2006
Emissions	EN61236-1:2006

Specifications are subject to change without notice.

UNDERSTANDING, ACCELERATED

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Germany	**Tel:** +49 241 523030		

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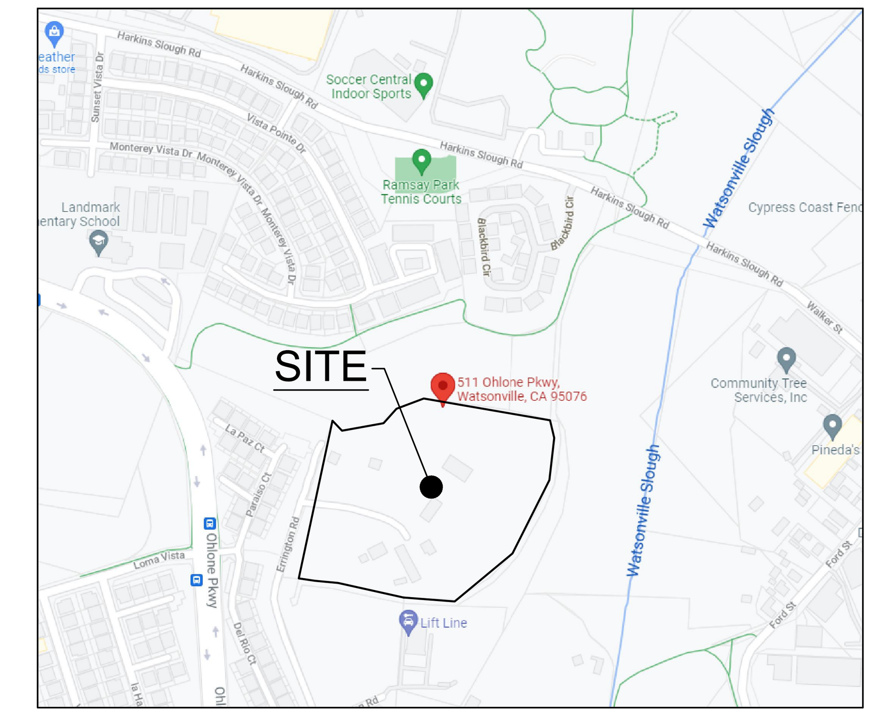
ATTACHMENT B

(SOIL MANGEMENT PLAN)

Civil Engineering Plans for the Remediation & Rough Grading Plan
-
Hillcrest Subdivision

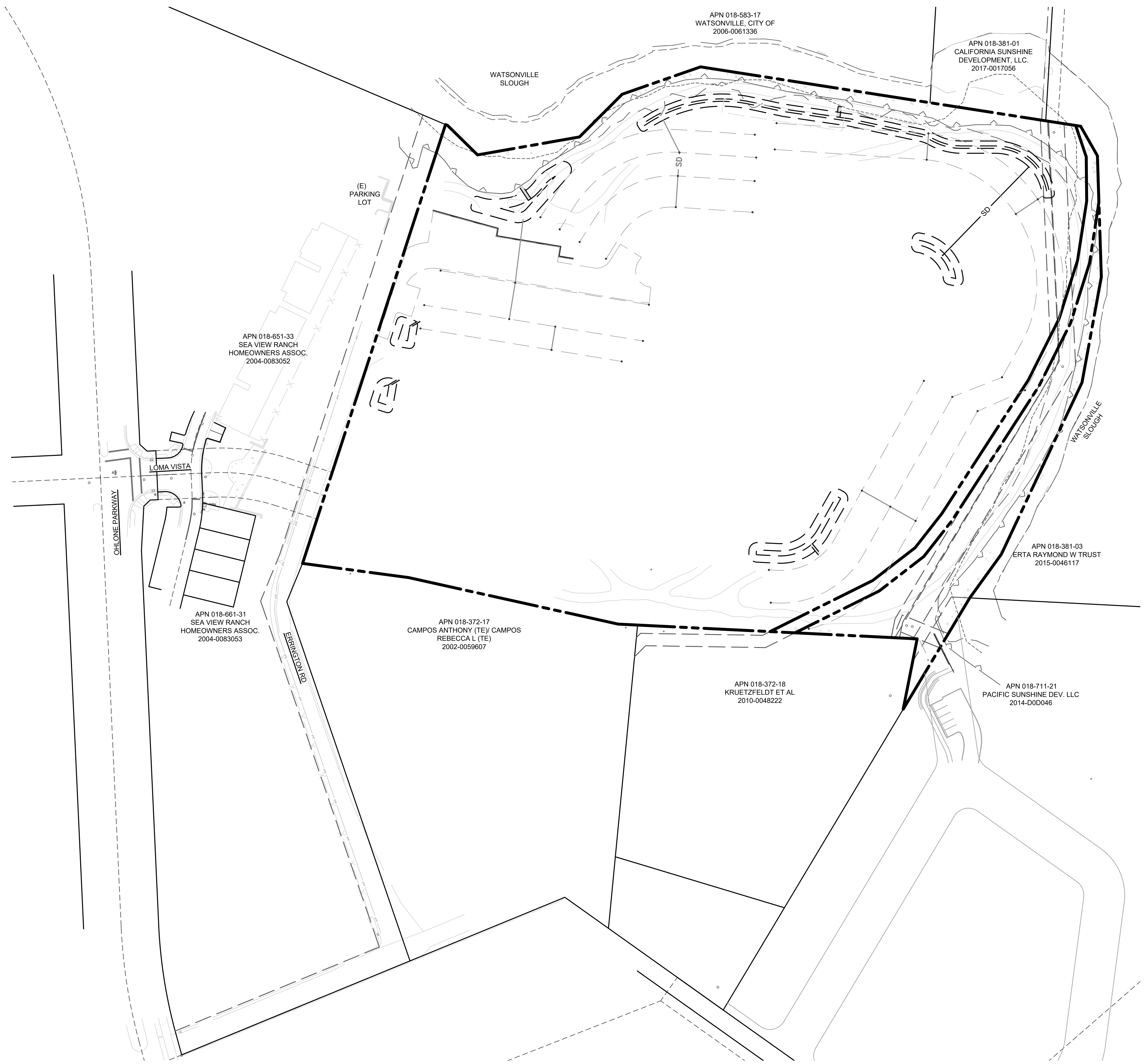
REMEDIATION & ROUGH GRADING PLAN
FOR THE
SUBDIVISION MAP & IMPROVEMENT PLANS
HILLCREST SUBDIVISION

511 OHLONE PARKWAY
WATSONVILLE, CALIFORNIA 95076



MAP DATA © GOOGLE

VICINITY MAP
N.T.S.



ABBREVIATIONS

AP	ANGLE POINT
APN	ASSESSORS PARCEL NUMBER
BRW	BOTTOM OF RETAINING WALL
BS	BOTTOM OF STAIRS
BSW	BACK OF SIDEWALK
BW	BOTTOM OF WALL
B/W	BACK OF SIDEWALK
CB	CATCH BASIN
CBC	CALIFORNIA BUILDING CODE
CDFW	CALIFORNIA DEPARTMENT OF FISH & WILDLIFE
CO	CLEANOUT
CONC	CONCRETE
COTG	CLEANOUT TO GRADE
DIP	DUCTILE IRON PIPE
DS	DOWN SPOUT
DTL	DETAIL
DWG	DRAWING
DWY	DRIVEWAY
EG	EXISTING GROUND
EP	EDGE OF PAVEMENT
EV	ELECTRIC VEHICLE
EVAE	EMERGENCY VEHICLE ACCESS EASEMENT
(E)	EXISTING
EX.	EXISTING
FC	FACE OF CURB
FG	FINISH GRADE
FF	FINISH FLOOR
FL	FLOWLINE
FNC	FENCE
FT	FOOT/FEET
GB	GRADE BREAK
GFL	GUTTER FLOW LINE
HDPE	HIGH-DENSITY POLYETHYLENE
HP	HIGH POINT
INV	INVERT
LF	LINEAR FOOT
LOG	LIMIT OF GRADING
LP	LOW POINT
MIN	MINIMUM
MH	MANHOLE
N	NORTH
NE	NORTHEAST
NTS	NOT TO SCALE
NW	NORTHWEST
OC	ON CENTER
OCEW	ON CENTER, EACH WAY
OH	OVERHEAD
PAE	PUBLIC ACCESS EASEMENT
PCC	PORTLAND CEMENT CONCRETE
PP	POWER POLE
PL	PROPERTY LINE
POC	POINT OF CONNECTION
PUE	PUBLIC UTILITY EASEMENT
PV	PAVEMENT
PVC	POLYVINYL CHLORIDE PIPE
R	RADIUS
RC	RELATIVE COMPACTION
RG	ROUGH GRADE
RWQCB	REGIONAL WATER QUALITY CONTROL BOARD
S	SOUTH, SLOPE
SD	STORM DRAIN
SCDI	STORM DRAIN CURB INLET
SDE	STORM DRAIN EASEMENT
SE	SOUTHEAST
SFR	SINGLE FAMILY RESIDENCE
SHT	SHEET
SS	SANITARY SEWER
SSCO	SANITARY SEWER CLEAN OUT
STD	STANDARD
STME	SIDEWALK AND TRAIL MAINTENANCE EASEMENT
TC	TOP OF CURB
TFC	TOP OF FLUSH CURB
TRW	TOP OF RETAINING WALL
TS	TOP OF STAIRS
TW	TOP OF WALL
USA	UNDERGROUND SERVICE ALERT
USACE	US ARMY CORPS OF ENGINEERS
W	WEST, WATER

REMEDIATION & ROUGH GRADING INDEX OF SHEETS

SHEET NO.	DESCRIPTION
C1.0	COVER SHEET
C1.1-C1.3	CONDITIONS OF APPROVAL
C2.0	EXISTING CONDITIONS
C3.0	*NOT USED*
C4.0	*NOT USED*
C5.0	FULL SITE ROUGH GRADING & DRAINAGE PLAN
C5.1	REMEDIATION PIT GRADING PLAN
C5.2	SITE ENVIRONMENTAL GRADING PLAN
C5.3	ROUGH GRADING - WALL 'A'
C5.4	ROUGH GRADING EROSION CONTROL PLAN
C5.5	EROSION CONTROL NOTES AND DETAILS
C5.6	WALL A (PIT WALL) PROFILE AND DETAILS
C5.7	SECTION B & TEMPORARY BASIN DETAIL
C5.8	ESTIMATED SLOPE ANALYSIS
C5.9	ESTIMATED CUT / FILL ANALYSIS PLAN
C5.10	CUT & FILL SECTIONS
C5.11	*NOT USED*

NOTE:
CONTRACTOR/DEVELOPER SHALL REFER TO THE PROJECT DEVELOPMENT AGREEMENT PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR/DEVELOPER SHALL REVIEW THE MITIGATION MONITORING & REPORTING PLAN (MMRP) WITHIN THE DEVELOPMENT AGREEMENT PRIOR TO COMMENCEMENT OF WORK. THE MMRP HAS SPECIFIC DIRECTION AND REQUIREMENTS FOR EACH PHASE OF THE PROJECT, AND SHALL BE ADHERED TO DURING THE DEVELOPMENT PROCESS.

N

80' 0 40' 80' 160'
GRAPHIC SCALE: 1 INCH = 80 FEET

811
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SANTA CRUZ, CA 95065
TEL (831) 462-2905
www.ramseycivilengineering.com

REGISTERED PROFESSIONAL ENGINEER
DAVID RAMSEY
NO. C73735
CIVIL
STATE OF CALIFORNIA

DAVID RAMSEY DATE
RCE# 73735

APN# 018-372-14
PLAN TYPE
RESIDENTIAL SUBDIVISION

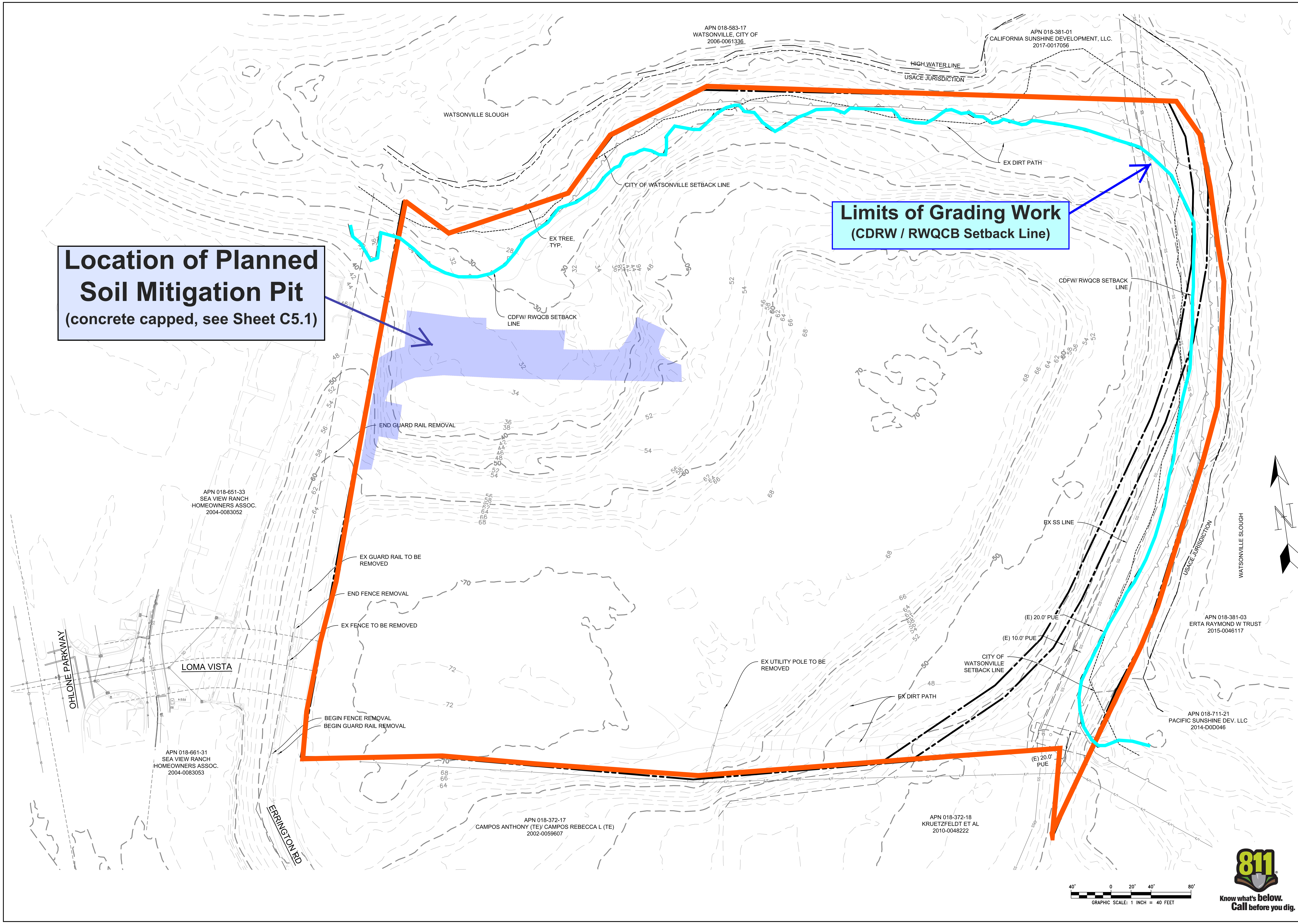
COVER SHEET

HILLCREST SUBDIVISION
511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

REVISION BLOCK

NUMBER	BY	DESCRIPTION	DATE
C	GS/DMR	RESPONSE 3 - PLAN CHECK COMMENTS 03/11/2022	03/18/2022
B	GS/DMR	RESPONSE 2 - PLAN CHECK COMMENTS 10/08/2021	01/20/2022
A	GS/DMR	RESPONSE 1 - PLAN CHECK COMMENTS 09/21/2021	09/29/2021

DRAWN BY:	GS
DESIGNED BY:	DMR
DATE:	08/12/2021
SCALE:	AS NOTED
PROJECT NO:	20-021
SHEET:	C1.0



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NO. C73735
CIVIL
STATE OF CALIFORNIA

DAVID RAMSEY DATE
RCE# 73735

APN# 018-372-14
PLAN TYPE
RESIDENTIAL SUBDIVISION

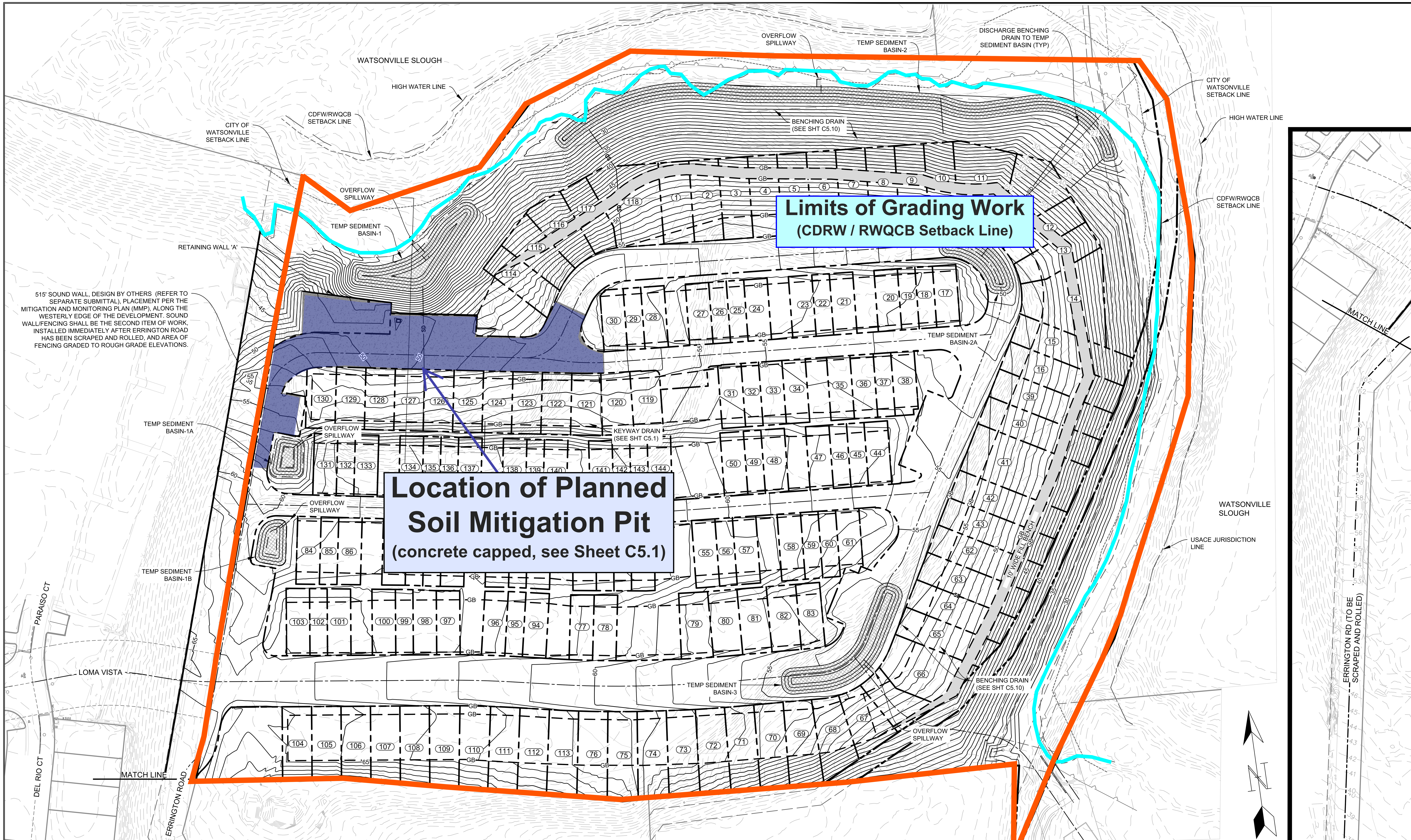
HILLCREST SUBDIVISION
511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

EXISTING CONDITIONS

NUMBER	BY	DESCRIPTION	DATE
C	GS/DMR	RESPONSE 3 - PLAN CHECK COMMENTS 03/11/2022	03/18/2022
B	GS/DMR	RESPONSE 2 - PLAN CHECK COMMENTS 10/08/2021	01/20/2022
A	GS/DMR	RESPONSE 1 - PLAN CHECK COMMENTS 09/21/2021	09/29/2021

REVISION BLOCK

DRAWN BY:	GS
DESIGNED BY:	DMR
DATE:	08/12/2021
SCALE:	AS NOTED
PROJECT NO:	20-021
SHEET:	C2.0



ROUGH GRADING NOTES

1. DEVELOPER SHALL ASSIGN AN ONSITE SUPERINTENDENT FOR THE GRADING ACTIVITIES, WHOM WILL REMAIN ONSITE AT ALL TIMES DURING CONSTRUCTION ACTIVITIES.
2. GRADING PLAN SHALL COMPLY WITH THE CITY OF WATSONVILLE GRADING ORDINANCE, UNLESS OTHERWISE SPECIFIED, IN THE INSTANCE OF THE PROPOSED 2:1 SLOPES. ADDITIONAL TESTING HAS BEEN PERFORMED BY MPEG FOR SOIL STABILITY. IT IS MPEG'S PROFESSIONAL OPINION THAT THE PROPOSED USE OF 2:1 SLOPES IS ACCEPTABLE FOR THIS DESIGN. SEE SUPPLEMENTAL GEOTECHNICAL REPORT AND REVIEW LETTER.
3. GRADING, INCLUDING EXCAVATION AND FILL ACTIVITIES, SHALL ADHERE TO THE RECOMMENDATIONS AND REQUIREMENTS SET FORTH IN THE SUPPLEMENTAL GEOTECHNICAL EVALUATION FOR THE HILLCREST RESIDENTIAL SUBDIVISION, PREPARED BY MILLER PACIFIC ENGINEERING GROUP, DATED JANUARY 20, 2022 (PROJECT NO. 3317.001)
4. ERRINGTON ROAD SHALL BE USED AS THE EGRESS/INGRESS FOR GRADING ACTIVITIES. THE EXISTING ROAD BASE SHALL BE SCRAPED, AND POT HOLES FILLED, TO CREATE A SMOOTH ACCESS ROAD. GENERAL SLOPES AND CROSS SLOPES OF THE ROAD SHALL REMAIN WITH MINOR CHANGES.
5. A FULL TRAFFIC CONTROL PLAN, IF REQUIRED, WILL BE PROVIDED BY THE GENERAL CONTRACTOR UPON APPROVAL OF PLANS.
6. REFER TO SHEET C5.7 FOR TEMPORARY SEDIMENT BASIN DETAILS.
7. THE GEOTECHNICAL ENGINEER MAY ADJUST THE LOCATION OF THE FILL BENCHING AS NEEDED IN FIELD DURING CONSTRUCTION. THE GEOTECHNICAL ENGINEER WILL BE ON-SITE DURING THESE GRADING ACTIVITIES AND SHALL DIRECT THE CONTRACTOR ACCORDINGLY. ADDITIONAL SLOPE DRAINS MAY BE NECESSARY AND WILL BE DETERMINED BY THE GEOTECHNICAL ENGINEER IN FIELD. THE GEOTECHNICAL ENGINEER SHALL HAVE FULL DISCRETION TO ADJUST THE LOCATION OF THE PROPOSED BENCHING DRAINS AS NEEDED IN FIELD.

HATCH LEGEND

- REMEDIATION PIT WITH CONC CAP
- TEMPORARY SEDIMENT BASIN (PER SHEET C5.7)
- FILL BENCHING (SEE SECTIONS SHEET C5.10)

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REGISTERED PROFESSIONAL ENGINEER DAVID RAMSEY NO. C73735 CIVIL STATE OF CALIFORNIA
DAVID RAMSEY DATE
RCE# 73735

APN# 018-372-14

PLAN TYPE
RESIDENTIAL SUBDIVISION

FULL SITE ROUGH GRADING & DRAINAGE PLAN
HILLCREST SUBDIVISION
511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

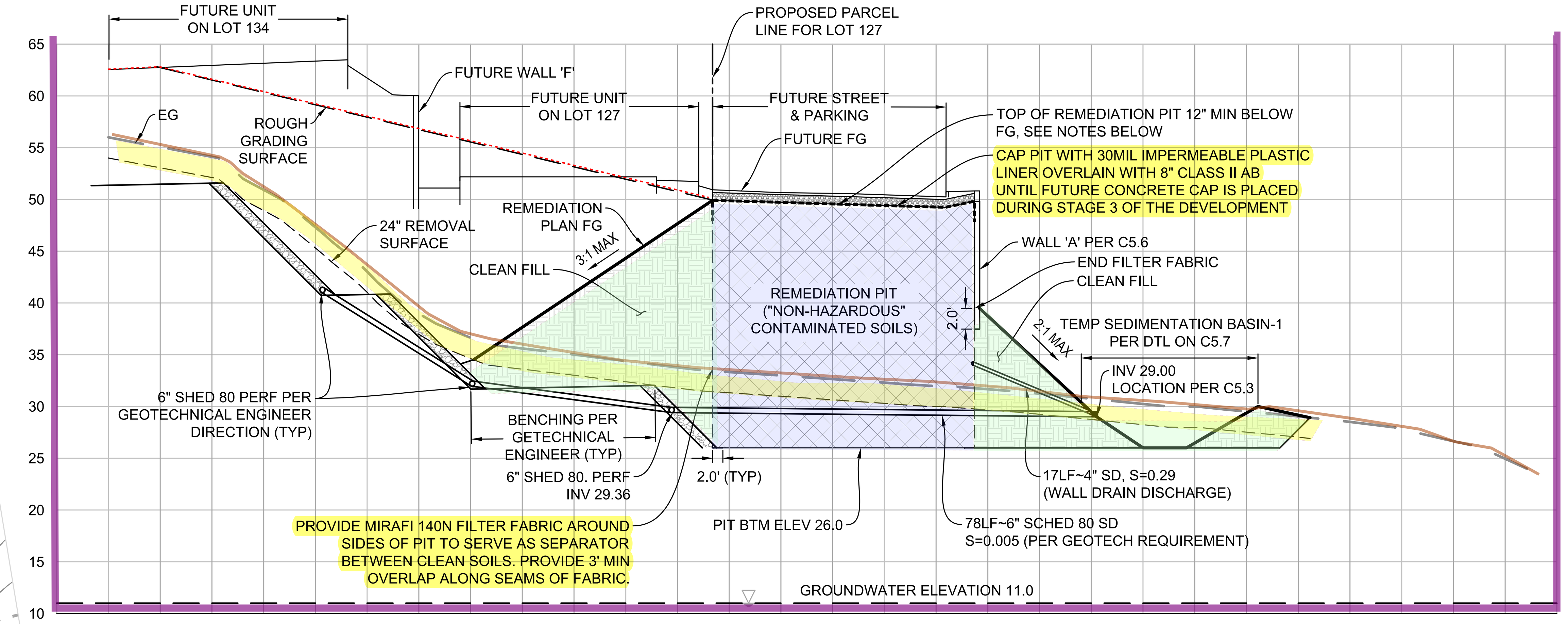
NUMBER	BY	DESCRIPTION	DATE
C	GS/DMR	RESPONSE 3 - PLAN CHECK COMMENTS 03/11/2022	03/18/2022
B	GS/DMR	RESPONSE 2 - PLAN CHECK COMMENTS 10/08/2021	01/20/2022
A	GS/DMR	RESPONSE 1 - PLAN CHECK COMMENTS 09/21/2021	09/29/2021

REVISION BLOCK

DRAWN BY:	GS
DESIGNED BY:	DMR
DATE:	08/12/2021
SCALE:	AS NOTED
PROJECT NO:	20-021

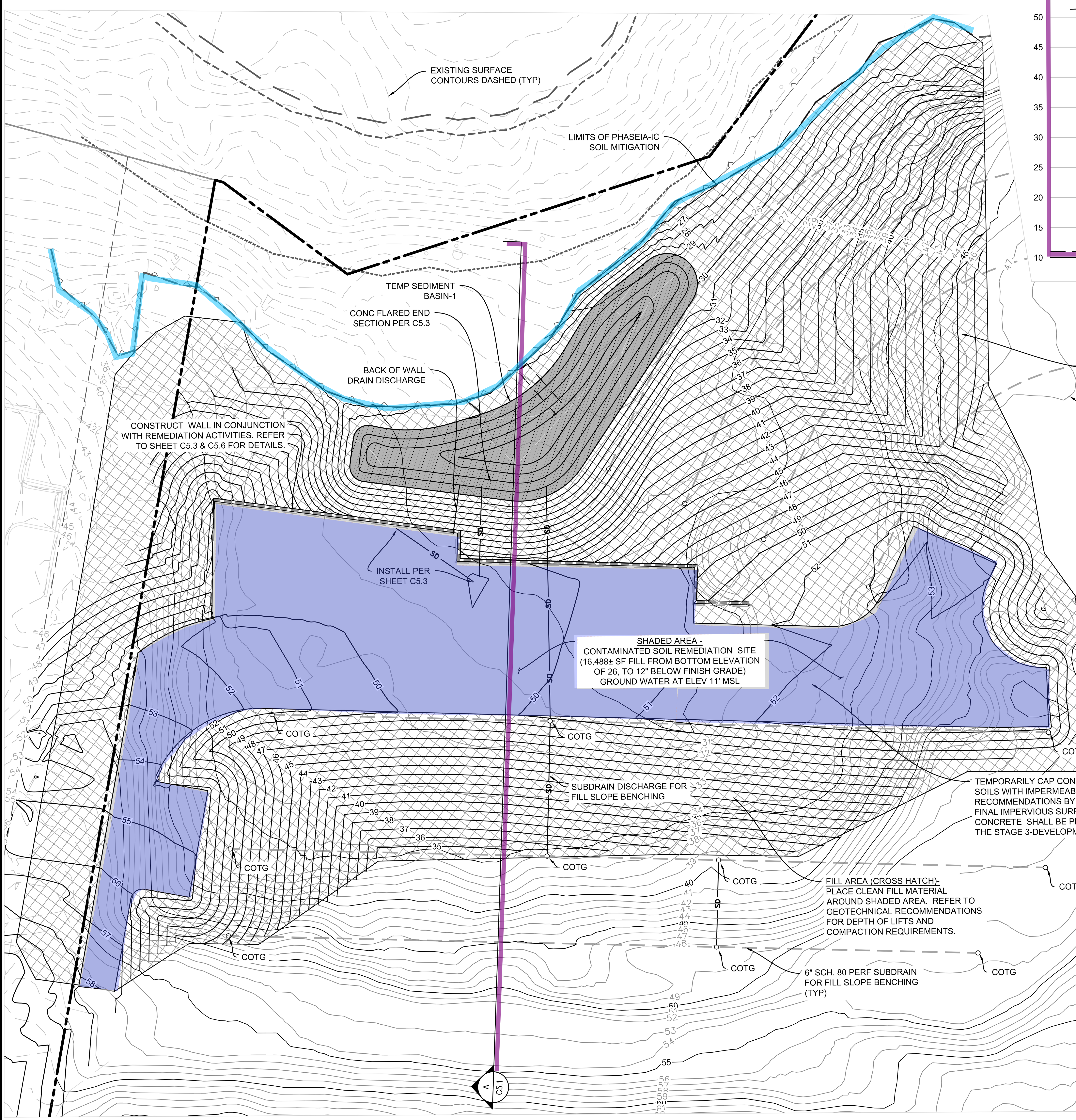
SHEET: C5.0

Exhibit B



SECTION - A

H: 1" = 20'
V: 1" = 10'



PLAN NOTES:

1. THE 'REMEDIATION SURFACE CONTOURS' SHOWN ON THIS SHEET ARE INTENDED TO BE A TEMPORARY DESIGN CONDITION (INTERMEDIATE GRADING BETWEEN EXISTING CONDITION AND ROUGH GRADING CONDITION). REFER TO SHEET C5.0 FOR 'FINAL' ROUGH GRADING CONTOURS.
2. THE EXACT LOCATION AND LIMITS OF THE FILL BENCHING SHALL BE SUBJECT TO THE DISCRETION OF THE GEOTECHNICAL ENGINEER IN FIELD.
3. ALL DISCIPLINES INCLUDING CIVIL, GEOTECHNICAL, AND ENVIRONMENTAL CONSULTANTS WILL BE DIRECTLY INVOLVED DURING THE ROUGH GRADING PROCESS AND WILL PROVIDE ADDITIONAL SUPPORT AND DIRECTION AS NEEDED AND/OR AS REQUESTED BY THE CONTRACTOR(S).

20' 0 10' 20' 40'
GRAPHIC SCALE: 1 INCH = 20 FEET

SECTION NOTES:

1. THIS SECTION IS PROVIDED FOR GRAPHICAL REPRESENTATION ONLY.
2. ALL 'FUTURE' ELEMENTS SHOWN ARE TO BE CONSTRUCTED DURING THE DEVELOPMENT PHASES OF THIS PROJECT. THEY ARE SHOWN FOR GRAPHICAL REFERENCE ONLY.
3. WALL FOOTINGS ARE NOT SHOWN.
4. FUTURE BUILDING FOUNDATIONS ARE NOT SHOWN.
5. CONTRACTOR TO PROVIDE TEMPORARY SAFETY RAILING AT TOP OF WALL UNTIL FINAL RAILING IS INSTALLED.
6. CONTRACTOR TO COORDINATE ALLOWABLE CONSTRUCTION VEHICLE SETBACKS TO WALL 'A' FOR SAFE PASSAGE WITH STRUCTURAL ENGINEER.
7. FINAL SECTION OF ROAD BASE ABOVE REMEDIATION PIT MAY VARY, BUT FOR ROUGH GRADING PURPOSES IS ASSUMED TO BE 12" MAX. SECTION. IF FINAL SECTION EXCEEDS 12" THEN ADDITIONAL CONTAMINATED SOILS WILL BE EXCAVATED AND REMOVED OFFSITE TO AN APPROVED FACILITY, AS NOTED BELOW.
8. REFER TO THE GEOTECHNICAL EVALUATION REPORT, BY MILLER PACIFIC ENGINEERING GROUP, DATED 3/4/21 AND REVISED 01/20/22, FOR GEOTECHNICAL RECOMMENDATIONS AND REQUIREMENTS.
9. CONTRACTOR SHALL ENSURE THAT AN ASSOCIATE FROM WEBER HAYES IS PRESENT DURING THE PLACEMENT OF CONTAMINATED FILLS.
10. A LICENSED SURVEYOR SHALL STAKE THE LIMITS OF THE FILL PIT TO VERIFY THAT THE BOTTOM ELEVATION OF 26.0 HAS BEEN MET AND THAT THE APPROPRIATE FOOTPRINT IS MAINTAINED. THE CONTRACTOR SHALL USE GPS TECHNOLOGY TO VERIFY THAT THE CONTAMINATED SOILS ARE PLACED IN THE CORRECT LOCATION DURING THE FILLING PROCESS. A LICENSED SURVEYOR SHALL VERIFY THE FINAL ELEVATION AND EXTENTS OF THE FILL PIT.
11. THE SURVEYOR SHALL VERIFY THE FOOTPRINT AREA OF THE PIT FOR APPROXIMATELY EVERY FIVE FEET OF VERTICAL FILL TO ENSURE THAT THE FOOTPRINT IS BEING MAINTAINED. IF EXCESS CONTAMINATED FILL EXTENDS BEYOND THE FOOTPRINT, MATERIAL SHALL BE REMOVED AND PLACED ON TOP OF THE NEXT FILL SECTION.
12. THE EXACT LOCATION AND LIMITS OF THE FILL BENCHING SHALL BE SUBJECT TO THE DISCRETION OF THE GEOTECHNICAL ENGINEER IN FIELD.

PROJECT SITE - PHASE I(a), I(b), & I(c)
PRE-SITE IMPROVEMENTS: SOIL MITIGATION & ROUGH GRADING SEQUENCE

PHASE I(a) 1,500 CY CLASS I HAZ SOILS OFF-HAUL PER WEBER, HAYES REPORT (REFER TO QUADRANTS 8, 9 & 11, ON SHEET C5.2, AS DESIGNATED BY WEBER HAYES AND ASSOCIATES), TO KETTLEMAN HILL HAZARDOUS WASTE FACILITY.

PHASE I(b) 8,240 CY* SOURCE: THE TOP 6 INCHES (SURFACE LAYER) FROM ACROSS THE ENTIRE SITE. THESE CLASS 3, NON-HAZARDOUS CONTAMINATED SOILS TO BE OFF-HAULED TO HOLLISTER, CA

PHASE I(c) 25,460 CY** SOURCE: SOIL FROM THE TOP 6-TO-24-INCHES TO BE REMOVED FOLLOWING PHASE 1(b). 830 CY OF THESE NON-HAZARDOUS CONTAMINATED SOILS TO BE INSTALLED IN COMPACTED LIFTS IN THE REMEDIATION PIT AND THE REMAINING VOLUME (APPROXIMATELY 6,600 CY) SHALL BE OFF-HAULED TO AN APPROVED SITE OR CLASS II LANDFILL.

TOTAL CONTAMINATED SOIL VOLUMES	35,200 CY
-TOTAL VOLUMES BURIED ON-SITE	18,000 CY
-TOTAL VOLUMES REMOVED OFF SITE	17,200 CY

*AFTER DEDUCING 555 CY OF KETTLEMAN, CA OFF-HAUL
**AFTER DEDUCTING 945 CY OF KETTLEMAN, CA OFF-HAUL

NOTES FOR PHASE I (c) - SPECIFIC REFERENCE TO C5.1 AND C5.2:

1. AFTER PHASE I(B) REMOVAL OF 6 INCHES ON QUADRANTS #1 THROUGH # 4, THE NEXT 18 INCHES OF SOIL, IS PLACED ON QUADRANTS # 5 THROUGH #8. THEN THE SOIL IN QUADRANTS #1 THROUGH #4 (MINIMUM 24 IN FROM EXISTING GRADE) WILL BE NON-CONTAMINATED (CLEAN) SOILS. THESE SOILS WILL BE REMOVED AS NECESSARY TO FILL IN THE AREAS TO THE WEST, EAST, AND SOUTH OF THE PROPOSED REMEDIATION PIT. THE NORTH SIDE OF THE REMEDIATION PIT SHALL BE CONTAINED BY THE CONSTRUCTION OF THE REMEDIATION PIT WALL. CLEAN SOILS WILL BE SCRAPPED FROM THE MIDDLE PORTION OF THE PROPERTY AFTER THE 24 INCHES ARE REMOVED.

2. EXCAVATE SOILS IN THE REMEDIATION PIT TO A DEPTH OF 15 FT MINIMUM ABOVE THE HIGH WATER MARK (ELEVATION 11). THIS SOIL IS STOCKPILED ON THE SITE (SEE C5.2) IN QUADRANT 1 THROUGH #4 ESTIMATED AT 5,605 CY. THE REMEDIATION PIT, AT THE TIME IT STARTS TO ACCEPT CONTAMINATED SOILS, HAS A BOTTOM DEPTH ELEVATION = 26FT MIN (15FT ABOVE MSL ELEVATION=11).

3. THE REMEDIATION PIT WILL BE CONSTRUCTED BACKFILLING WITH CONTAMINATED SOILS IN INCREMENTS WHILE SIMULTANEOUSLY CONSTRUCTING THE BLOCK WALL ALONG THE NORTH SIDE OF THE REMEDIATION PIT. PLACE GEO-GRID REINFORCEMENT MATERIAL AS DIRECTED BY THE STRUCTURAL PLANS. BACKFILLING ASSUMES A 15% COMPACTION FACTOR AT 12 IN LIFTS COMPACTED AT 90% MIN. RELATIVE COMPACTION, OR AS DIRECTED OTHERWISE BE THE GEOTECHNICAL ENGINEER.

4. ONCE THE FINAL ELEVATION OF THE PIT IS REACHED, 12 INCHES BELOW FINAL PAVEMENT/CONCRETE ELEVATIONS, INSTALL A TEMPORARY IMPERMEABLE PLASTIC LINER (30 MIL MIN.) TOPPED WITH CLEAN BACKFILL MATERIAL.

5. REMEDIATION PIT ON-SITE VOLUME CAPACITY FOR CONTAMINATED SOIL IS ESTIMATED TO BE 18,000 CY, TAKEN TO BOTTOM OF IMPERVIOUS SURFACE SUBBASE.

6. APPROXIMATELY 7,460 (PHASE I(c)) CY OF SURPLUS, NON-HAZARDOUS CONTAMINATED SOIL GENERATED FROM THE UPPER 2-FEET OF SOILS AND ARE IN EXCESS OF THE REMEDIATION PIT CAPACITY OF 18,000 CY, SHALL BE OFF-HAULED TO AN APPROVED SITE OR CLASS II LANDFILL.

OTHER MITIGATIONS

- NATURE TRAIL SOIL MITIGATION WILL CONSIST OF REMOVAL OF 12-INCHES OF SOIL AND REPLACTEMENT WITH A CAP OF CLEAN SOIL AND ASPHALT (I.E. 9-INCHES OF COMPACTED CLASS II AGGREGATE BASE OVERLAIN BY 3-INCHES OF ASPHALT). THE STRUCTURAL SECTION OF THE NEW TRAIL AREA =12,865 SF [476 CY OF OFF-HAUL MATERIAL]

GENERAL NOTES

1. CONTAMINATED SOIL REMEDIATION AREA TO OCCUR UNDER IMPERVIOUS SURFACES PER WEBER HAYES REPORT. THE TEMPORARY CONDITIONS WILL INCLUDE AN IMPERMEABLE LINER WITH CLASS II BASE ROCK SET ATOP OF LINER. ONCE UTILITIES HAVE BEEN INSTALLED THE FINAL CAP OF CONCRETE WILL BE PLACED , PER WHA REPORT.

2. EXCAVATED MATERIALS (NON-CONTAMINATED) TO BE USED ELSEWHERE ON-SITE FOR FILL PURPOSES.

3. ALL VOLUMES ARE APPROXIMATE AND VOLUMES TO BE CONVERTED TO TONNAGE AT THE RATIO OF 1.48

4. A TOTAL OF 7,635 CY OF CLEAN (NON-CONTAMINATED) SOILS, FROM THE SITE, SHALL BE USED FOR BACKFILLING ADJACENT TO THE REMEDIATION PIT. THEREFORE, IN ADDITION TO THE VOLUMES FROM ITEM 2, ABOVE, AN ADDITIONAL 1,930 CY OF NON-CONTAMINATED SOILS SHALL BE EXCAVATED FROM THE SITE FOR THESE FILL ACTIVITIES.

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REGISTERED PROFESSIONAL ENGINEER DAVID RAMSEY NO. C73735 CIVIL STATE OF CALIFORNIA
DAVID RAMSEY DATE
RCE# 73735

APN# 018-372-14

PLAN TYPE
RESIDENTIAL SUBDIVISION

REMEDIATION PIT GRADING PLAN
HILLCREST SUBDIVISION
511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

REVISION BLOCK

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DRAWN BY:	GS
DESIGNED BY:	DMR
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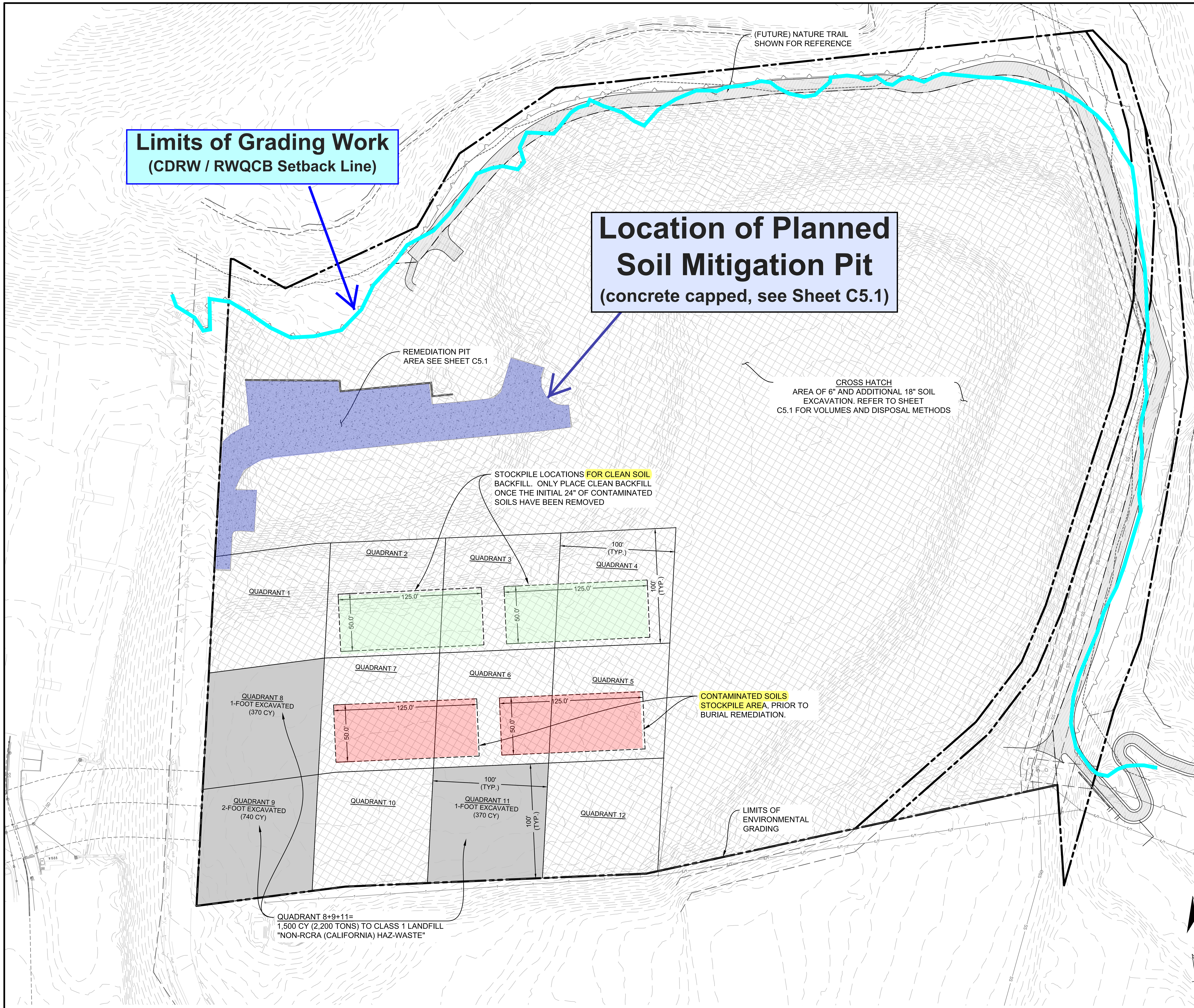
SCALE:	AS NOTED
PROJECT NO:	20-021

SHEET:
C5.1

Exhibit B



NOTES:

1. EXCAVATION ACTIVITIES SHALL BE PERFORMED BY A CALIFORNIA LICENSED CONTRACTOR WITH A HAZARDOUS SUBSTANCE REMOVAL CERTIFICATION PER SECTION 5.2 OF THE UPDATED REMEDIAL ACTION PLAN, BY WEBER HAYES AND ASSOCIATES, DATED JANUARY 12, 2021 (UPDATED FROM THE ORIGINALLY APPROVED REPORT DATED JUNE 15, 2018, AND ANY SUBSEQUENT REVISIONS.
2. QUADRANT AREA ARE PER WEBER HAYES & ASSOCIATES FIG. 1 (PROJECT 2X623) LANDFILL ACCEPTANCE OF SURPLUS SOILS
3. REFER TO SHEET C5.1 FOR SOIL DISPOSAL BREAKDOWN
4. VOLUMES SPECIFIED IN QUADRANTS 8, 9 AND 11 SHALL BE DISPOSED OF AT A CLASS 1 LANDFILL.
5. ALL REMAINING SOILS FROM THE 24" EXCAVATION ARE NON-HAZARDOUS, AND SHALL BE EITHER BURIED AND CAPPED ONSITE, OR REMOVED TO AN APPROVED SITE OR CLASS 2 LANDFILL. SEE SHEET C5.1 FOR VOLUME BREAKDOWN.
6. ONCE THE UPPER 24" OF SOIL HAS BEEN REMOVED, THE CONTRACTOR SHALL COORDINATE WITH AN ASSOCIATE FROM WEBER HAYES TO DETERMINE THE LOCATION AND FREQUENCY OF SOIL TESTING THAT IS REQUIRED IN ORDER TO VERIFY THAT THE UNDERLYING SOIL MEETS THE ACCEPTABLE CONTAMINANT LEVELS PER THE REMEDIAL ACTION PLAN.
7. THE SITE SHALL BE WATERED TWO TIMES PER DAY TO CONTROL CONSTRUCTION DUST PER THE EIR IMPACT AIR-5.
8. GRADING QUANTITIES SHOWN ON THESE PLANS FOR PHASE 1A & PHASE 1B ARE APPROXIMATE ONLY. QUANTITIES DO NOT INCLUDE POTENTIAL TRASH OR DEBRIS VOLUMES.
9. ALL DISTURBED GROUND SHALL BE STABILIZED PRIOR TO OCTOBER 15. THE APPLICANT SHALL OBTAIN AUTHORIZATION FROM THE CITY OF WATSONVILLE IF GROUND AND SOIL DISTURBANCE ON THE PROJECT IS EXPECTED TO OCCUR IN THE WINTER SEASON, BEYOND OCT. 15.
10. ALL PROPOSED SITE REMEDIATION AND MONITORING TASKS WILL BE COMPLETED AND DOCUMENTED UNDER THE DIRECT SUPERVISION OF A CALIFORNIA REGISTERED PROFESSIONAL GEOLOGIST WITH EXPERTISE IN ENVIRONMENTAL ASSESSMENT AND REMEDIATION.
11. A LICENSED SURVEYOR WILL ESTABLISH PRE-EXCAVATION GRADE AND THE SELECTED EARTHWORKS CONTRACTOR WILL USE LASER/GIS TECHNOLOGY TO CONTROL GRADING DEPTHS.
12. WEBER, HAYES, & ASSOCIATES STAFF WILL MANAGE ENVIRONMENTAL ASPECTS OF THIS PROJECT INCLUDING AGENCY COORDINATION, ENVIRONMENTAL SITE SAFETY (INCLUDING DAILY TAIL GATE SAFETY MEETINGS), DETERMINING THE LIMITS OF THE TARGET EXCAVATIONS, COLLECTION OF BASE AND SIDEWALL SAMPLES WHERE NECESSARY FOR CONFIRMATION LABORATORY TESTING, SOIL STOCKPILE MANAGEMENT, LANDFILL ACCEPTANCE PROFILING AND DISPOSAL DOCUMENTATION, AND SUMMARY REPORTING.
13. EARTHWORKS: ALL SOIL REMOVAL, STOCKPILING, AND TRUCK LOADING WORK WILL BE CONDUCTED USING HEAVY EQUIPMENT (EXCAVATORS, BACKHOES) AND THE TRANSPORT OF IMPACTED SOILS TO THE BURIAL ENVELOPE AND/OR TO A CLASS I/II LANDFILL BE USE TARP END DUMPS). THERE WILL NO TRENCH WORK/WORKERS FOR THIS GRADING PROJECT AND NO CONSTRUCTION WORKER ENTRY INTO THE SHALLOW EXCAVATIONS IS EXPECTED. SITE ACCESS WILL BE CONTROLLED TO ALLOW ONLY AUTHORIZED PERSONNEL ON-SITE.
14. EARTHWORKS WILL BE MONITORED VISUALLY USING WINDSOCKS, FLAGGING AND HAND-HELD WIND METERS TO GAUGE WIND SPEED, AND ON-GOING PARTICULATE MONITORING TO MEASURE AND CONTROL DUST ON-SITE. SOILS WILL BE WETTED AS NECESSARY TO PREVENT VISIBLE DUST DRIFT AND EARTHWORKS WILL BE HALTED IF WIND GUSTS EXCEED 15 MPH OR IF CONTINUOUSLY-MEASURED PARTICULATE DUST IN THE WORK AREA OR AT THE PERIMETER EXCEEDS REGULATORY LEVELS DOCUMENTS IN THE SITE SAFETY & DUST MONITORING PLAN (SEPARATE SUBMITTAL). GLOVES WILL BE USED WHEN HANDLING SOILS.
15. SITE SOILS WILL BE REMOVED USING STANDARD EARTHMOVING EQUIPMENT AND ELEVATION CONTROL/SAMPLE LOCATIONS WILL BE CONFIRMED BY A LICENSED SURVEYOR TO ESTABLISH PRE-EXCAVATION GRADE/SAMPLE LOCATION AND LASER/GIS TECHNOLOGY TO BE USED BY THE EARTHWORKS CONTRACTOR TO CONTROL GRADING DEPTHS. EXCAVATED SOILS WILL BE SEGREGATED AND STOCKPILED ON-SITE FOR LANDFILL ACCEPTANCE TESTING AND THEN LOADED ONTO TRUCKS FOR HAZARDOUS AND NON-HAZARDOUS TRANSPORT TO A LOCAL CLASS I/II LANDFILL (ACCEPTANCE PENDING RESULTS OF STOCKPILE SAMPLE TESTING AND LANDFILL ACCEPTANCE PROFILE APPROVAL).
16. ANY STOCKPILED SOILS FROM THE TARGET (IMPACTED) LOCATIONS WILL BE PLACED ON AN IMPERMEABLE SURFACE (i.e., ASPHALT, PLASTIC SHEETING); IF EXCAVATED MATERIAL IS PLACED ON NATIVE SOILS, AT LEAST 2-TO-4 INCHES OF UNDERLYING SOILS WILL BE SCRAPED TO PREVENT LEAVING CROSS-CONTAMINATED SOILS AT THE SITE. ALL STOCKPILES WILL BE TARPED WITH PLASTIC SHEETING THAT IS ADEQUATELY HELD DOWN TO PREVENT WIND DISTURBANCE OF THE COVER OR INFILTRATION FROM RAINS.

PHASE IA-PHASE IC:
NO GRADING SHALL OCCUR WITHIN THE JURISDICTIONAL SETBACK LINES ALONG THE WATSONVILLE SLOUGH - CONTRACTOR SHALL STAKE SETBACK LINE AND STRING BETWEEN STAKES TO PREVENT GRADING FROM CROSSING INTO SETBACK AREAS.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)
A SWPPP (STORWATER POLLUTION PREVENTION PLAN) HAS BEEN ESTABLISHED THIS PROJECT. REFER TO CALIFORNIA STATE WATER BOARD: WDID# - 3 44C380348

EXCERPTS FROM RAP REPORT:
DISCLAIMER: THE FOLLOWING INFORMATION IS SHOWN FOR REFERENCE ONLY. REFER TO THE FINAL RAP REPORT BY WEBER HAYES & ASSOCIATES FOR OFFICIAL DOCUMENTATION. REFER TO FULL RAP REPORT FOR ALL ATTACHMENT REFERENCES.

FROM SECTION 6.1.2 CONFIRMATION SAMPLING:

- CONFIRMATION SAMPLES WILL BE COLLECTED FROM THE BASE OF THE DEEPER EXCAVATIONS AND SIDE-WALLS IN ACCORDANCE WITH SC-HSA SITE MITIGATION STANDARDS (SC-HSA, 2010). IN ADDITION, AT THE COMPLETION OF GRADING IN EACH OF THE TEN (10) SITE SUB AREAS, CONFIRMATIONS BASE SAMPLES WILL BE COLLECTED TO CONFIRM THAT REMOVAL GOALS HAVE BEEN ACHIEVED (SEE STOCKPILE PLAN & CONFIRMATION TESTING GRID, FIGURE 7).
  - SPECIFICALLY, TWO (2), 4-POINT COMPOSITE SAMPLES PER SUB AREA WILL BE TESTED FOR THE FULL RANGE OF COPCs PREVIOUSLY DETECTED IN THAT SUB AREA.
  - THE TWO (2), 4-POINT COMPOSITE SAMPLES (8 SAMPLES PER SUB AREA) WILL BE COLLECTED EQUIDISTANTLY THROUGHOUT THE SUB AREA. THE STATE-CERTIFIED TESTING LABORATORY WILL COMPLETE THE COMPOSTING AT THEIR FACILITY. IF THE COMPOSITE SAMPLE COPC CONCENTRATION EXCEEDS $\frac{1}{4}$ THE VALUE OF APPLICABLE SCREENING THRESHOLD (i.e., ESL OR BTV), THEN EACH OF THE FOUR DISCREET SAMPLES COMPRISING THAT COMPOSITE SAMPLE BE INDEPENDENTLY ANALYZED. ADDITIONAL SOIL REMOVAL WILL BE COMPLETED UNTIL SCREENING THRESHOLDS ARE ACHIEVED.
- **CLEARANCE**: INDIVIDUAL SUBAREA/DEEPER EXCAVATION AREAS (DESCRIBED ABOVE) WILL ONLY BE DESIGNED AS CLEAN-CLOSED 1) BASED ON STATE-CERTIFIED LABORATORY RESULTS AND 2) WITH CONCURRENCE BY ENVIRONMENTAL HEALTH STAFF.
- REFER TO APPENDIX E OF THE RAP REPORT FOR SOIL SAMPLING FIELD METHODOLOGY.

20' 0 10' 20' 40'
GRAPHIC SCALE: 1 INCH = 20 FEET

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REGISTERED PROFESSIONAL ENGINEER DAVID RAMSEY NO. C73735 CIVIL STATE OF CALIFORNIA

DAVID RAMSEY DATE
RCE# 73735

APN# 018-372-14
PLAN TYPE
RESIDENTIAL SUBDIVISION

SITE ENVIRONMENTAL GRADING PLAN
HILLCREST SUBDIVISION
511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

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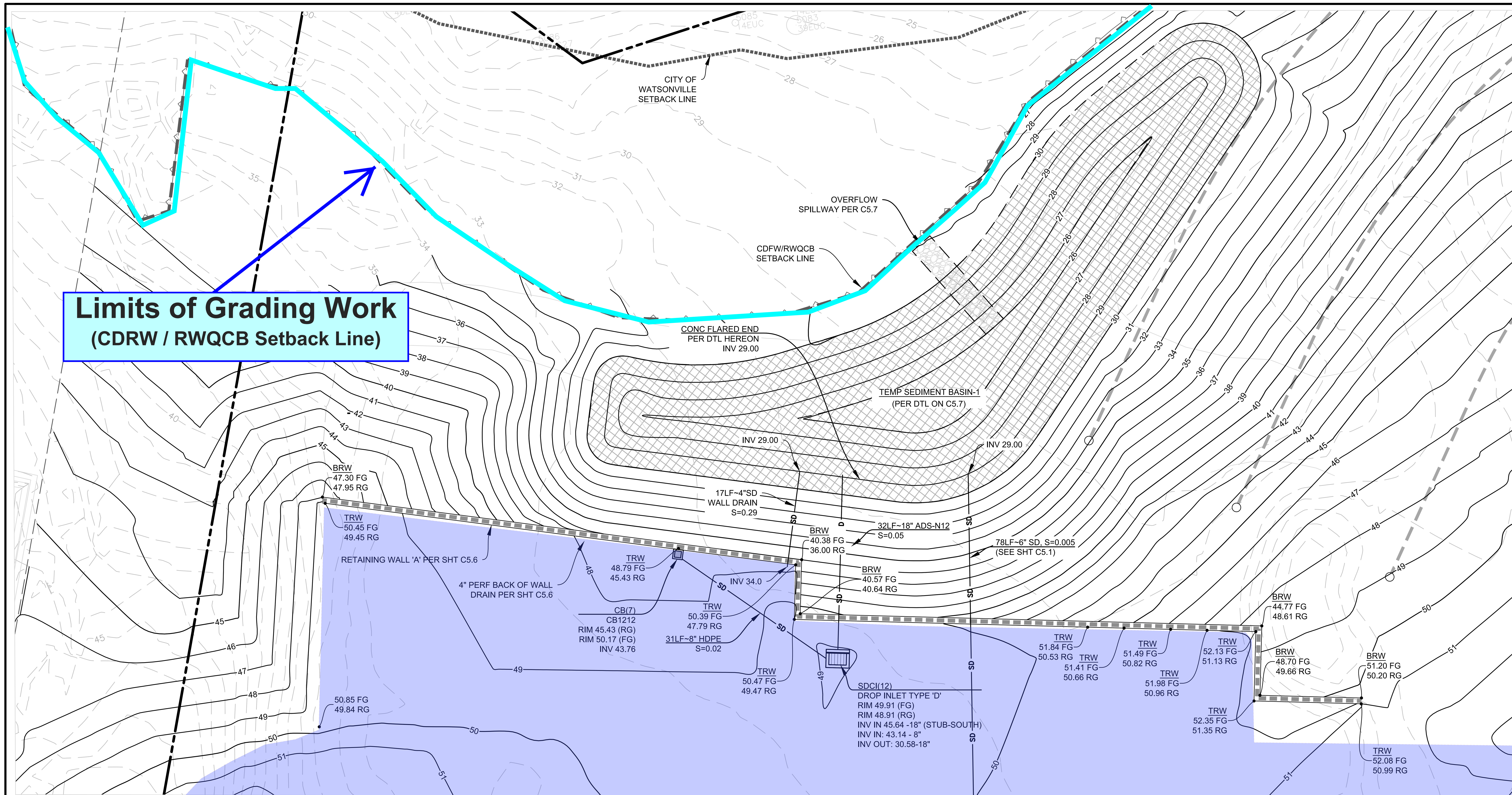
SHEET:
C5.2

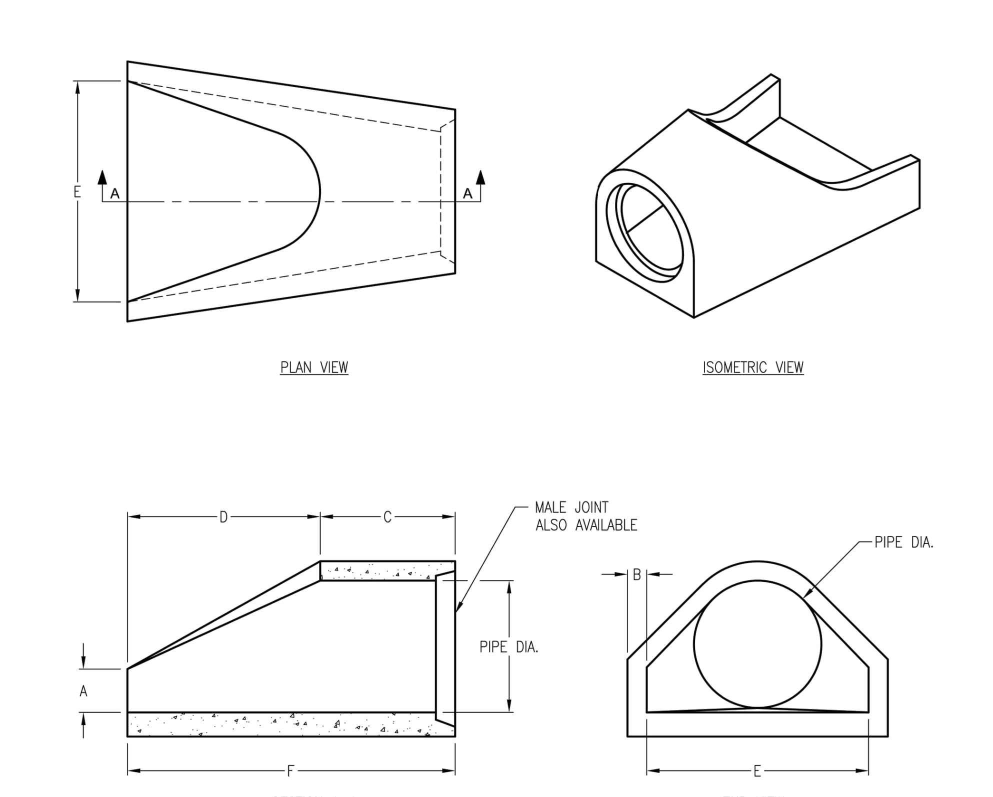


LEGEND:
XX.XX FG - FUTURE FINISHED GRADES (SHOWN FOR REFERENCE ONLY)
XX.XX RG - ROUGH GRADING ELEVATIONS

NOTES:
1. REINFORCEMENT SHALL BE EQUAL TO THAT REQUIRED FOR CLASS III RCP OF CORRESPONDING DIAMETER PER CALTRANS SPECIFICATIONS.

CDOT-14-2

PIPE DIA.	A	B	C	D	E	F	WEIGHTS LBS.
12"	4"	2"	13"	24"	24"	37"	400
18"	9"	2½"	13"	27"	36"	40"	900
24"	9½"	3"	16"	42"	48"	56"	1,400
30"	12"	3½"	18"	54"	60"	72"	2,300
36"	15"	4"	18"	63"	72"	81"	4,100
42"	21"	5"	18"	63"	78"	81"	5,200
48"	24"	5"	18"	72"	84"	90"	6,500
54"	27"	6"	18"	65"	90"	83"	7,400



DRAWING MAY NOT CONFORM TO THE MOST CURRENT SPECIFICATION

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Northern California
Madera • Morgan Hill • Pleasanton • Santa Rosa • Stockton • Tulare
Phone: 925-750-6650 Fax: 925-750-6660

FLARED ENDS
FILE NAME: CDOT-14-2.DWG
REVISED: MARCH 2016
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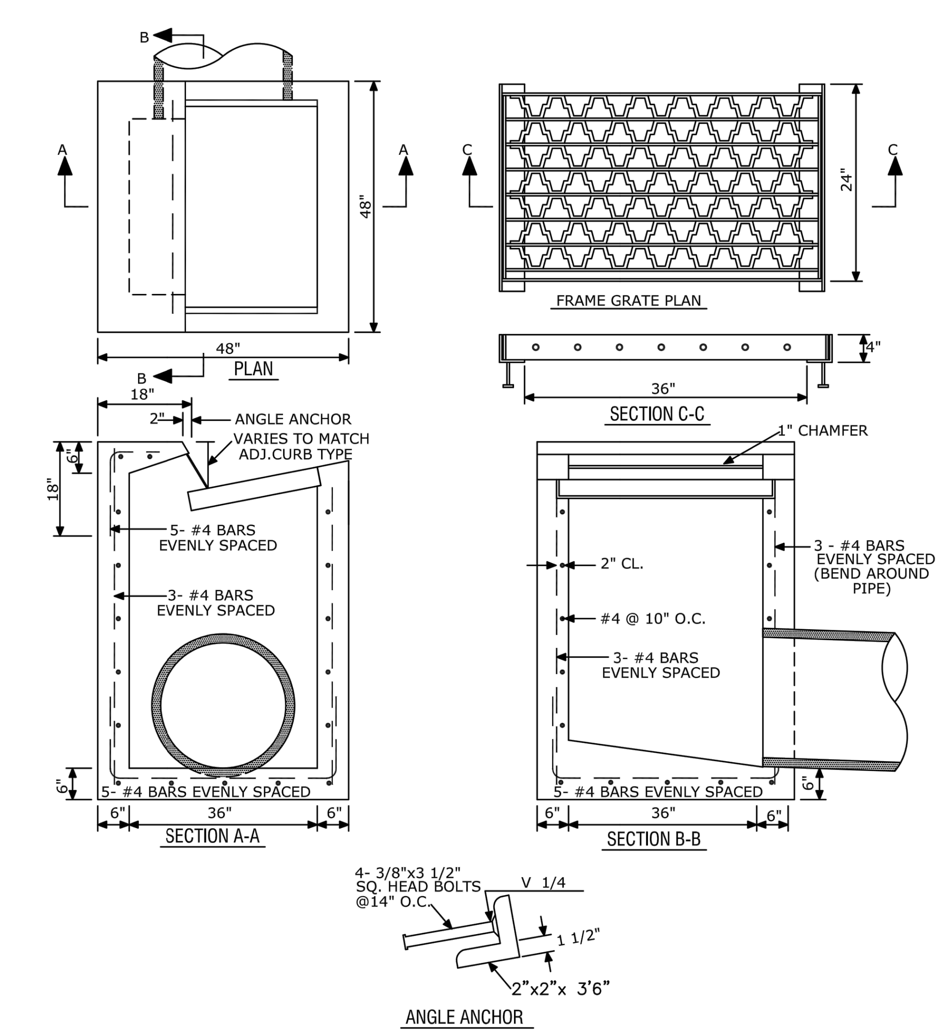
CONCRETE FLARED END SECTIONS CALTRANS



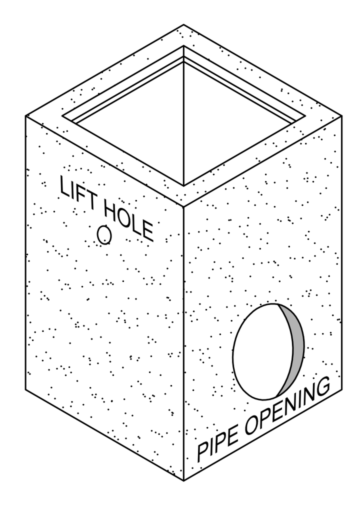
NOTES:
1) GRATE SHALL BE GRADE TYPE 24-10S AS DETAILED BY CALTRANS STANDARD PLAN D77B.
2) FRAME SHALL BE AS DETAILED BY CALTRANS STANDARD PLAN D77A.
3) CONCRETE SHALL CONFORM TO THE PROVISIONS OF SECTION 90-2, "MINOR CONCRETE", OF THE CALTRANS STANDARD SPECIFICATIONS.
4) PRE-CAST BASES ARE PROHIBITED.

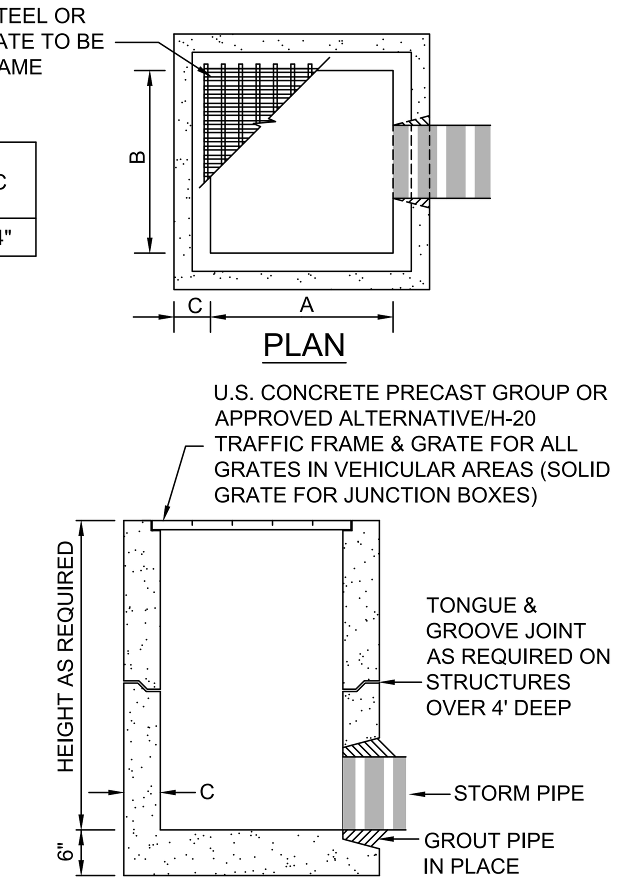
CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

NOT TO SCALE	CITY OF WATSONVILLE	STANDARD DRAWING FOR DROP INLET TYPE "D"	DRAWN: 9/11 REV.: 5/13
DRAWN BY: P.A.C.			RESOLUTION: 76–13 (CM)
CHECKED BY: T.S.		MARIA ESTHER RODRIGUEZ, CITY ENGINEER	DRAWING No. S-205

GALVANIZED STEEL OR CAST IRON GRATE TO BE LOCKED TO FRAME

MODEL	A	B	C
CB1212	12"	12"	4"





NOTES:
1. ALL GRATES WITHIN DRIVE AISLES AND WALKWAYS SHALL BE HEEL PROOF ACCESSIBLE AND RATED FOR H-20 HEAVY TRAFFIC LOADING.
2. ENSURE THAT THE BASE OF THE CATCH BASIN IS WATER-TIGHT IN ORDER TO PREVENT SEEPAGE INTO THE UNDERLYING SOILS.

CATCH BASIN 1212
NTS

PLAN NOTES:
1. ALL PROPOSED ELEVATIONS ARE BASED ON THE ROUGH FINISHED GRADE SURFACE, UNLESS SPECIFIED OTHERWISE.
2. REFER TO SHEET C5.6 FOR WALL 'A' DESIGN DETAIL.
3. COORDINATE WALL GEO-GRID INSTALLATION WITH CATCH BASIN & PIPE INSTALLATION.
4. CATCH BASIN RIM ELEVATIONS SHALL BE SET TO ROUGH GRADING (RG) ELEVATIONS. UPON FINAL IMPROVEMENTS, RIMS SHALL BE RAISED TO FINAL FINISHED GRADE ELEVATIONS (FG).

GRAPHIC SCALE: 1 INCH = 20 FEET

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REGISTERED PROFESSIONAL ENGINEER DAVID RAMSEY NO. C73735 CIVIL STATE OF CALIFORNIA

DAVID RAMSEY DATE
RCE# 73735

APN# 018-372-14

PLAN TYPE
RESIDENTIAL SUBDIVISION

ROUGH GRADING - WALL 'A'
HILLCREST SUBDIVISION
511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

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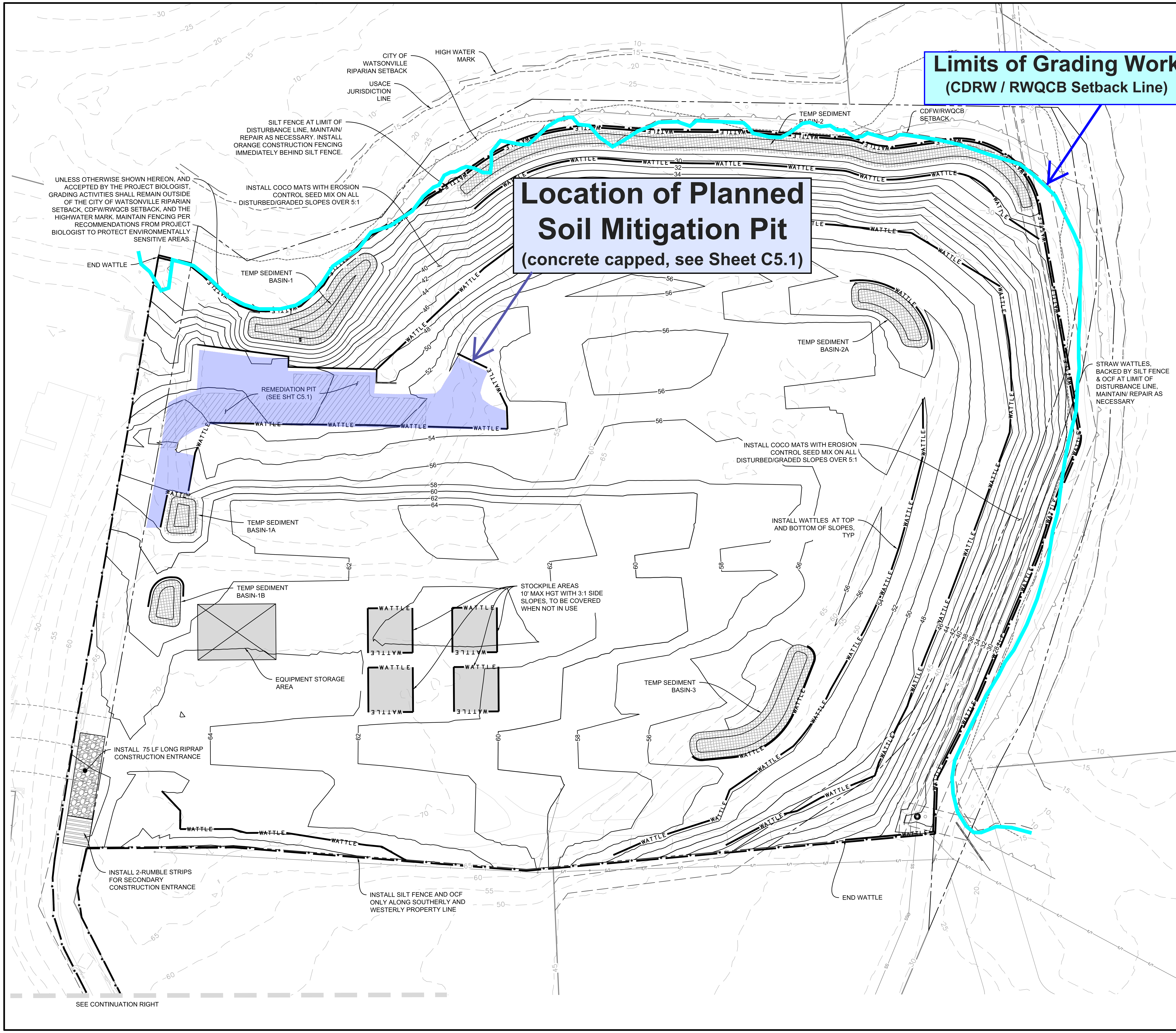
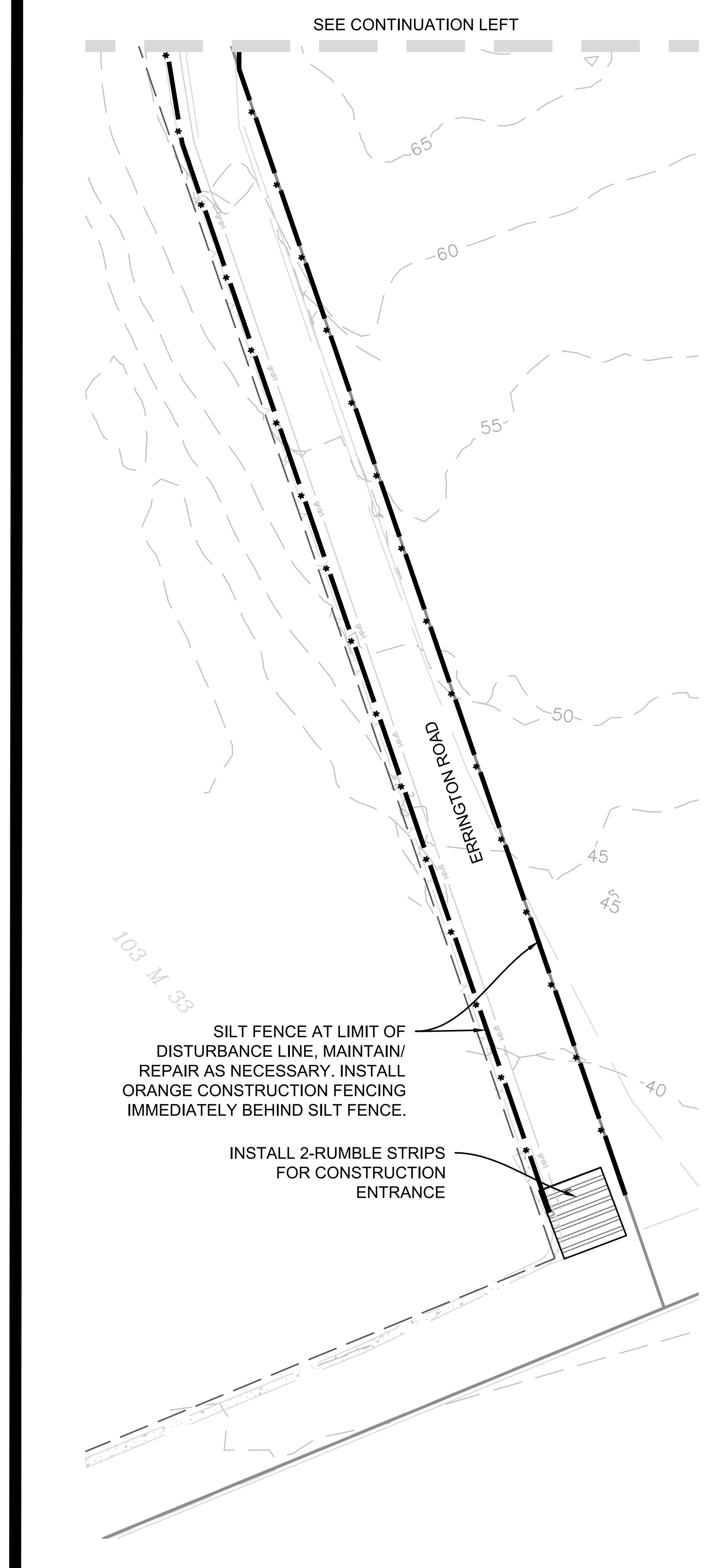
SHEET:	C5.3





NOTE:
1. REFER TO SHEET C5.5 FOR ALL EROSION CONTROL PLAN NOTES.
2. EXISTING CONTOURS ARE SHOWN AT 5-FOOT INTERVALS.
3. PROPOSED CONTOURS ARE SHOWN AT 2-FOOT INTERVALS.

GRAPHIC SCALE: 1 INCH = 40 FEET

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DAVID RAMSEY RCE# 73735 DATE

APN# 018-372-14
PLAN TYPE
RESIDENTIAL SUBDIVISION

ROUGH GRADING - EROSION CONTROL PLAN
HILLCREST SUBDIVISION
511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

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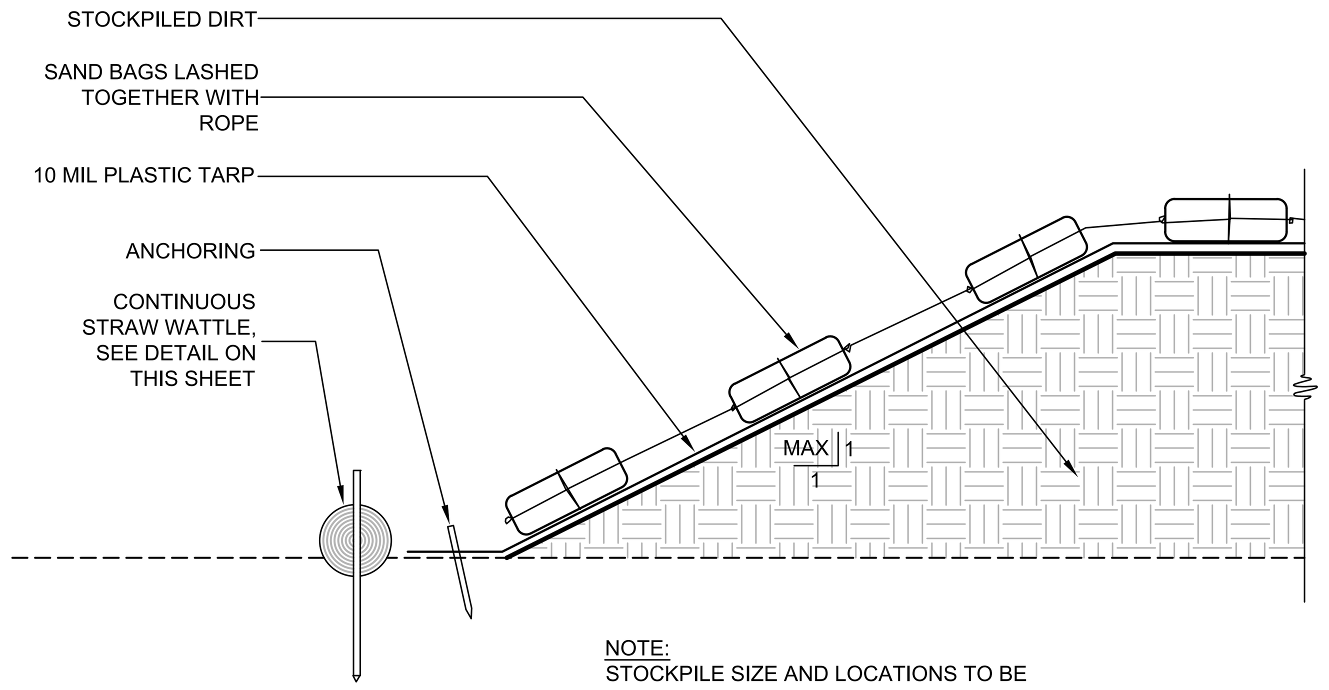
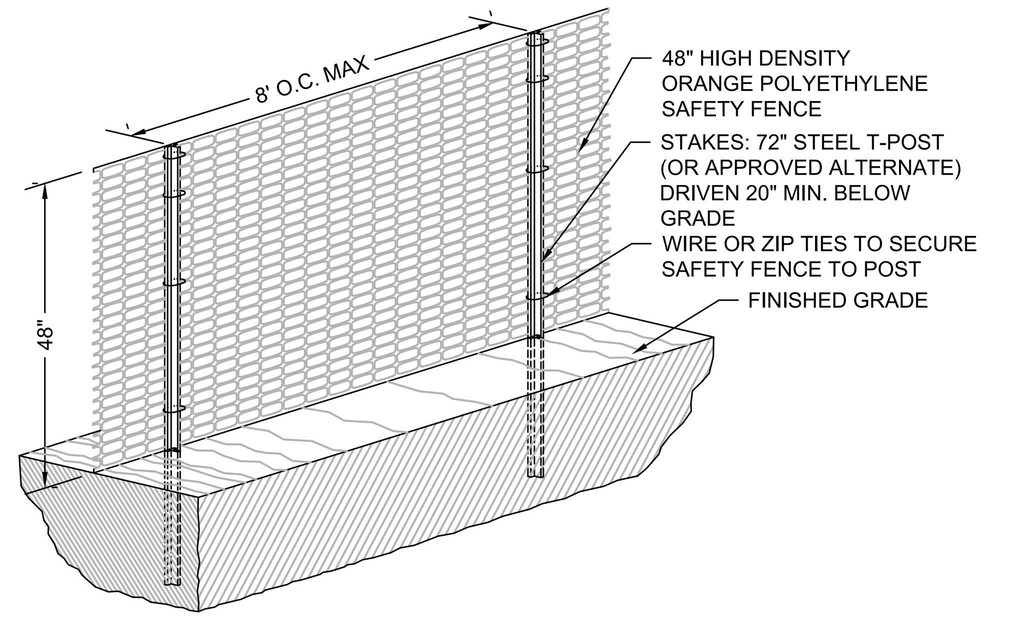
SHEET:	C5.4



NOTE:
STOCKPILE SIZE AND LOCATIONS TO BE DETERMINED BY CONTRACTOR WITH ENGINEERS APPROVAL.

DIRT STOCKPILE

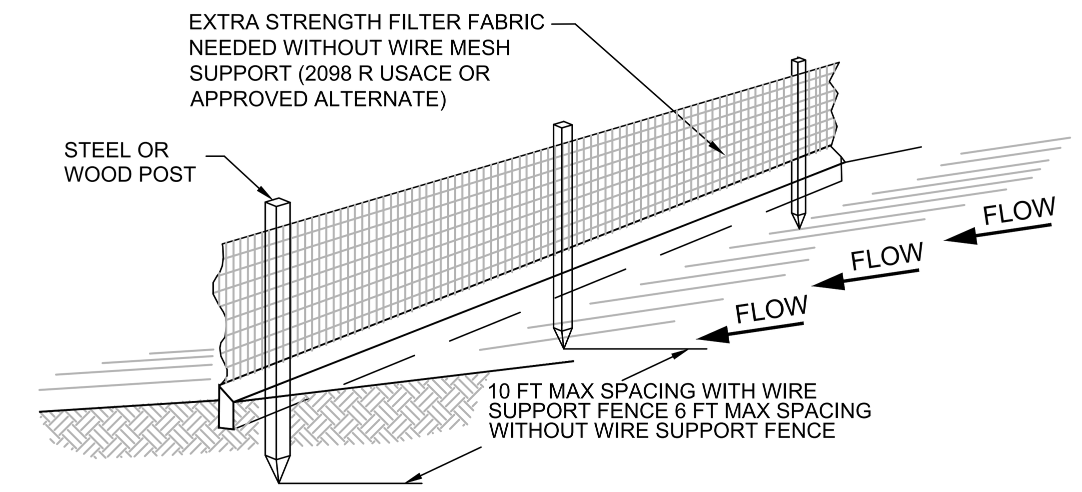
N.T.S.

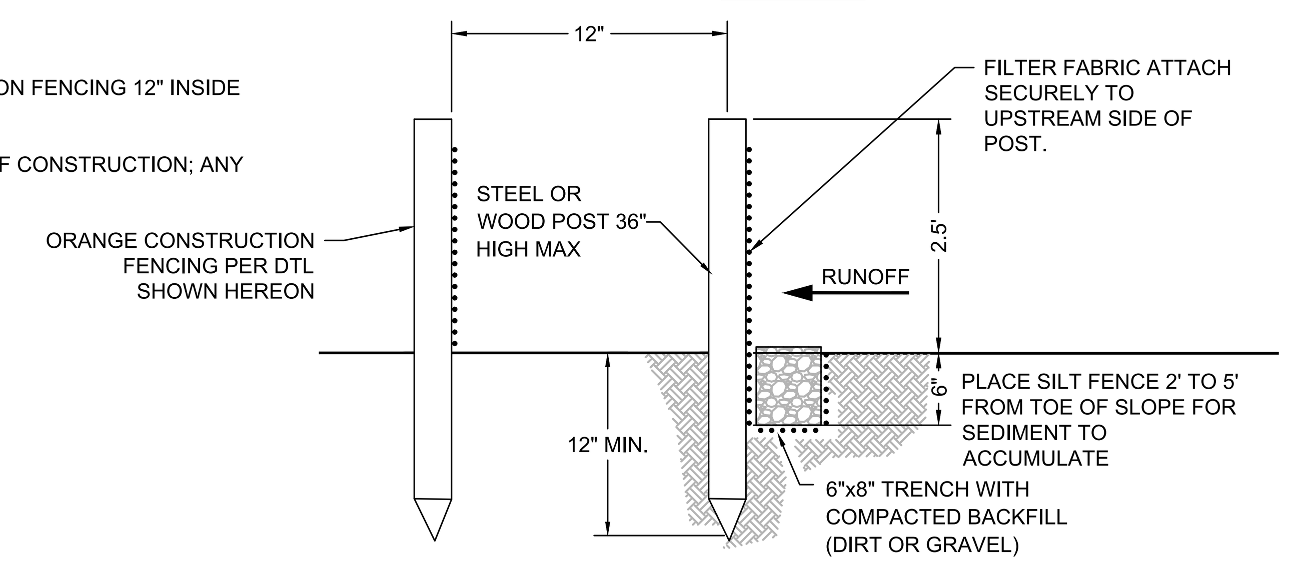


NOTES:
1. FENCING LOCATION PER PLAN. PLACE ORANGE CONSTRUCTION FENCING 12" INSIDE OFFSET FROM THE PROPOSED SILT FENCING.
2. SAFTY FENCE SHOULD BE FASTENED SECURELY TO POSTS.
3. THE FENCING MUST REMAIN IN PLACE DURING ALL PHASES OF CONSTRUCTION; ANY CHANGE OF THE PROTECTIVE FENCING MUST BE APPROVED.

ORANGE CONSTRUCTION FENCE

N.T.S.





NOTES:
1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.

2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.

SILT FENCE

N.T.S.

CONSTRUCTION SPECIFICATIONS:

1. THE HEIGHT OF A SILT FENCE SHALL NOT EXCEED 36 INCHES (0.9 M). STORAGE HEIGHT AND PONDING HEIGHT SHALL NEVER EXCEED 18 INCHES (0.5 M). THE FENCE LINE SHALL FOLLOW THE CONTOUR AS CLOSELY AS POSSIBLE.

2. IF POSSIBLE, THE FILTER FABRIC SHALL BE CUT FROM A CONTINUOUS ROLL TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED ONLY AT A SUPPORT POST, WITH A MINIMUM 6 INCH (0.15 M) OVERLAP AND BOTH ENDS SECURELY FASTENED TO THE POST.

3. POSTS SHALL BE SPACED A MAXIMUM OF 10 FEET (3.1 M) APART AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 12 INCHES (0.3 M). WHEN EXTRA-STRENGTH FABRIC IS USED WITHOUT THE WIRSUPPORT FENCE, POST SPACING SHALL NOT EXCEED 6 FEET (1.8 M). TURN THE ENDS OF THE FENCE (LAST 6 FEET) UPHILL IN "J" OR "L" SHAPES TO ALLOW FOR PONDING

4. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 6 INCHES (152 MM) WIDE AND 8 INCHES (0.2 M) DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER.

5. WHEN STANDARD-STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH (25.4 MM) LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 2 INCHES (51 MM) AND SHALL NOT EXTEND MORE THAN 36 INCHES (0.9 M) ABOVE THE ORIGINAL GROUND SURFACE.

6. THE STANDARD-STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 6 INCHES (0.15 M) OF THE FABRIC SHALL EXTEND INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES (0.9 M) ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.

7. WHEN EXTRA-STRENGTH FILTER FABRIC AND CLOSER POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS.

8. EXTRA STRENGTH FILTER FABRIC SHALL BE 8 OZ NONWOVERN GEOTEXTILE FILTER FABRIC

9. THE TRENCH SHALL BE BACKFLLLED AND THE SOIL COMPACTED OVER THE TOE OF THE FILTER FABRIC.

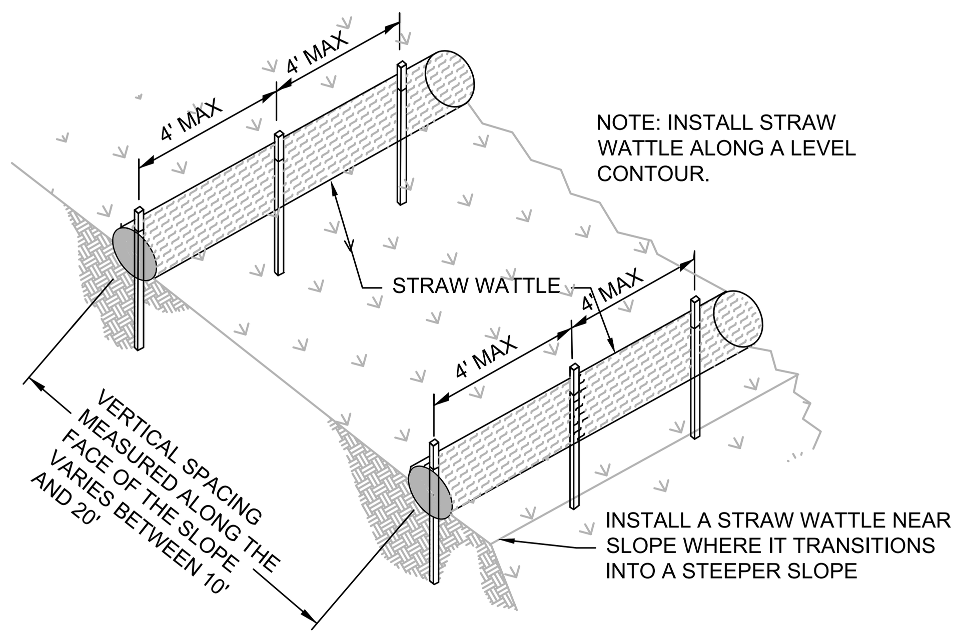
10. SILT FENCES PLACED AT THE TOE OF A SLOPE SHALL BE SET AT LEAST 2 FEET (0.6M) TO 5 FEET (1.5M) FROM THE TOE IN ORDER TO INCREASE PONDING VOLUME.

11. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED AND ANY SEDIMENT STORED BEHIND THE SILT FENCE HAS BEEN REMOVED.

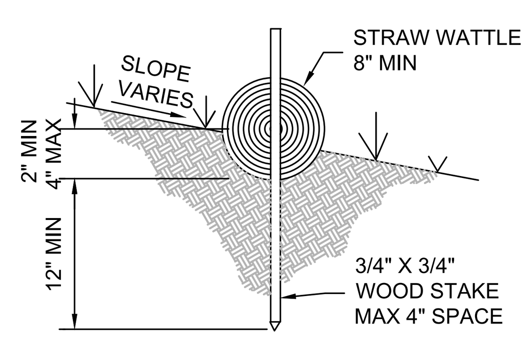
INSPECTION AND MAINTENANCE:

SILT FENCES AND FILTER BARRIERS SHALL BE INSPECTED WEEKLY AFTER EACH SIGNIFICANT STORM (1 INCH (25.4 MM) IN 24 HOUR). ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY. SEDIMENT SHOULD BE REMOVED WHEN IT REACHES 1/3 HEIGHT OF THE FENCE OR 9 INCHES (0.3 M) MAXIMUM.

THE REMOVED SEDIMENT SHALL CONFORM WITH THE EXISTING GRADE AND BE VEGETATED OR OTHERWISE STABILIZED.



TYPICAL INSTALLATION



ENTRENCHMENT DETAIL

STRAW WATTLES PART 1

NTS

CONSTRUCTION SPECIFICATIONS

1. PREPARE SLOPE BEFORE THE WATTLING PROCEDURE IS STARTED. SHALLOW GULLIES SHOULD BE SMOOTHED AS WORK PROGRESSES.
2. DIG SMALL TRENCHES ACROSS SLOPE ON CONTOUR, TO PLACE WATTLES IN. THE TRENCH SHOULD BE DEEP ENOUGH TO ACCOMMODATE HALF THE THICKNESS OF THE WATTLE. WHEN THE SOIL IS LOOSE AND UNCOMPACTED, THE TRENCH SHOULD BE DEEP ENOUGH TO BURY THE WATTLE 2/3 OF ITS THICKNESS BECAUSE THE GROUND WILL SETTLE. IT IS CRITICAL THAT WATTLES ARE INSTALLED PERPENDICULAR TO WATER MOVEMENT, PARALLEL TO THE SLOPE CONTOUR.
3. START BUILDING TRENCHES AND INSTALL WATTLES FROM THE BOTTOM OF THE SLOPE AND WORK UP.
4. CONSTRUCT TRENCHES AT CONTOUR INTERVALS OF THREE TO EIGHT FEET APART DEPENDING ON STEEPNESS OF SLOPE. THE STEEPER THE SLOPE, THE CLOSER TOGETHER THE TRENCHES.
5. LAY THE WATTLE ALONG THE TRENCHES FITTING IT SNUGLY AGAINST THE SOIL. MAKE SURE NO GAPS EXIST BETWEEN THE SOIL AND THE STRAW WATTLE. USE A STRAIGHT BAR TO DRIVE HOLES THROUGH THE WATTLE AND INTO THE SOIL FOR THE WOODEN STAKES.
6. DRIVE THE STAKE THROUGH THE PREPARED HOLE INTO THE SOIL. LEAVE ONLY ONE OR TWO INCHES OF STAKE EXPOSED ABOVE WATTLE. IF USING WILLOW STAKES REFER TO USDA SOIL CONSERVATION SERVICE TECHNICAL GUIDE, BIOENGINEERING, FOR GUIDELINES TO PREPARING LIVE WILLOW MATERIAL.
7. INSTALL STAKES AT LEAST EVERY FOUR FEET APART THROUGH WATTLE. ADDITIONAL STAKES MAY BE DRIVEN ON THE DOWNSLOPE SIDE OF THE TRENCHES ON HIGHLY EROSIVE OR VERY STEEP SLOPES.

INSTALLATION AND MAINTENANCE

8. INSPECT THE STRAW WATTLE AND THE SLOPES AFTER SIGNIFICANT STORMS. MAKE SURE THE WATTLES ARE IN CONTACT WITH THE SOIL.
9. REPAIR ANY RILLS OR GULLIES PROMPTLY.
10. RESEED OR REPLANT VEGETATION IF NECESSARY UNTIL THE SLOPE IS STABILIZED.

STRAW WATTLES PART 2

NTS

SITE HOUSEKEEPING REQUIREMENTS

CONSTRUCTION MATERIALS

- ALL LOOSE STOCKPILED CONSTRUCTION MATERIALS THAT ARE NOT ACTIVELY BEING USED (i.e. SOIL, SPOILS, AGGREGATE, FLY-ASH, STUCCO, HYDRATED LIME, ETC.) SHALL BE COVERED AND BERMED.
- ALL CHEMICALS SHALL BE STORED IN WATERTIGHT CONTAINERS (WITH APPROPRIATE SECONDARY CONTAINMENT TO PREVENT ANY SPILLAGE OR LEAKAGE) OR IN A STORAGE SHED (COMPLETELY ENCLOSED).
- EXPOSURE OF CONSTRUCTION MATERIALS TO PRECIPITATION SHALL BE MINIMIZED. THIS DOES NOT INCLUDE MATERIALS AND EQUIPMENT THAT ARE DESIGNED TO BE OUTDOORS AND EXPOSED TO ENVIRONMENTAL CONDITIONS (i.e. POLES, EQUIPMENT PADS, CABINETS, CONDUCTORS, INSULATORS, BRICKS, ETC.).
- BEST MANAGEMENT PRACTICES TO PREVENT THE OFF-SITE TRACKING OF LOOSE CONSTRUCTION AND LANDSCAPE MATERIALS SHALL BE IMPLEMENTED.
- ALL HAZARDOUS MATERIALS DISPOSAL, USE, STORAGE, AND TRANSPORTATION SHALL COMPLY WITH APPLICABLE REGULATIONS.

WASTE MANAGEMENT

- SOLID WASTE DISPOSAL CONTAINERS SHALL BE PROVIDED ON-SITE DURING ALL PHASES OF CONSTRUCTION, REFUSE AND DEBRIS SHALL NOT BE ALLOWED TO ACCUMULATE TO CONSTITUTE AN UNSIGHTLY/UNSAFE PUBLIC NUISANCE TO SURROUNDING PROPERTIES, AND ALL SOLID WASTE GENERATED MUST BE HAULED FROM THE SITE BY THE CITY SOLID WASTE DIVISION PER THE CITY OF WATSONVILLE MUNICIPAL CODE.
- DISPOSAL OF ANY RINSE OR WASH WATERS OR MATERIALS ON IMPERVIOUS OR PERVIOUS SITE SURFACES OR INTO THE STORM DRAIN SYSTEM SHALL BE PREVENTED.
- SANITATION FACILITIES SHALL BE CONTAINED (e.g. PORTABLE TOILETS) TO PREVENT DISCHARGES OF POLLUTANTS TO THE STORM WATER DRAINAGE SYSTEM OR RECEIVING WATER, AND SHALL BE LOCATED A MINIMUM OF 20 FEET AWAY FROM AN INLET, STREET OR DRIVEWAY, STREAM, RIPARIAN AREA OR OTHER DRAINAGE FACILITY.
- SANITATION FACILITIES SHALL BE INSPECTED REGULARLY FOR LEAKS AND SPILLS AND CLEANED OR REPLACED AS NECESSARY.
- COVER WASTE DISPOSAL CONTAINERS AT THE END OF EVERY BUSINESS DAY AND DURING A RAIN EVENT.
- DISCHARGES FROM WASTE DISPOSAL CONTAINERS TO THE STORM WATER DRAINAGE SYSTEM OR RECEIVING WATER SHALL BE PREVENTED.
- STOCKPILED WASTE MATERIAL SHALL BE CONTAINED AND SECURELY PROTECTED FROM WIND AND AIN AT ALL TIMES UNLESS ACTIVELY BEING USED.
- PROCEDURES THAT EFFECTIVELY ADDRESS HAZARDOUS AND NON-HAZARDOUS SPILLS SHALL BE IMPLEMENTED.
- EQUIPMENT AND MATERIALS FOR CLEANUP OF SPILLS SHALL BE AVAILABLE ON SITE AND THAT SPILLS AND LEAKS SHALL BE CLEANED UP IMMEDIATELY AND DISPOSED OF PROPERLY; AND
- CONCRETE WASHOUT AREAS AND OTHER WASHOUT AREAS THAT MAY CONTAIN ADDITIONAL POLLUTANTS SHALL BE CONTAINED SO THERE IS NO DISCHARGE INTO THE UNDERLYING SOIL AND ONTO THE SURROUNDING AREAS.

VEHICLE STORAGE AND MAINTENANCE

- MEASURES SHALL BE TAKEN TO PREVENT OIL, GREASE, OR FUEL TO LEAK IN TO THE GROUND, STORM DRAINS OR SURFACE WATERS.
- ALL EQUIPMENT OR VEHICLES, WHICH ARE TO BE FUELED, MAINTAINED AND STORED ONSITE SHALL BE IN A DESIGNATED AREA FITTED WITH APPROPRIATE BMP's.

LANDSCAPE MATERIALS

- CONTAIN STOCKPILED MATERIALS SUCH AS MULCHES AND TOPSOIL WHEN THEY ARE NOT ACTIVELY BEING USED.
- CONTAIN FERTILIZERS AND OTHER LANDSCAPE MATERIALS WHEN THEY ARE NOT ACTIVELY BEING USED.
- DISCONTINUE THE APPLICATION OF ANY ERODIBLE LANDSCAPE MATERIAL WITHIN 2 DAYS BEFORE A FORECASTED RAIN EVEN OR DURING PERIODS OF PRECIPITATION.
- APPLY ERODIBLE LANDSCAPE MATERIAL AT QUANTITIES AND APPLICATION RATES ACCORDING TO MANUFACTURE RECOMMENDATIONS OR BASED ON WRITTEN SPECIFICATIONS BY KNOWLEDGEABLE AND EXPERIENCED FIELD PERSONNEL.
- STACK ERODIBLE LANDSCAPE MATERIAL ON PALLETS AND COVERING OR STORING SUCH MATERIALS WHEN NOT BEING USED OR APPLIED.

EROSION CONTROL NOTES

1. NO LAND CLEARING, GRADING OR EXCAVATION SHALL BE DONE BETWEEN OCTOBER 15TH AND APRIL 15TH. ANY DEVIATION FROM THIS CONDITION REQUIRES REVIEW AND APPROVAL OF A SEPARATE WINTER EROSION CONTROL PLAN BY THE CITY OF WATSONVILLE TO BEGINNING CONSTRUCTION. THE DEVELOPER SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING SITE EROSION CONTROL AT ALL TIMES.

2. ALL EROSION AND SEDIMENT CONTROL MATERIALS, INCLUDING FIBER ROLLS AND EROSION CONTROL BLANKETS, SHALL BE BIODEGRADABLE. AVOID FIBER ROLLS WITH PLASTIC NETTING DUE TO POTENTIAL IMPACTS ON WILDLIFE.

3. IT SHALL BE THE RESPONSIBILITY OF THE OWNER AND THE PERMITEE TO ENSURE THAT EROSION DOES NOT OCCUR FROM ANY ACTIVITY DURING OR AFTER PROJECT CONSTRUCTION. ADDITIONAL MEASURES, BEYOND THOSE SPECIFIED, MAY BE REQUIRED BY THE PROJECT QSP AND/OR THE CITY OF WATSONVILLE INSPECTOR, AS DEEMED NECESSARY TO CONTROL ACCELERATED EROSION.

4. PRIOR TO ANY FORECAST RAIN AND ANYTIME BETWEEN OCTOBER 15 AND APRIL 15, AT THE END OF EACH WORKDAY, AT THE END OF EACH WORKWEEK, THE DEVELOPER SHALL IMPLEMENT ALL TEMPORARY MEASURES NECESSARY TO PREVENT EROSION AND SILTATION, UNTIL THE PROJECT HAS BEEN FINALIZED. THESE MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, DIRECT SEEDING OF THE AFFECTED AREAS, STRAW MULCHING, AND/OR INSTALLATION OF STRAW BALES DAMS/SILT FENCES AT THE DISCRETION OF THE PROJECT QSP.

5. DURING CONSTRUCTION, NO TURBID WATER SHALL BE PERMITTED TO ENTER THE CHANNEL OR STORM DRAIN SYSTEM. USE OF SILT AND GREASE TRAPS, FILTER BERMS, HAY BALES OR SILT FENCES SHALL BE USED TO PREVENT SUCH DISCHARGE.

6. ALL AREAS ON- AND OFF-SITE EXPOSED DURING CONSTRUCTION ACTIVITIES, HAVING A MAXIMUM SLOPE OF 3:1 (H:V), IF NOT PERMANENTLY LANDSCAPED PER PLAN, SHALL BE SEEDED WITH ANNUAL WINTER BARLEY AT A MINIMUM RATE OF 5 LBS/1,000 SF AND COVERED WITH A UNIFORM LAYER OF STRAW DERIVED FROM RICE, BARLEY OR WHEAT (2-3 BALES/1,000 SF), INCORPORATING IT INTO SOIL WITH A STUDDED ROLLER OR ANCHORING IT WITH A TACKIFIER STABILIZING EMULSION.

7. ALL EXCAVATED MATERIAL SHALL BE REMOVED TO AN APPROVED DISPOSAL SITE OR DISPOSED OF ON-SITE IN A MANNER THAT WILL NOT CAUSE EROSION.

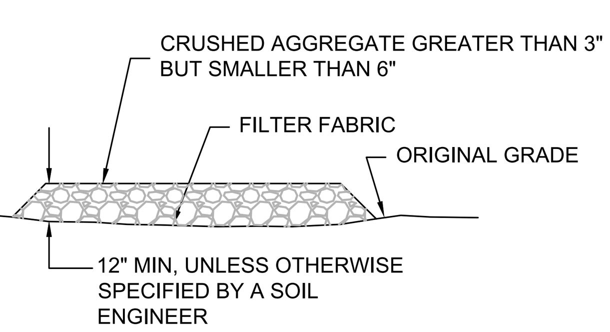
8. ANY MATERIAL STOCKPILED DURING CONSTRUCTION SHALL BE COVERED WITH PLASTIC, UNLESS BEIGN ACTIVELY USED.

9. EXPOSED SOIL ON SLOPES GREATER THAN 20% SHALL BE SEEDED, COVERED WITH 2 INCHES OF STRAW, AND AN EROSION CONTROL BLANKET. THE EROSION CONTROL BLANKET SHALL BE STAKED IN PLACE.

10. IT IS THE DEVELOPER'S RESPONSIBILITY TO SEE THAT ADDITIONAL MEASURES, NECESSARY TO CONTROL SITE EROSION AND PREVENT SEDIMENT TRANSPORT OFF-SITE ARE IMPLEMENTED.

11. THE PROJECT QSP HAD AUTHORITY TO CHANGE, MODIFY, REMOVE, OR ADD, EROSION CONTROL MEASURES, IN THE FIELD, AS THEY DEEM NECESSARY FOR ADEQUATE SITE PROTECTION. THESE MEASURES WILL BE CONSTANTLY CHANGING, BUT NOTED IN WEEKLY REPORTS FOR REFERENCE. THE BMP'S SHOWN HEREON, ARE THE STARTING POINT TO MAINTAINING A FUNCTIONING SITE, AND WILL BE FLUID THROUGHOUT THE CONSTRUCTION TIME FRAME.

12. BMP'S SHALL COMPLY WITH THE CITY OF WATSONVILLE (CoW) EROSION CONTROL STANDARDS AND THE LATEST EDITION OF THE CRWQCB'S EROSION AND SEDIMENT CONTROL FIELD MANUAL.



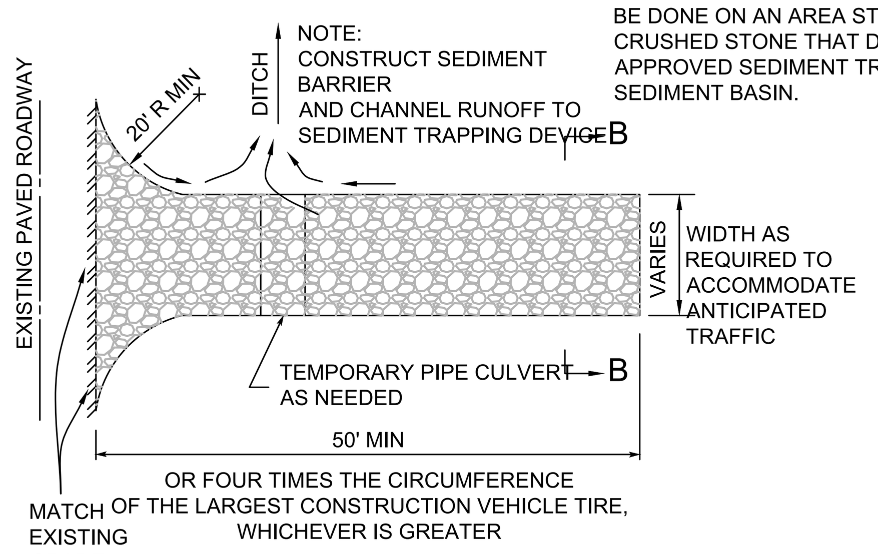
SECTION B-B

NTS

NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.

3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.



STABILIZED CONSTRUCTION ENTRANCE PART 1

NTS

CONSTRUCTION SPECIFICATIONS:

1. THE AGGREGATE SIZE FOR CONSTRUCTION OF THE PAD SHALL BE 2-3 INCH (50-75 MM) STONE. PLACE THE GRAVEL TO THE SPECIFIC GRADE AND DIMENSIONS SHOWN ON THE PLANS, AND SMOOTH IT.
2. THE THICKNESS OF THE PAD SHALL NOT BE LESS THAN 6 INCHES (152 MM). USE GEOTEXTILE FABRICS, IF NECESSARY, TO IMPROVE STABILITY OF THE FOUNDATION IN LOCATIONS SUBJECT TO SEEPAGE OR HIGH WATER TABLE.
3. THE WIDTH OF THE PAD SHALL NOT BE LESS THAN THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS AND IN ANY CASE SHALL NOT BE LESS THAN 12 FEET (3.6 M) WIDE.
4. THE LENGTH OF THE PAD SHALL BE AS REQUIRED, BUT NOT LESS THAN 50 FEET (15.2 M).
5. LOCATE CONSTRUCTION ENTRANCES AND EXITS TO LIMIT SEDIMENT LEAVING THE SITE AND TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES. AVOID ENTRANCES WHICH HAVE STEEP GRADES AND ENTRANCES AT CURVES IN PUBLIC ROADS.
6. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR MAINTENANCE OF ANY MEASURES USED TO TRAP SEDIMENT.
7. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY SHALL BE REMOVED IMMEDIATELY.
8. PROVIDE DRAINAGE TO CARRY WATER TO A SEDIMENT TRAP OR OTHER SUITABLE OUTLET.
9. WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. SEE SEDIMENT BASIN BMP.
10. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE THROUGH USE OF SAND BAGS, GRAVEL, STRAW BALES, OR OTHER APPROVED METHODS.

INSPECTION AND MAINTENANCE:

11. MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE.
12. REPLACE GRAVEL MATERIAL WHEN SURFACE VOIDS ARE VISIBLE.
13. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY.
14. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS. REMOVE ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS WITHIN 24 HOURS.

STABILIZED CONSTRUCTION ENTRANCE PART 2

NTS

PREPARATION OF THIS EROSION CONTROL PLAN COMPLETED UNDER THE DIRECTION OF

DAVID RAMSEY, QSD #20758

RAMSEY CIVIL ENGINEERING, INC

2905 KRISTIE COURT

SANTA CRUZ, CA. 95065

831-462-2905

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SANTA CRUZ, CA 95065
TEL (831) 462-2905
www.ramseycivilengineering.com

REGISTERED PROFESSIONAL ENGINEER
DAVID RAMSEY
NO. C73735
CIVIL
STATE OF CALIFORNIA

DAVID RAMSEY DATE
RCE# 73735

APN# 018-372-14

PLAN TYPE
RESIDENTIAL SUBDIVISION

EROSION CONTROL NOTES & DETAILS

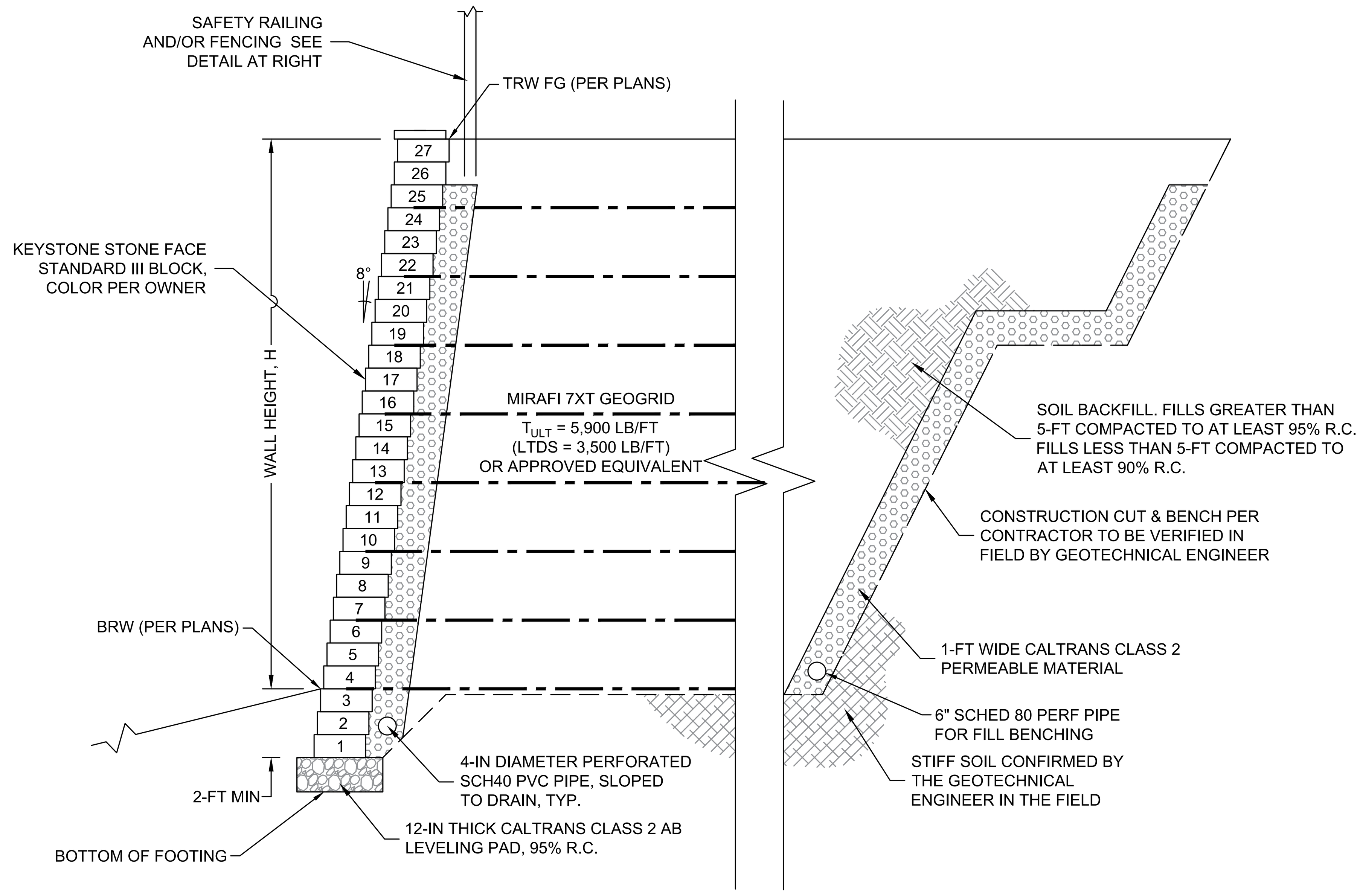
HILLCREST SUBDIVISION

511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

NUMBER	BY	DESCRIPTION	DATE
C	GS/DMR	RESPONSE 3 - PLAN CHECK COMMENTS 03/11/2022	03/18/2022
B	GS/DMR	RESPONSE 2 - PLAN CHECK COMMENTS 10/08/2021	01/20/2022
A	GS/DMR	RESPONSE 1 - PLAN CHECK COMMENTS 09/21/2021	09/29/2021

REVISION BLOCK

DRAWN BY:	GS
DESIGNED BY:	DMR
DATE:	08/12/2021
SCALE:	AS NOTED
PROJECT NO:	20-021
SHEET:	C5.5



BLOCK #	3	6	9	12	15	18	21	24
WALL HEIGHT	GRID LENGTH							
16-FEET	12-FT	12-FT	12-FT	12-FT	12-FT	12-FT	14-FT	18-FT
14-FEET	12-FT	12-FT	12-FT	12-FT	12-FT	14-FT	16-FT	N/A
12-FEET	10-FT	10-FT	10-FT	10-FT	10-FT	14-FT	N/A	N/A
10-FEET	8-FT	8-FT	8-FT	10-FT	12-FT	N/A	N/A	N/A
8-FEET	6-FT	6-FT	8-FT	10-FT	N/A	N/A	N/A	N/A
6-FEET	6-FT	6-FT	10-FT	N/A	N/A	N/A	N/A	N/A
4-FEET	4-FT	8-FT	N/A	N/A	N/A	N/A	N/A	N/A

REMEDIATION PIT MSE WALL DETAIL
(NOT TO SCALE)

MSE WALL SOIL PROPERTIES

	DESCRIPTION	COHESION	FRICTION ANGLE	UNIT WEIGHT
REINFORCED SOIL	FILL SOIL	N/A	30°	120 PCF
RETAINED SOIL	NATIVE SOIL	N/A	30°	120 PCF
LEVELING PAD SOIL	CLASS 2 AB	N/A	30°	120 PCF
FOUNDATION SOIL	NATIVE SOIL	500 PSF	30°	120 PCF

GENERAL NOTES:

1. THE CONTRACTOR SHALL NOTIFY THE GEOTECHNICAL ENGINEER A MINIMUM OF 48 HOURS PRIOR TO COMMENCING ANY ASPECT OF THE WORK.

   ENGINEER: MILLER PACIFIC ENGINEERING GROUP
   504 REDWOOD BOULEVARD, SUITE 220
   NOVATO, CALIFORNIA 94947
   415-382-3444

2. THE GEOTECHNICAL ENGINEER, OR THEIR REPRESENTATIVE, SHOULD OBSERVE FOUNDATION EXCAVATIONS TO CONFIRM SUBSURFACE CONDITIONS ARE CONSISTENT WITH THE DESIGN CRITERIA AND TO MODIFY FOUNDATION (IF REQUIRED).
3. THE CONTRACTOR IS RESPONSIBLE FOR LAYOUT OF THE WALL. LOCATION TO BE CONFIRMED BY THE ENGINEER PRIOR TO COMMENCING EXCAVATION.
4. CONTRACTOR SHALL NOTIFY U.S.A. AND OWNER TO LOCATE UTILITIES.
5. ALL EXCAVATED DEBRIS MATERIAL, NOT USED AS FILL, SHALL BE HAULED FROM THE SITE AND LEGALLY DISPOSED OF BY THE CONTRACTOR.
6. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE ACI CODE, ASTM AND STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION (CALTRANS) STANDARD PLANS AND SPECIFICATIONS.
7. THE CONTRACTOR SHALL RESTORE ACCESS ROUTES TO THEIR ORIGINAL CONDITIONS. DAMAGE TO EXISTING IMPROVEMENTS, SUCH AS STRUCTURES OR PAVEMENTS SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR SITE SAFETY, INCLUDING PROVIDING TEMPORARY SHORING IF NECESSARY TO STABILIZE CUTS IN EXCESS OF 5 FEET IN HEIGHT.
9. ANY SHORING UTILIZED ON SITE SHOULD BE DESIGNED BY AN ENGINEER LICENSED IN THE STATE OF CALIFORNIA.
10. MPEG SHALL NOT SUPERVISE, DIRECT OR HAVE ANY CONTROL OVER THE CONTRACTOR'S WORK NOR HAVE ANY RESPONSIBILITY FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES SELECTED BY THE CONTRACTOR NOR FOR THE CONTRACTOR'S SAFETY PRECAUTIONS OR PROGRAMS IN CONNECTION WITH THE WORK. THESE RIGHTS AND RESPONSIBILITIES ARE SOLELY THOSE OF THE CONTRACTOR.

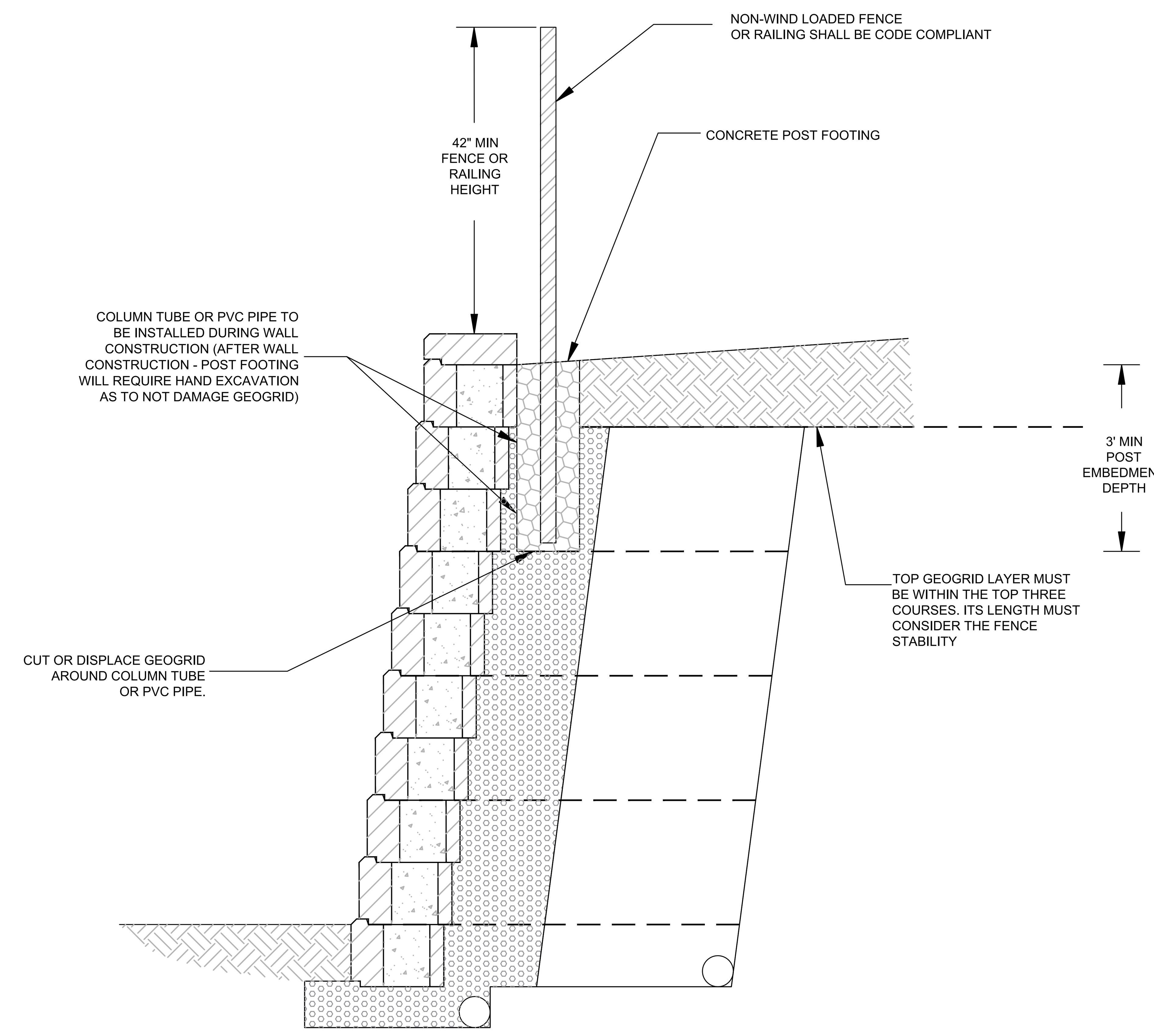
DRAINAGE

1. WALL DRAINAGE SHOULD CONSIST OF CLEAN, FREE DRAINING 3/4 INCH CRUSHED ROCK (CLASS 1B PERMEABLE MATERIAL) WRAPPED IN FILTER FABRIC (MIRAFI 140N OR EQUIVALENT) OR CALTRANS CLASS 2 PERMEABLE MATERIAL.
2. PERFORATED PIPE SHALL BE SCH 40 OR SDR 35 FOR DEPTHS LESS THAN 20 FEET. USE SCH 80 OR SDR 23.5 PERFORATED PIPE FOR DEPTHS GREATER THAN 20 FEET. PLACE PIPE PERFORATIONS DOWN AND SLOPE AT 1% TO A GRAVITY OUTLET.
3. CLEAN OUTS SHOULD BE INSTALLED AT THE UPSLOPE END AND AT SIGNIFICANT DIRECTION CHANGES OF THE PERFORATED PIPE. ADDITIONALLY, ALL ANGLED CONNECTORS SHALL BE LONG BEND SWEEP CONNECTIONS.
4. ALL WORK AND MATERIALS SHALL CONFORM WITH SECTION 68, OF THE LATEST EDITION OF THE CALTRANS STANDARD SPECIFICATIONS.

MSE WALL CONSTRUCTION

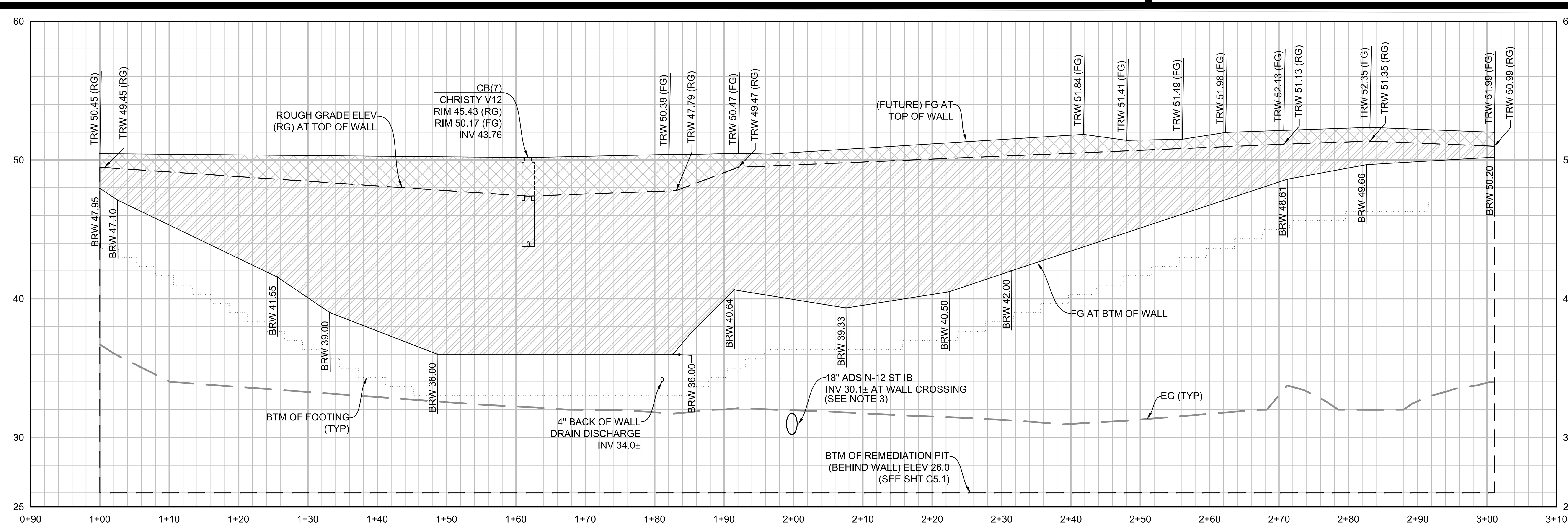
1. RETAINING WALL CONSTRUCTION SHOULD BEGIN AT THE "LOW-POINT".
2. ALL EARTHWORK SHALL FOLLOW THE PROJECT SPECIFICATIONS AND GEOTECHNICAL INVESTIGATION REPORT.
3. MSE FACING SHALL CONSIST OF PINNED KEYSTONE STANDARD III STONE FACE BLOCKS. COLOR TO BE DETERMINED BY OWNER.

REGISTERED PROFESSIONAL ENGINEER BENJAMIN S. PAPPAS No. 2786 Exp. 9/30/22 GEOTECHNICAL STATE OF CALIFORNIA



FENCE SECTION DETAIL

NOTES:
1. THIS DETAIL IS SHOWN FOR REFERENCE ONLY. THE FINAL DESIGN AND DETAILING FOR THE PROTECTION FENCE SHALL BE PROVIDED WITH THE STAGE 3 CONSTRUCTION DOCUMENTS.
2. CONTRACTOR SHALL PROVIDE A TEMPORARY PROTECTION RAILING FOR THE INTERIM BETWEEN THE COMPLETION OF PHASE 1 AND STAGE 3 CONSTRUCTION.
3. ALL RAILINGS/GUARDRAILS SHALL BE CODE COMPLIANT.



WALL - A PROFILE
H: 1"=10'
V: 1"=5'

NOTES:
1. TRW ELEVATIONS ARE SHOWN BASED ON THE FINISHED GRADE ELEVATIONS ADJACENT TO THE TOP OF THE WALL (NOT TOP OF WALL CAP).
2. BRW ELEVATIONS ARE SHOWN BASED ON THE FINISHED GRADE ELEVATIONS ADJACENT TO THE BOTTOM OF THE WALL (NOT THE WALL FOUNDATION).
3. (RG) ELEVATIONS REFER TO THE ROUGH GRADING ELEVATIONS.
4. (FG) ELEVATIONS REFER TO THE FINAL (FUTURE) GRADING ELEVATIONS.
5. ADS N-12 PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS. PROVIDE CLASS 2 95% COMPACTED FILL FOR FILL HEIGHTS 11'-18', PROVIDE CLASS 1 COMPACTED FILL MATERIAL FOR FILL HEIGHTS GREATER THAN 18'.
5. COORDINATE WALL GEO-GRID INSTALLATION WITH CATCH BASIN AND PIPE INSTALLATION.
6. CONTRACTOR TO COORDINATE ALLOWABLE CONSTRUCTION VEHICLE SETBACKS TO WALL 'A' FOR SAFE PASSAGE WITH STRUCTURAL ENGINEER.
7. FENCING & GUARDRAILS AT TOP OF PIT WALL SHALL BE DESIGNED TO MEET THE REQUIRED DESIGN CODES. DETAILING AND FINAL LAYOUT TO BE PROVIDED PRIOR TO CONSTRUCTION AND STAGE 3 DEVELOPMENT.

10' 0 5' 10' 20'
GRAPHIC SCALE: 1 INCH = 10 FEET

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REGISTERED PROFESSIONAL ENGINEER DAVID RAMSEY NO. C73735 CIVIL STATE OF CALIFORNIA

DAVID RAMSEY RCE# 73735 DATE

APN# 018-372-14
PLAN TYPE
RESIDENTIAL SUBDIVISION

WALL A (PIT WALL) PROFILE & DETAILS
HILLCREST SUBDIVISION
511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

NUMBER	BY	DESCRIPTION	DATE
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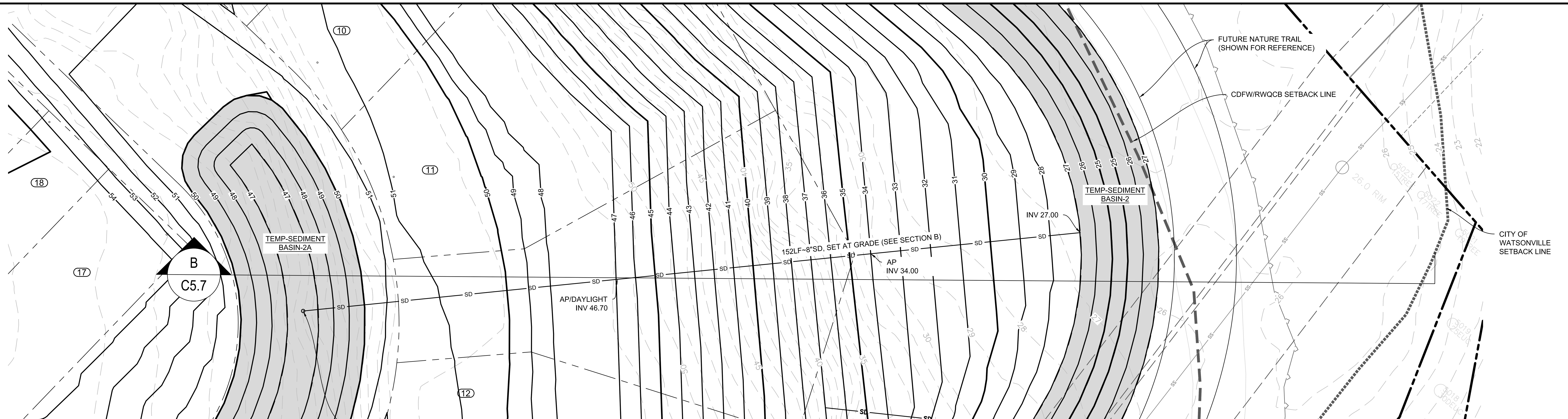
REVISION BLOCK

DRAWN BY:	GS
DESIGNED BY:	DMR
DATE:	08/12/2021
SCALE:	AS NOTED
PROJECT NO:	20-021
SHEET:	C5.6

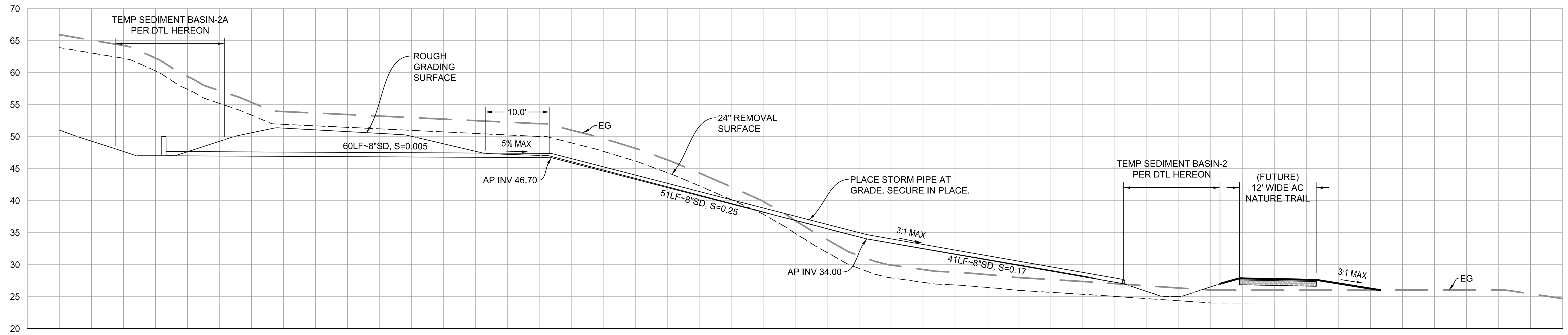


PLAN VIEW

1"=10'

GRAPHIC SCALE: 1 INCH = 10 FEET

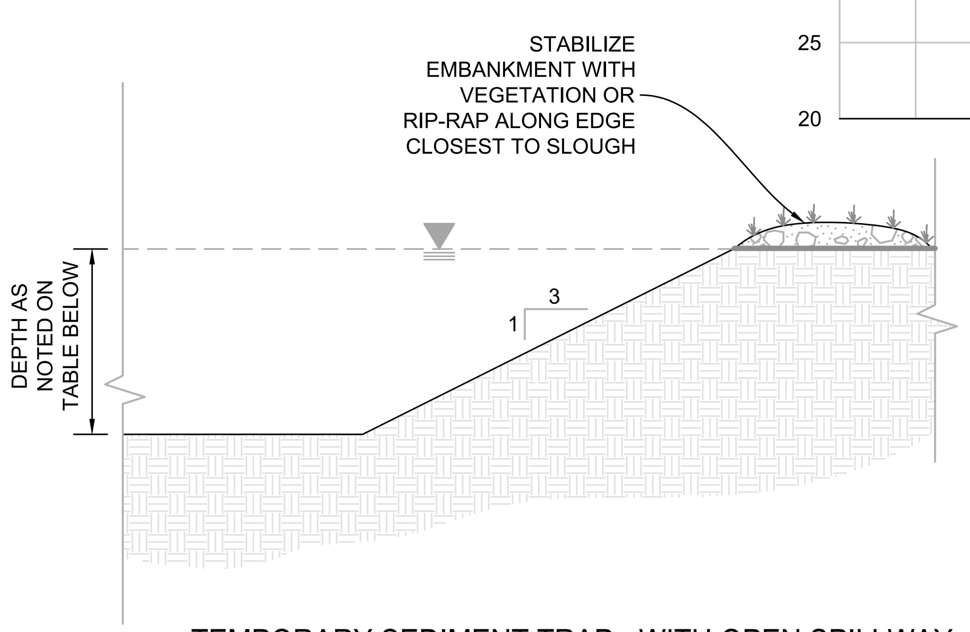
NOTES
1. FUTURE IMPROVEMENTS ARE TO BE CONSTRUCTED IN FUTURE DEVELOPMENT PHASES SHOWN FOR REFERENCE ONLY.



SECTION - B

HORIZONTAL SCALE: 1"=10'

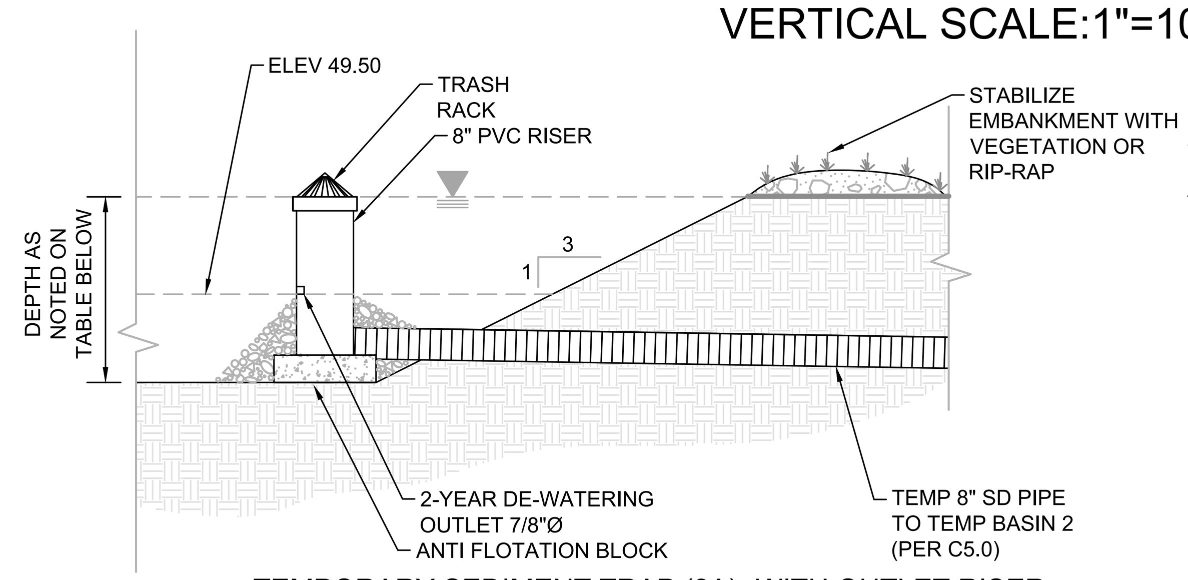
VERTICAL SCALE:1"=10'



TEMPORARY SEDIMENT TRAP - WITH OPEN SPILLWAY

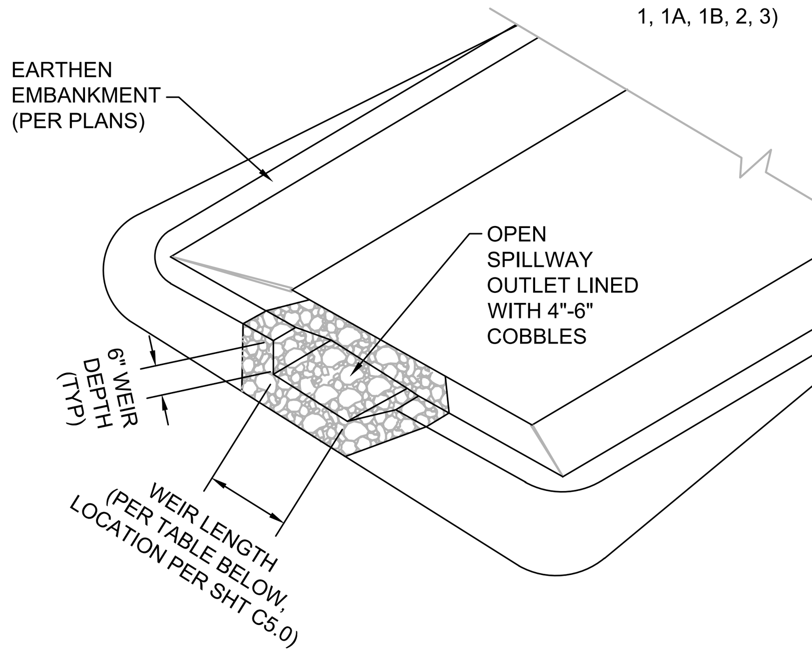
(SECTION VIEW)
N.T.S.

(APPLICABLE FOR TEMPORARY BASIN: 1, 1A, 1B, 2, 3)



TEMPORARY SEDIMENT TRAP (2A)- WITH OUTLET RISER

(SECTION VIEW)
N.T.S.



OPEN SPILLWAY

(ISOMETRIC VIEW)
N.T.S.

SEDIMENT TRAP SUMMARY

NAME	TRIBUTARY AREA	REQUIRED STORAGE VOLUME	PROVIDED DEPTH (FT)	PROVIDED STORAGE VOLUME	2-YR PEAK FLOW (Q)	25-YR PEAK FLOW (Q)	WEIR LENGTH (FT)	WEIR HEIGHT (FT)	MAX ALLOWABLE FLOW (Q)
1	90,008 SF	5,579 CF	4.0 FT	8,506 CF	0.06 CFS	1.21 CFS	4	0.5	3.68 CFS
1A	23,249 SF	1,441 CF	3.0 FT	1,603 CF	0.02 CFS	0.31 CFS	2	0.5	1.84 CFS
1B	22,125 SF	1,371 CF	3.0 FT	1,686 CF	0.02 CFS	0.30 CFS	2	0.5	1.84 CFS
1+1A+1B	135,382 SF	-	-	-		1.82 CFS	Since Max Q > Peak Q, Weir is adeqaute		
2	76,688 SF	4,753 CF	2.0 FT	8,344 CF	0.05 CFS	1.03 CFS	4	0.5	3.68 CFS
2A	52,266 SF	3,240 CF	3.0 FT	3,328 CF	0.04 CFS	0.70 CFS	(see orifice calc)		
2+2A	128,954 SF	-	-	-		1.73 CFS	Since Max Q > Peak Q, Weir is adeqaute		
3	103,594 SF	6,421 CF	3.0 FT	6,465 CF	0.07 CFS	1.39 CFS	3	0.5	2.76 CFS

25-year, 15-min storm intensity = 1.95 in/hr
2-year, 15-min storm intensity =0.1 in/hr
C=0.3 (landscape)
Q=CIA

BROAD CRESTED WEIR: Q=CxLxH^(1.5) = MAX ALLOAWABLE FLOW
C=2.6 (Broad crested Weir constant)
L = Weir Length
H = Weir Height

TEMPORARY SEDIMENT BASIN NOTES:

CONSTRUCTION SPECIFICATIONS:
1. CONSTRUCT THE BASIN BY EXCAVATING OR BUILDING AN EMBANKMENT BEFORE ANY CLEARING OR GRADING WORK BEGINS OR AS SOON AS IT IS FEASIBLE TO CONSTRUCT.
2. AREAS UNDER THE EMBANKMENT AND ANY STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOTMAT.
3. FILL MATERIAL FOR THE EMBANKMENT SHOULD BE CLEAN MINERAL SOIL FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS OR OTHER OBJECTIONABLE MATERIAL.
4. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IT CAN BE FORMED BY HAND INTO A BALL WITHOUT CRUMBLING.
5. FILL MATERIAL SHALL BE PLACED IN 6 INCH LIFTS, CONTINUOUS LAYERS OVER THE ENTIRE LENGTH OF THE FILL. COMPACTING SHALL BE OBTAINED BY ROUTING THE HAULING EQUIPMENT OVER THE FILL SO THAT THE ENTIRE SURFACE OF EACH LAYER OF THE FILL IS TRAVERSED BY AT LEAST ONE WHEEL OR TREAD TRACK OF THE EQUIPMENT, OR BY THE USE OF A COMPACTOR.
6. THE EMBANKMENT SHOULD BE CONSTRUCTED TO AN ELEVATION OF 10 PERCENT HIGHER THAN THE DESIGN HEIGHT TO ALLOW FOR SETTLEMENT IF COMPACTING IS ACHIEVED WITH HAULING EQUIPMENT. IF COMPACTORS ARE USED FOR COMPACTING, THE OVERBUILD MAY BE REDUCED TO NOT LESS THAN 5 PERCENT.
8. THE PRINCIPLE SPILLWAY RISER SHALL BE SECURELY ATTACHED TO THE DISCHARGE PIPE. ALL CONNECTIONS SHALL BE WATERTIGHT.
9. THE PIPE AND RISER SHALL BE PLACED ON A FIRM, SMOOTH SOIL FOUNDATION. THE CONNECTION BETWEEN THE RISER AND THE RISER BASE SHALL BE WATERTIGHT. PERVIOUS MATERIALS SUCH AS SAND, GRAVEL OR CRUSHED STONE SHALL NOT BE USED AS BACKFILL AROUND THE PIPE OR ANTI-SEEP COLLARS.
10. THE FILL MATERIAL AROUND THE PIPE SPILLWAY SHALL BE PLACED IN 4-INCH LAYERS AND COMPACTED UNDER THE SHOULDERS AND AROUND THE PIPE TO AT LEAST THE SAME DENSITY AS THE ADJACENT EMBANKMENT. A MINIMUM OF 2 FEET OF COMPACTED BACKFILL SHALL BE PLACED OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT.
11. STEEL BASE PLATES SHALL HAVE AT LEAST 2 1/2 FEET (0.8 IN) OF COMPACTED EARTH, STONE OR GRAVEL OVER THEM TO PREVENT FLOTATION.
12. THE EMBANKMENT AND EMERGENCY SPILLWAY SHALL BE STABILIZED WITH VEGETATION IMMEDIATELY FOLLOWING CONSTRUCTION.
13. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION WILL BE MINIMIZED.

INSPECTION AND MAINTENANCE:
1. INSPECT BASINS BEFORE AND AFTER RAINFALL EVENTS AND WEEKLY DURING THE REST OF THE RAINY SEASON. DURING EXTENDED RAINFALL EVENTS, INSPECT AT LEAST EVERY 24 HOURS.
2. EXAMINE BASIN BANKS FOR SEEPAGE AND STRUCTURAL SOUNDNESS
3. REMOVE STANDING WATER FROM THE BASIN WITHIN 72 HOURS AFTER ACCUMULATION BY PUMPING, IF NECESSARY.
4. POND TO BE PUMPED WITH CONSTRUCTION GRADE GRINDER PUMP (2" MIN. HOSE CONNECTION) WHEN THE POND HAS REACHED 75% CAPACITY.
5. CHECK INLET AND OUTLET AREA FOR EROSION AND STABILIZE IF REQUIRED.
6. REMOVE ACCUMULATED SEDIMENT WHEN ITS VOLUME REACHES ONE-THIRD THE VOLUME OF THE SEDIMENT STORAGE. PROPERLY DISPOSE OF SEDIMENT AND DEBRIS REMOVED FROM THE BASIN.
7. ALL DAMAGES CAUSED BY SOIL EROSION OR CONSTRUCTION EQUIPMENT SHALL BE REPAIRED BEFORE THE END OF EACH WORKING DAY.
8. ANY REMOVED SEDIMENT SHALL BE PLACED IN SUCH A MANNER THAT IT WILL NOT ERODE FROM THE SITE. THE SEDIMENT SHALL NOT BE DEPOSITED DOWNSTREAM FROM THE EMBANKMENT OR IN OR ADJACENT TO A STREAM OR FLOODPLAIN.
9. WHEN TEMPORARY STRUCTURES HAVE SERVED THEIR INTENDED PURPOSE AND THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, THE EMBANKMENT AND RESULTING SEDIMENT DEPOSIT SHALL BE LEVELED OR OTHERWISE DISPOSED OF IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.

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RAMSEY CIVIL ENGINEERING INC
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LAND PLANNING
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CONSTRUCTION SUPPORT
QSD AND QSP SERVICES
2905 KRISTIE COURT
SANTA CRUZ, CA 95065
TEL (831) 462-2905
www.ramseycivilengineering.com

REGISTERED PROFESSIONAL ENGINEER DAVID RAMSEY NO. C73735 CIVIL STATE OF CALIFORNIA
DAVID RAMSEY DATE
RCE# 73735

APN# 018-372-14

PLAN TYPE
RESIDENTIAL SUBDIVISION

SECTION B & TEMPORARY BASIN DETAIL

HILLCREST SUBDIVISION

511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

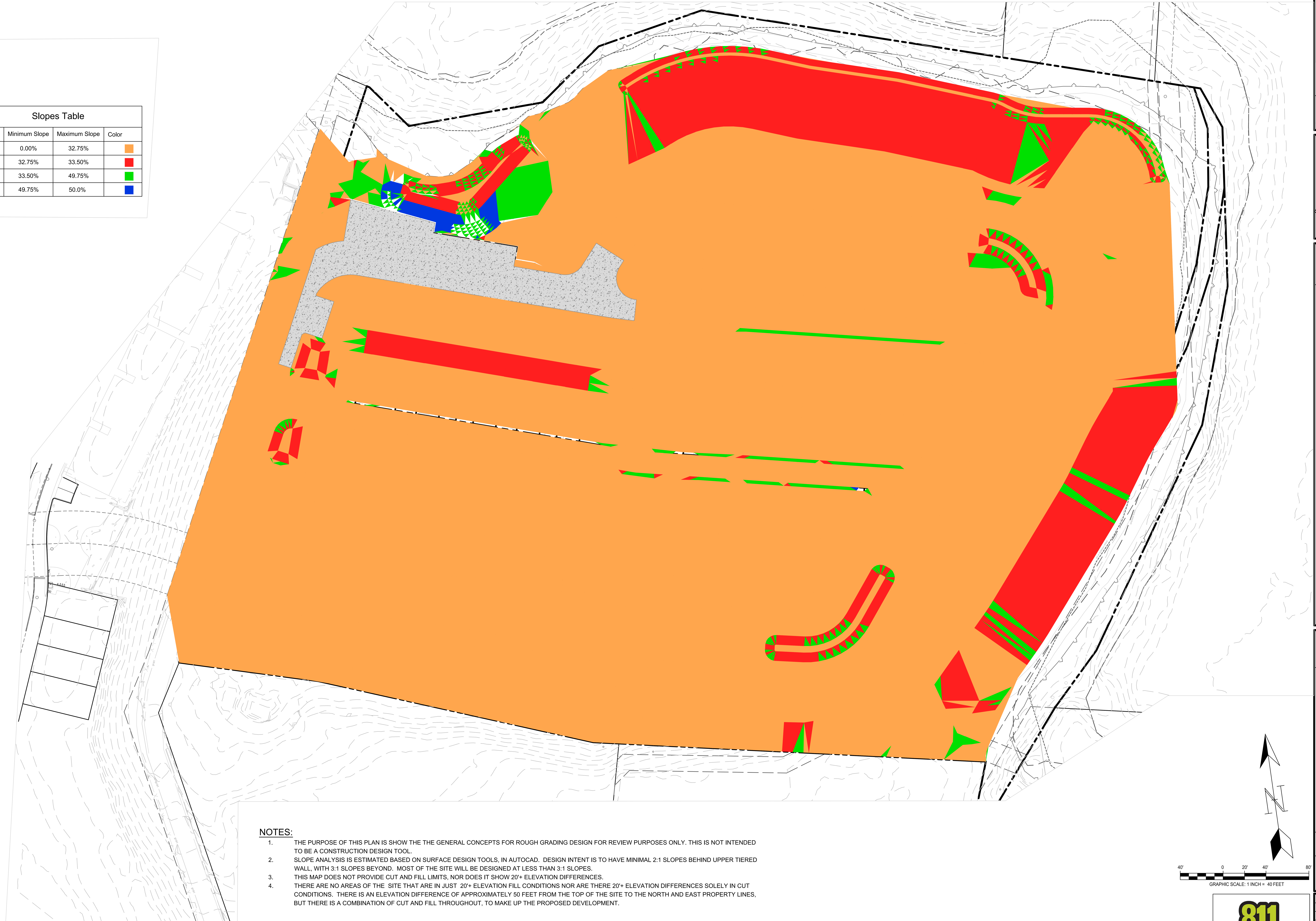
NUMBER	BY	DESCRIPTION	DATE
C	GS/DMR	RESPONSE 3 - PLAN CHECK COMMENTS 03/11/2022	03/18/2022
B	GS/DMR	RESPONSE 2 - PLAN CHECK COMMENTS 10/08/2021	01/20/2022
A	GS/DMR	RESPONSE 1 - PLAN CHECK COMMENTS 09/21/2021	09/29/2021

REVISION BLOCK

DRAWN BY:	GS
DESIGNED BY:	DMR
DATE:	08/12/2021
SCALE:	AS NOTED
PROJECT NO:	20-021
SHEET:	C5.7

Slopes Table

Number	Minimum Slope	Maximum Slope	Color
1	0.00%	32.75%	
2	32.75%	33.50%	
3	33.50%	49.75%	
4	49.75%	50.0%	



NOTES:

1. THE PURPOSE OF THIS PLAN IS SHOW THE THE GENERAL CONCEPTS FOR ROUGH GRADING DESIGN FOR REVIEW PURPOSES ONLY. THIS IS NOT INTENDED TO BE A CONSTRUCTION DESIGN TOOL.
2. SLOPE ANALYSIS IS ESTIMATED BASED ON SURFACE DESIGN TOOLS, IN AUTOCAD. DESIGN INTENT IS TO HAVE MINIMAL 2:1 SLOPES BEHIND UPPER TIERED WALL, WITH 3:1 SLOPES BEYOND. MOST OF THE SITE WILL BE DESIGNED AT LESS THAN 3:1 SLOPES.
3. THIS MAP DOES NOT PROVIDE CUT AND FILL LIMITS, NOR DOES IT SHOW 20'+ ELEVATION DIFFERENCES.
4. THERE ARE NO AREAS OF THE SITE THAT ARE IN JUST 20'+ ELEVATION FILL CONDITIONS NOR ARE THERE 20'+ ELEVATION DIFFERENCES SOLELY IN CUT CONDITIONS. THERE IS AN ELEVATION DIFFERENCE OF APPROXIMATELY 50 FEET FROM THE TOP OF THE SITE TO THE NORTH AND EAST PROPERTY LINES, BUT THERE IS A COMBINATION OF CUT AND FILL THROUGHOUT, TO MAKE UP THE PROPOSED DEVELOPMENT.

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REGISTERED PROFESSIONAL ENGINEER
DAVID RAMSEY
NO. C73735
CIVIL
STATE OF CALIFORNIA

DAVID RAMSEY DATE
RCE# 73735

APN# 018-372-14

PLAN TYPE
RESIDENTIAL SUBDIVISION

ESTIMATED SLOPE ANALYSIS
HILLCREST SUBDIVISION
511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

NUMBER	BY	DESCRIPTION	DATE
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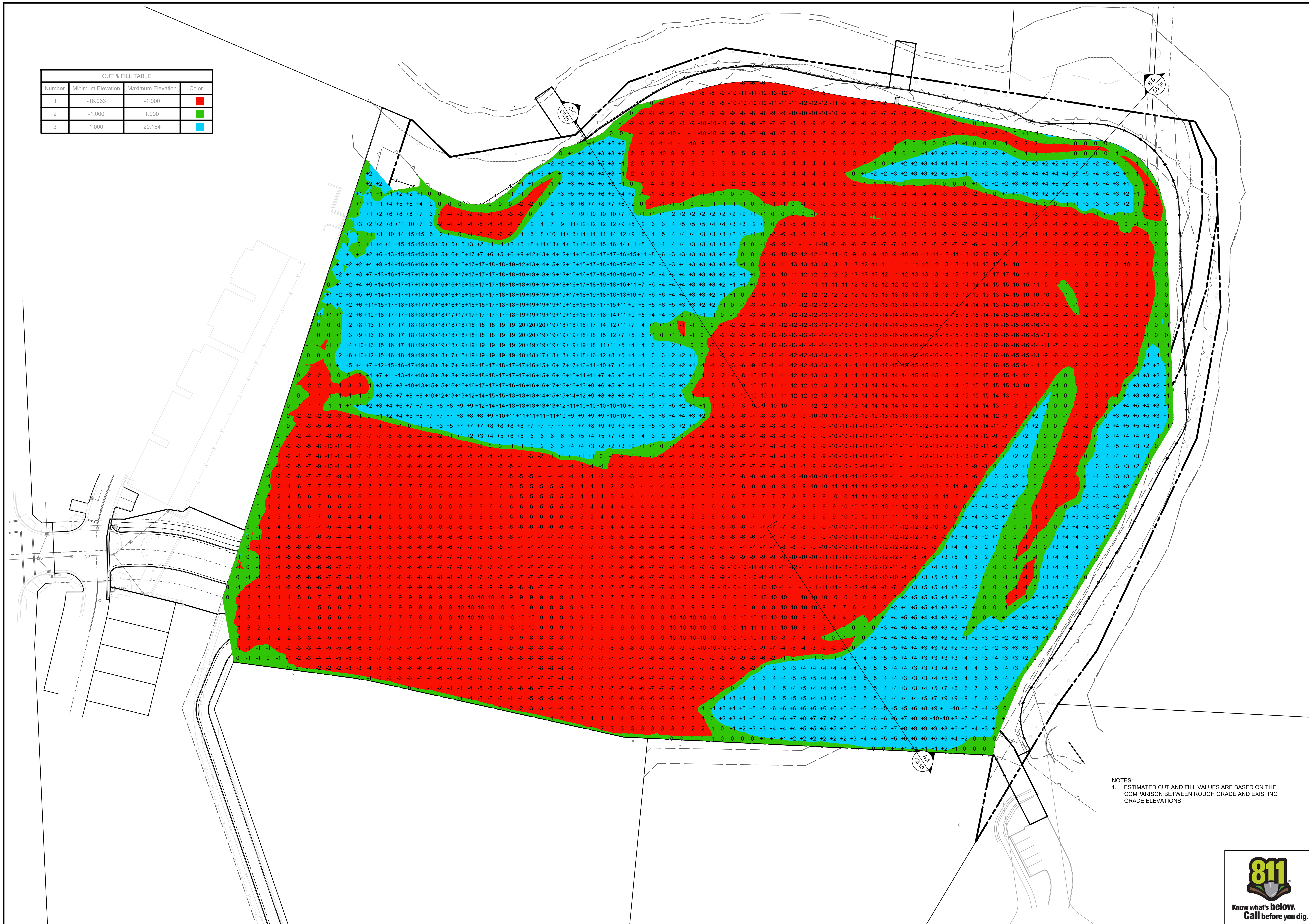
REVISION BLOCK

DRAWN BY:	GS
DESIGNED BY:	DMR
DATE:	08/12/2021
SCALE:	AS NOTED
PROJECT NO:	20-021

SHEET:
C5.8

CUT & FILL TABLE			
Number	Minimum Elevation	Maximum Elevation	Color
1	-18.063	-1.000	red
2	-1.000	1.000	green
3	1.000	20.184	blue



NOTES:
1. ESTIMATED CUT AND FILL VALUES ARE BASED ON THE COMPARISON BETWEEN ROUGH GRADE AND EXISTING GRADE ELEVATIONS.

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CIVIL
STATE OF CALIFORNIA

DAVID RAMSEY DATE
RCE# 73735

APN# 018-372-14

PLAN TYPE
RESIDENTIAL SUBDIVISION

ESTIMATED CUT / FILL ANALYSIS

HILLCREST SUBDIVISION

511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

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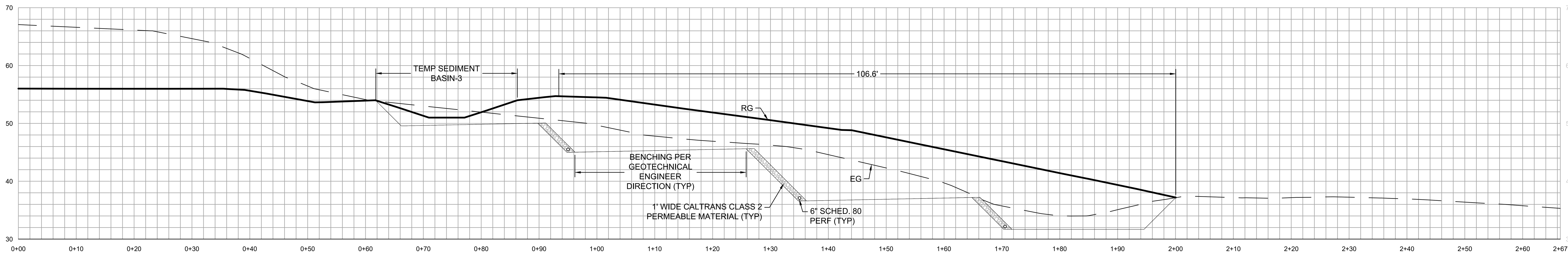
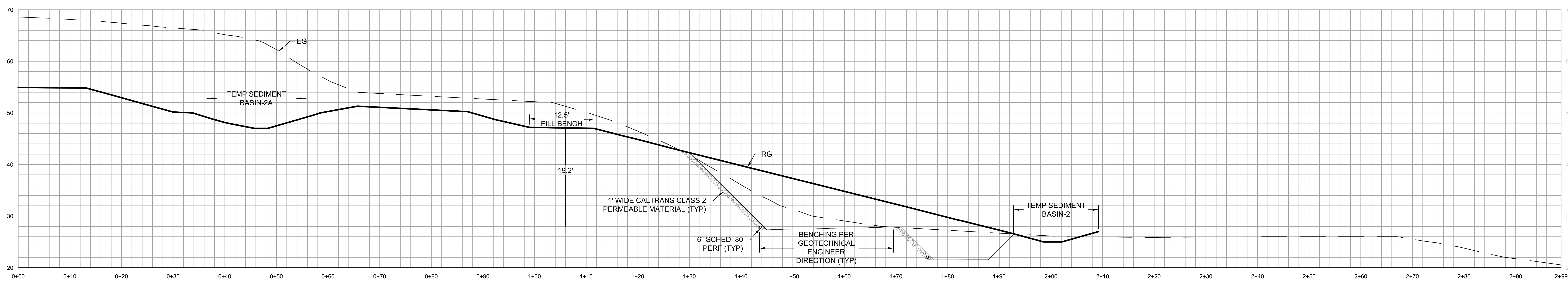
REVISION BLOCK

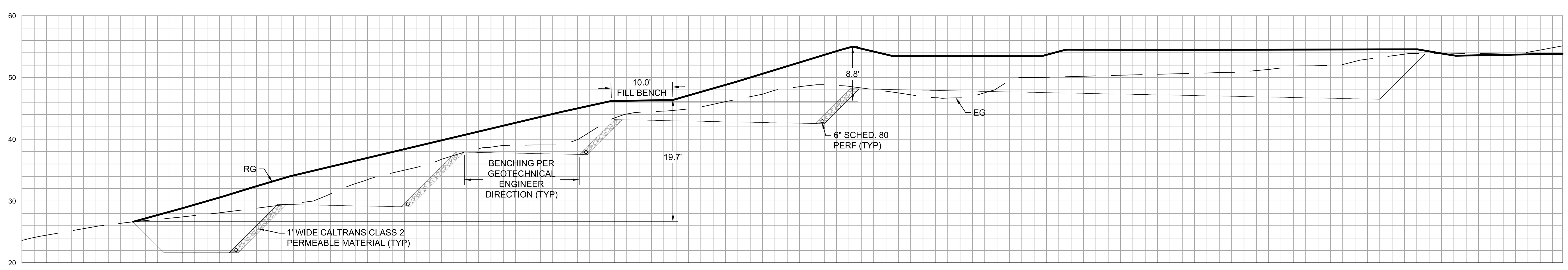
DRAWN BY:	GS
DESIGNED BY:	DMR
DATE:	08/12/2021
SCALE:	AS NOTED
PROJECT NO:	20-021
SHEET:	C5.9



FILL ANALYSIS SECTON A-A



FILL ANALYSIS SECTION B-B



FILL ANALYSIS SECTION C-C

NOTES

1. SEE SHEET C5.9 FOR SECTION LINE LOCATIONS.
2. PROPOSED FILL BENCHING IS SHOWN FOR REFERENCE ONLY. GEOTECHNICAL ENGINEER WILL PROVIDE DIRECTION IN FIELD IF ADJUSTMENTS ARE REQUIRED.
3. PROVIDE 1% MINIMUM FALL ALONG ALL KEYWAYS, BENCHES, AND SUBDRAIN LINES.
4. ALL PERFORATED PIPES SHALL BE PLACED WITH PERFORATIONS FACING DOWN.
5. THE LOCATION OF THE BENCHING DRAINS MAY BE MODIFIED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER IN FIELD.

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NO. C73735
CIVIL
STATE OF CALIFORNIA

DAVID RAMSEY
RCE# 73735
DATE

APN# 018-372-14

PLAN TYPE
RESIDENTIAL
SUBDIVISION

CUT & FILL SECTIONS

HILLCREST SUBDIVISION

511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

REVISION BLOCK

NUMBER	BY	DESCRIPTION	DATE
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DRAWN BY:	GS
DESIGNED BY:	DMR
DATE:	08/12/2021
SCALE:	AS NOTED
PROJECT NO:	20-021
SHEET:	C5.10

CITY OF WATSONVILLE **EXHIBIT "B" CITY COUNCIL**

APPLICATION NO: P155
APNS: 018-372-14 & 018-381-01
APPLICANT: CALIFORNIA SUNSHINE DEVELOPMENT LLC
HEARING DATE: JULY 6, 2021

TENTATIVE MAP CONDITIONS OF APPROVAL

THESE CONDITIONS OF APPROVAL APPLY TO TENTATIVE MAP FOR THE PROPOSED SUNSHINE VISTA PHASED DEVELOPMENT PROJECT, A SUBDIVISION OF A 13± ACRE SITE INTO 144 RESIDENTIAL LOTS AND SIX COMMON AREA PARCELS, LOCATED AT 511 OHLONE PARKWAY. FOR THE PURPOSE OF THESE CONDITIONS, THE TERM "APPLICANT" SHALL ALSO MEAN THE DEVELOPER, SUBDIVIDER, OWNER OR ANY SUCCESSOR(S) IN INTEREST TO THE TERMS OF THIS APPROVAL.

STANDARD CONDITIONS:

1. **CONDITIONAL APPROVAL TIMEFRAME.** THE TENTATIVE MAP IS CONDITIONALLY APPROVED FOR **24 MONTHS**, IN ACCORDANCE WITH SECTION 13-4.10(A) OF THE WATSONVILLE MUNICIPAL CODE (WMC) AND SECTION 66452.6 OF THE STATE SUBDIVISION MAP ACT. THE MAP SHALL BE NULL AND VOID IF NOT RECORDED WITHIN 24 MONTHS FROM THE EFFECTIVE DATE OF THE APPROVAL THEREOF. TIME EXTENSIONS MAY BE GRANTED PROVIDED THE APPLICANT REQUESTS SAME AT LEAST THIRTY DAYS IN ADVANCE OF THE EXPIRATION OF THE APPROVAL BY THE CITY COUNCIL. THIS APPROVAL APPLIES TO PLANS TITLED "TENTATIVE MAP, SUNSHINE VISTA," AND RECEIVED BY THE COMMUNITY DEVELOPMENT DEPARTMENT ON JUNE 8, 2021(CDD-P)

2. **FINAL MAP.** THE FINAL MAP SHALL BE IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED TENTATIVE MAP UNLESS MODIFIED BY SUBSEQUENT CONDITIONS OF APPROVAL. AFTER APPROVAL IS GRANTED, MODIFICATIONS TO THE TENTATIVE MAP OR TO CONDITIONS IMPOSED MAY BE CONSIDERED IN ACCORDANCE WITH TITLE 13 (SUBDIVISION ORDINANCE) OF THE WATSONVILLE MUNICIPAL CODE. (CDD-E, PW)

3. **FINDINGS.** APPROVAL IS SUBJECT TO THE FINDINGS AND SUPPORTIVE EVIDENCE IN ACCORDANCE WITH WMC SECTION 13-04.09(D) OF THE SUBDIVISION ORDINANCE WITH SAID FINDINGS SET FORTH IN EXHIBIT "A" AND MADE A PART OF THIS TENTATIVE MAP. (CDD-E)

4. **SUBSTANTIAL CONFORMANCE.** THE PROJECT SHALL BE IN COMPLIANCE WITH ALL STANDARDS AND/OR CONDITIONS OF ALL LOCAL, STATE, AND FEDERAL CODES AND ORDINANCES, APPROPRIATE DEVELOPMENT STANDARDS, AND CURRENT CITY POLICIES AS MODIFIED BY THE SPECIAL USE PERMIT WITH DESIGN REVIEW. ANY SUBSTANTIAL DEVIATION WILL BE GROUNDS FOR REVIEW BY THE CITY AND MAY POSSIBLY RESULT IN REVOCATION OF THE TENTATIVE MAP APPROVAL. (CDD-P, -E, -B)

5. **INDEMNITY AGREEMENT.** THE APPLICANT SHALL AGREE IN WRITING TO INDEMNIFY AND DEFEND THE CITY IN CASE OF LEGAL CHALLENGE ARISING OUT OF THE CITY APPROVING THE PROJECT. SAID AGREEMENT SHALL BE SUBJECT TO APPROVAL OF THE CITY ATTORNEY. (CAT)
6. **ON/OFF SITE PERMIT.** SEPARATE ON/OFF SITE PERMITS ARE REQUIRED FOR WORK IN THE PUBLIC RIGHT-OF-WAY. (CDD-P)

POTENTIAL DEVELOPMENT AGREEMENT AND APPLICABLE STATUTORY EXTENSIONS:

7. **DEVELOPMENT AGREEMENT.** THE APPLICANT MAY REQUEST TO ENTER INTO A DEVELOPMENT AGREEMENT WITH THE CITY IN FORM ACCEPTABLE TO THE CITY COMMUNITY DEVELOPMENT DIRECTOR AND CITY ATTORNEY AND AS APPROVED BY THE CITY COUNCIL BY ORDINANCE TO PROVIDE, AT A MINIMUM, AMONG OTHER SPECIFICS, THE FOLLOWING DETAILS: [I] AS TO PROJECT PHASING, INCLUDING THE FILING OF UP TO FOUR (4) FINAL MAPS; [II] THE CONSTRUCTION OF PROJECT INFRASTRUCTURE IMPROVEMENTS; [III] PROVISIONS OF AFFORDABLE HOUSING WITHIN THE PHASES OF THE PROJECT; [IV] THE SCHEDULING OF PAYMENT TO THE CITY OF PROJECT FEES OVER THE COURSE OF THE PHASING OF THE PROJECT; [V] THE TIMING OF THE DEVELOPMENT AND VESTING OF DEVELOPMENT RIGHTS; [VI] PARTICULARS AS TO PROJECT REQUIREMENTS, DEDICATIONS, AND EXACTIONS, OFF-SITE IMPROVEMENTS, OPEN SPACE REQUIREMENTS; [VII] PROJECT REVIEW; AND [VIII] SUCH OTHER PARTICULARS AS THE APPLICANT AND THE CITY AGREE UPON AS BEING RELEVANT TO THE CERTAINTY AS TO THE CONTINUITY OF THE PROJECT AND APPLICABLE LAWS AND REQUIREMENTS. (CDD-P, CAT)

8. **STATUTORY EXTENSIONS.** IN ACCORDANCE WITH GOVERNMENT CODE SECTION 66456.1, THE APPLICANT MAY FILE MULTIPLE FINAL MAPS RELATING TO AN APPROVED OR CONDITIONALLY APPROVED TENTATIVE MAP PRIOR TO THE EXPIRATION OF THE TENTATIVE MAP. THE TENTATIVE MAP MAY BE EXTENDED FOR MAPS SUBJECT TO REQUIREMENTS TO CONSTRUCT CERTAIN OFF- SITE IMPROVEMENTS, PURSUANT TO THE DETAILED PROVISIONS OF GOVERNMENT CODE SECTION 66452.6. THE RIGHT OF THE SUBDIVIDER TO FILE MULTIPLE FINAL MAPS SHALL NOT LIMIT THE AUTHORITY OF THE LOCAL AGENCY TO IMPOSE REASONABLE CONDITIONS RELATING TO THE FILING OF MULTIPLE FINAL MAPS. (CDD-P, CAT)

IMPROVEMENT PLANS SHALL BE SUBMITTED BEFORE REVIEWING FINAL MAP AND INCLUDE THE FOLLOWING:

9. **OFF-SITE IMPROVEMENTS: SECONDARY ACCESS AND ROUNDABOUT.** APPLICANT SHALL
(a) PROVIDE A 12-FOOT WIDE INGRESS-ONLY SECONDARY ACCESS VIA ERRINGTON ROAD WITHIN THE 30-FOOT WIDE RIGHT-OF-WAY ON THE EAST SIDE OF THE 1.7± ACRE PROPERTY OWNED BY THE SEA VIEW RANCH HOMEOWNERS ASSOCIATION (APN 018-661-31) AND (B) INSTALL A ROUNDABOUT AT THE INTERSECTION OF OHLONE PARKWAY AND LOMA VISTA DRIVE. ERRINGTON ROAD SHALL BE IMPROVED TO A 20-YEAR ROAD STANDARD AND THE CC&RS SHALL IDENTIFY THE HOA ESTABLISHED FOR THE PROJECT SITE AS THE RESPONSIBLE PARTY FOR MAINTENANCE OF THE ROADWAY. THE APPLICANT SHALL DESIGN AND CONSTRUCT THE ROUNDABOUT AS PART OF THE THIRD PHASE OF DEVELOPMENT. THE CITY SHALL DETERMINE A COST SHARING ARRANGEMENT WITH THE APPLICANT FOR INSTALLING THE ROUNDABOUT AS PART OF A SEPARATE DEVELOPMENT AGREEMENT (SEE CONDITION OF APPROVAL NO. 6). (CDD-E)

10. **OFF-SITE TREE REPLACEMENT.** APPLICANT SHALL REPLACE EXISTING TREES ON SEA VIEW RANCH SUBDIVISION PROPERTY TO BE REMOVED AS PART OF THE EXTENSION OF LOMA VISTA DRIVE TO THE PROJECT SITE AT A RATIO OF 3:1. AS SHOWN ON THE EXISTING CONDITIONS PLAN (SHEET C2.0), 12 EXISTING TREES WOULD BE REMOVED, CONSISTING OF ONE PLUM, SIX BIRCH AND FIVE REDWOOD TREES (I.E., TREE #98, 100-110). THEREFORE, 36 NEW TREES SHALL BE PLANTED. THE APPLICANT SHALL COORDINATE WITH THE HOA FOR THE LAS CASITAS NEIGHBORHOOD ON THE TYPE, LOCATION AND SIZE OF SAID REPLACEMENT TREES. (CDD-P)
11. **IMPROVEMENT AGREEMENT.** APPLICANT SHALL ENTER INTO AN IMPROVEMENT AGREEMENT WITH THE CITY TO INSTALL PUBLIC AND OFFSITE IMPROVEMENTS, FURNISH SECURITIES, INSURANCES AND PAY THE COST OF ALL ENGINEERING REVIEW AND INSPECTION. SAID AGREEMENT SHALL BE IN A FORM ACCEPTABLE TO THE CITY ATTORNEY. APPLICANT SHALL PROVIDE AN ITEMIZED ESTIMATE OF THE COST OF CONSTRUCTION OF ALL OFFSITE AND PUBLIC IMPROVEMENTS. THE COST ESTIMATE SHALL BE APPROVED BY THE CITY AND USED TO ESTABLISH THE AMOUNT OF THE SECURITIES. (CDD-E, CAT)

12. **IMPROVEMENT STANDARDS.** ALL IMPROVEMENTS IN THE PUBLIC OR PRIVATE RIGHT-OF-WAY SHALL COMPLY WITH THE MOST CURRENT VERSION OF THE CITY OF WATSONVILLE PUBLIC IMPROVEMENT STANDARDS. PLANS AND DESIGN DOCUMENTS SHALL BE SIGNED AND STAMPED BY A CALIFORNIA LICENSED ARCHITECT OR ENGINEER. STANDARDS THAT ARE DIFFERENT THAN THOSE OF THE CITY MUST BE APPROVED BY THE CITY. (CDD-E)

13. **IMPROVEMENT PLANS.** IMPROVEMENT PLANS SHALL SUBSTANTIALLY CONFORM TO THE TENTATIVE MAP. PROVIDE ALL EXISTING AND PROPOSED IMPROVEMENTS AND STRIPING WITHIN THE ROAD RIGHT-OF-WAY. PLANS SHALL BE DESIGNED IN ACCORDANCE WITH THE CITY'S PUBLIC IMPROVEMENT STANDARDS. (CDD-E, -P)

14. **CIVIL PLANS.** IMPROVEMENT PLAN SUBMITTAL SHALL INCLUDE CIVIL PLANS PREPARED BY A CIVIL ENGINEER LICENSED TO PRACTICE IN THE STATE OF CALIFORNIA. CIVIL PLANS SHALL INCLUDE GRADING, DRAINAGE, AND EROSION CONTROL PLANS. (CDD-E, PW)

15. **CC&RS.** THE APPLICANT SHALL PREPARE COVENANTS, CONDITIONS, AND RESTRICTIONS (CC&RS) FOR REVIEW AND APPROVAL BY THE COMMUNITY DEVELOPMENT DEPARTMENT AND CITY ATTORNEY. A DECLARATION OF CC&RS SHALL BE RECORDED ON THE ENTIRE PROPERTY CONCURRENTLY WITH THE FINAL MAP. SAID CC&RS SHALL INCLUDE PROVISION FOR THE ESTABLISHMENT OF A HOMEOWNERS ASSOCIATION (HOA) WITH THE RESPONSIBILITY TO MAINTAIN ITEMS THAT ARE SPECIFIED THEREIN. CC&RS PROVISION SHALL INCLUDE THE FOLLOWING SPECIFIC ELEMENTS:

    a. REQUIRE THE ESTABLISHMENT OF ONE HOA FOR THE ENTIRE DEVELOPMENT AREA;

    b. REQUIRE THE MAINTENANCE AND OPERATIONS BY THE HOA OF THE COMMON OPEN SPACE AREAS (INCLUDING COMMON RECREATIONAL AREAS), PRIVATE ROADS, CURBS, GUTTERS, SIDEWALKS, WALKWAYS, STREET LIGHTING, STREET TREES, ON-STREET GUEST PARKING, ACCESSIBLE PARKING, LANDSCAPING (INCLUDING LANDSCAPING IN THE RIPARIAN/NATURAL OPEN SPACE AREA), TRAILS (INCLUDING THE EXTENSION OF THE PUBLIC ACCESS TRAIL WITHIN THE RIPARIAN SETBACK AREA), UTILITY EASEMENTS, EXTERIOR FENCES, RETAINING WALLS, AND STORM WATER MANAGEMENT AND DETENTION FACILITIES (INCLUDING BIORETENTION "RAINGARDEN" AREAS);

    c. PROVIDE A BUDGET FOR MAINTAINING FACILITIES WITHIN COMMON AREAS;

    d. CREATE OBLIGATIONS AND A METHOD TO AMORTIZE AND PAY FOR (TOGETHER WITH LIEN RIGHTS) THE MAINTENANCE AND REPAIR OF FACILITIES WITHIN COMMON AREAS;

    e. PROHIBIT ADDITIONS TO OR REMODELING OF A STRUCTURE WHICH EXTENDS BEYOND THE ORIGINAL FOOTPRINT;
    f. REQUIRE THAT GARAGE INTERIORS NOT BE CONVERTED TO OR USED FOR ANY PURPOSE WHICH INTERFERES WITH PARKING OF THE NUMBER OF MOTOR VEHICLES FOR WHICH THE GARAGE WAS DESIGNED, AND NO TEMPORARY STORAGE SHALL BE ALLOWED WHICH WOULD INTERFERE WITH THE PARKING OF SAID VEHICLES; AND

    g. REQUIRE THAT THE HOA SHALL NOT DISSOLVE OR RELINQUISH THEIR MAINTENANCE OBLIGATIONS WITHOUT REVIEW BY THE CITY MANAGER AND APPROVAL BY THE CITY COUNCIL AT A PUBLIC HEARING. (CDD-P, -E, CAT)

16. **MAINTENANCE OF DETENTION BASINS, NATURE TRAIL & ADJACENT LANDSCAPING.** PROVIDE DRAFT LANGUAGE FOR INCORPORATION IN THE CC&RS DESCRIBING MAINTENANCE RESPONSIBILITY OF AND SCHEDULE FOR DETENTION BASINS, NATURE TRAIL AND ADJACENT LANDSCAPING FOR REVIEW AND COMMENT BY THE PUBLIC WORKS AND UTILITIES DEPARTMENT. INCLUDE LANGUAGE THAT THE HOA SHALL IMPLEMENT SAID MAINTENANCE IN ACCORDANCE WITH SUNSHINE VISTA NATURE TRAIL VEGETATION, LANDSCAPING AND RAIN GARDEN MAINTENANCE AND OPERATIONS PLAN. PLAN SHALL BE REVIEWED AND APPROVED BY THE PUBLIC WORKS DIRECTOR OR DESIGNEE. (CDD-P, PW)

17. **ADDRESSING POTENTIAL HOMELESS ISSUES.** PROVIDE DRAFT LANGUAGE FOR INCORPORATION IN THE CC&RS FOR HOW THE HOA WILL ADDRESS POTENTIAL HOMELESS ENCAMPMENTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

    a. CALL POLICE WITHIN 24 HOURS OF COMPLAINT OF ILLEGAL CAMPING, FIRES, AND/OR ALCOHOL USE;

    b. CLEANUP OR HIRE CITY TO CLEANUP ENCAMPMENTS OR ENCAMPMENT TRASH IN AND AROUND DETENTION BASINS WITHIN 72 HOURS;

    c. IF CITY CALLED TO PROVIDE SERVICE THERE WILL BE FEE FOR SERVICE TO BE PAID BY THE HOA;

    d. IF ISSUE PERSISTS BEYOND 72 HOURS, CITY MAY MOVE FORWARD WITH CLEANUP AND CHARGE FEE FOR SERVICE TO BE PAID BY THE HOA;

    e. REPORT ALL SUSPICIOUS ACTIVITY WITHIN 24 HOURS; AND

    f. POST SIGNAGE THAT STATES WHAT ENFORCEABLE ACTIONS ARE NOT PERMITTED IN AREA AT TRAIL ENTRANCES AND DETENTION BASINS. USE SAME SIGNAGE INSTALLED BY CITY AT OTHER LOCATIONS WITHIN SLOUGH (SEE ATTACHED EXAMPLE).

18. **CC&RS AND LIABILITY.** THE ISSUANCE OF THIS PERMIT DOES NOT EXEMPT THE OWNER OF THE PROPERTY FOR WHICH THIS PERMIT IS ISSUED FROM LIABILITIES WHICH MAY ARISE OUT OF FAILURE TO COMPLY WITH APPLICABLE CC&RS. PLEASE BE ADVISED THAT THE PROPERTY OWNER PREPARE CC&R'S FOR THE PROJECT AND PRIVATE LEGAL ACTION MAY BE BROUGHT AGAINST THE PROPERTY OWNER FOR FAILURE TO COMPLY WITH ALL APPLICABLE CC&RS AND THAT THE CITY OF WATSONVILLE DOES NOT ENFORCE CC&RS. (CAT)

19. **UNRESTRICTED USE OF COMMON OPEN SPACE.** THE CC&RS SHALL INCLUDE A PROVISION THAT THERE WILL BE NO USE RESTRICTIONS OF COMMON OPEN SPACE AREAS AND/OR FACILITIES BY VISITORS, SUCH AS THE CHILDREN'S PLAY STRUCTURE IN OPEN SPACE AREA C. (CDD-P, CAT)

20. **PUBLIC ACCESS & UTILITY EASEMENTS.** RIGHTS-OF-WAY AND PUBLIC UTILITY EASEMENTS SHALL BE OFFERED FOR DEDICATION TO THE CITY BY CERTIFICATE ON THE FINAL MAP. EASEMENTS SHALL BE FOR ACCESS, CONSTRUCTION, MAINTENANCE AND UTILITIES. (CDD-E)

21. **OFF-SITE EASEMENTS.** APPLICANT SHALL SECURE EASEMENTS FOR ALL FACILITIES, WHICH ARE TO BE LOCATED OFF-SITE, ON PRIVATE PROPERTY, INCLUDING BUT NOT LIMITED TO DRAINAGE OUTFALLS, GUEST PARKING STALLS, AND EMERGENCY ACCESS. (CDD-E, -P)

22. **WRITTEN AUTHORIZATION.** NO PERMANENT IMPROVEMENTS MAY BE CONSTRUCTED OVER ANY EXISTING EASEMENTS WITHOUT WRITTEN AUTHORIZATION FROM THE EASEMENT HOLDER. (CDD-E)

23. **NATURE TRAIL DESIGN.** THE APPLICANT SHALL REVISE THE PLAN SET TO PROVIDE A TYPICAL SECTION, PROFILE AND DETAIL OF THE NATURE TRAIL FOR REVIEW AND APPROVAL OF THE PUBLIC WORKS DIRECTOR OR DESIGNEE. THE NATURE TRAIL SHALL BE DESIGNED TO WITHSTAND LOADING OF VEHICLE(S) ACCESSING THE LANDSCAPE AREAS, DETENTION BASINS AND SANITARY SEWER LINE. THE TYPICAL SECTION, PROFILE AND DETAIL SHALL SHOW, AT MINIMUM, THE DEPTH OF PAVEMENT, BASE ROCK AND SCARIFYING OF NATIVE MATERIAL. (CDD-E, PW)

24. **FUTURE PEDESTRIAN BRIDGE CONNECTION.** THE CITY'S *TRAILS AND BICYCLE MASTER PLAN* (2012) SHOWS A FUTURE BRIDGE ACROSS THE WATSONVILLE SLOUGH TO THE EXISTING TRAIL ON THE NORTH SIDE OF THE SLOUGH. THE APPLICANT SHALL THEREFORE EXTEND A "SIDEWALK AND TRAIL MAINTENANCE EASEMENT" FROM THE PROPOSED TRAIL TO THE EXISTING SANITARY SEWER LINE AT THE NORTHEAST CORNER OF THE PROPERTY TO ALLOW CONSTRUCTION OF A FUTURE PEDESTRIAN BRIDGE BY THE CITY ACROSS THE WATSONVILLE SLOUGH ALONG THE SANITARY SEWER LINE. (CDD-E, PW)

25. **MANHOLE AND TRAIL ALIGNMENT.** THE APPLICANT SHALL REVISE THE UTILITY PLAN (SHEET C6.0) TO MOVE THE LOCATION OF THE MANHOLE OR TRAIL ALIGNMENT SUCH THAT SSMH 16 IS LOCATED TO THE SIDE OF THE NATURE TRAIL. (CDD-E, PW)

26. **TRAIL TURNAROUND.** THE PROJECT SHALL INCLUDE A TURNAROUND AT THE NORTHWEST END OF THE TRAIL, SUFFICIENT TO ACCOMMODATE THE TURNAROUND OF A TRAIL MAINTENANCE VEHICLE. (PW)

27. **CONCRETE CAP.** THE APPLICANT SHALL REVISE THE GRADING AND DRAINAGE PLAN (SHEET C5.2) WITH A NOTE STATING THAT ANY CONCRETE CAP AND ACCESS PATH AT THE KNOB AREA SHALL NOT COVER THE EXISTING SANITARY SEWER LINE AND AREA OF FUTURE PEDESTRIAN BRIDGE. (CDD-E, PW)

28. **EROSION CONTROL.** THE APPLICANT SHALL REVISE THE ENVIRONMENTAL GRADING DETAIL (SHEET C5.1) TO SPECIFY THAT ALL EROSION CONTROL MATERIALS, INCLUDING FIBER ROLLS AND EROSION CONTROL BLANKETS, SHALL USE ONLY BIODEGRADABLE MATERIALS AND AVOID ALL PLASTIC NETTING DUE TO POTENTIAL IMPACTS ON WILDLIFE. (CDD-E)

29. **EROSION CONTROL PLANS.** EROSION CONTROL PLANS SHALL PROVIDE BEST MANAGEMENT PRACTICES (BMPS) DURING CONSTRUCTION TO PREVENT SEDIMENT, DEBRIS AND CONTAMINANTS FROM DRAINING OFFSITE. BMP'S SHALL COMPLY WITH THE CITY OF WATSONVILLE EROSION CONTROL STANDARDS AND THE EROSION AND SEDIMENT CONTROL FIELD MANUAL BY THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SAN FRANCISCO REGION, LATEST EDITION. ALL EROSION CONTROL SHALL BE INSTALLED PRIOR TO OCTOBER 15 AND BE MAINTAINED IN PLACE UNTIL APRIL 15. THE APPLICANT SHALL ENSURE THAT ALL CONTRACTORS ARE AWARE OF ALL EROSION CONTROL STANDARDS AND BMP'S. (CDD-E)

30. **POST-CONSTRUCTION STORMWATER MANAGEMENT REQUIREMENTS.** THE APPLICANT SHALL COMPLY WITH WMC SECTION 6-3.535 POST-CONSTRUCTION REQUIREMENTS. (CDD- E)

31. **GRADING PLANS.** GRADING PLANS SHALL COMPLY WITH THE CITY GRADING ORDINANCE. (CDD-E)

32. **SOILS REPORT.** PLANS SHALL STRICTLY ADHERE TO THE SOILS REPORT. (CDD-E, -B)

33. **ADA.** DESIGN ALL SITE IMPROVEMENTS ACCORDING TO AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. THE PROJECT SHALL PROVIDE ACCESSIBLE PATHS, CURB RAMPS AND/OR CROSSWALKS, AS NECESSARY, TO INTERCONNECT THE SITE, INCLUDING THE PEDESTRIAN PATHS TO THE ROW-STYLE TOWNHOUSE UNITS. (CDD-B)

34. **SOLID WASTE SERVICE PLAN.** SOLID WASTE GENERATED DURING THE CONSTRUCTION OF THIS PROJECT SHALL BE SERVICED BY THE CITY OF WATSONVILLE SOLID WASTE DIVISION. APPLICANT SHALL SUBMIT A SOLID WASTE SERVICE PLAN PRIOR TO APPROVAL OF THE FINAL MAP AND IMPROVEMENT PLANS SO THAT CITY STAFF MAY DETERMINE WHAT SERVICES WILL BE REQUIRED DURING CONSTRUCTION. (CDD-E, PW)

35. **ENGINEERING TESTING & INSPECTION AGREEMENT.** PRIOR TO PERMIT ISSUANCE, APPLICANT SHALL EXECUTE AN ENGINEERING TESTING AND INSPECTION AGREEMENT AND SUBMIT IT TO THE CITY FOR APPROVAL. APPLICANT SHALL HIRE A TESTING FIRM TO PERFORM ENGINEERING TESTING AND INSPECTION, SUCH AS SOILS AND CONCRETE TESTING AND INSPECTION. THE APPLICANT MAY HIRE ONLY THOSE TESTING FIRMS THAT ARE LISTED ON THE SPECIAL INSPECTION AGENCY RECOGNITION LIST. THE TESTING AND INSPECTION SHALL BE DONE AT THE DIRECTION OF THE CITY INSPECTOR. THE FIRM SHALL REPORT NONCONFORMING ITEMS TO THE CITY INSPECTOR AND FURNISH DAILY, WEEKLY AND FINAL REPORTS AS OUTLINED IN THE AGREEMENT AND DIRECTED BY THE CITY INSPECTOR. (CDD-E, -B)

36. **UNDERGROUND UTILITIES.** INSTALL ALL UTILITY LINES AND FACILITIES FOR POWER AND COMMUNICATIONS UNDERGROUND WITHIN OR ADJACENT TO THE DEVELOPMENT. NO OVERHEAD SERVICES TO THE PROPERTY OR OVERHEAD EXTENSIONS OF MAIN LINES SHALL BE PERMITTED. SERVICE PLANS SHALL BE APPROVED BY THE RESPECTIVE UTILITY COMPANY AND THE CITY PRIOR TO THE RECORDATION OF THE FINAL MAP. (CDD-E, PW)

37. **STORM DRAIN SYSTEMS/HYDRAULICS.** THE PROJECT APPLICANT SHALL HAVE PREPARED CALCULATIONS DEMONSTRATING THE HYDRAULIC ADEQUACY OF NEW STORM DRAINS AND OPEN CHANNELS PROPOSED FOR A DEVELOPMENT. THE HYDRAULIC STUDY FOR STORM DRAIN SYSTEMS SHALL EVALUATE THE HYDRAULIC CAPACITY OF PROPOSED DRAINS AND EXISTING RECEIVING DRAINS TO LIMIT DOWNSTREAM, WHERE APPLICABLE, AS REQUIRED BY THE CITY STAFF. (CDD- PW)
38. **STORMWATER CONTROL PLAN.** THE APPLICANT SHALL SUBMIT A REVISED/UPDATED STORMWATER CONTROL PLAN (SWCP) THAT ADDRESSES THE BELOW COMMENTS AND REFLECTS THE CHANGE IN STORMWATER REQUIREMENTS BASED ON THE CHANGE IN DESIGN CONCEPT. PLEASE EXPLAIN IF ANY OF THE ABOVE COMMENTS NO LONGER APPLY TO THE PROJECT. PLEASE SHOW ALL OF THE DRAINAGE MANAGEMENT AREAS (DMA'S), THE DECENTRALIZED APPROACH TO STORMWATER MANAGEMENT AND REVISED CALCULATIONS.

    BELOW IS A SUMMARY OF COMMENTS MADE REGARDING THE STORMWATER COMPLIANCE OF THIS PROJECT BEGINNING IN 2017. PLEASE NOTE THAT SOME OF THESE COMMENTS MAY NO LONGER BE RELEVANT:

    A. SITE IS ADJACENT TO WATSONVILLE SLOUGH AND ALL EROSION AND SEDIMENT CONTROL MEASURE NEED TO BE CAREFULLY FOLLOWED TO ENSURE THAT THE SLOUGH IS NOT IMPACTED DURING GRADING AND CONSTRUCTION.

    B. PRELIMINARY STORMWATER CONTROL PLAN: TO COMPLY WITH THE LOW IMPACT DEVELOPMENT STRATEGIES, IMPROVE STORMWATER QUALITY, AND MIMIC PRE- HYDROLOGIC IMPACT AS REQUIRED BY THE CITY POST-CONSTRUCTION STANDARDS, THE PROJECT SHALL INCORPORATE THE FOLLOWING ITEMS INTO THE DESIGN:

        1. SHOW THE LOCATIONS ON THE PLAN OF THE LOW-LYING VEGETATED AREAS RECEIVING RUNOFF FROM IMPERVIOUS SURFACES AS DESCRIBED ON PAGE 6 OF THE PRELIMINARY STORMWATER CONTROL PLAN.

        2. DESCRIBE HOW THE 4% METHOD MEETS THE TIER 2 TREATMENT REQUIREMENTS IN RETAINING THE 85TH PERCENTILE 24-HR STORM EVENT OR WITH BIOFILTRATION IN TREATING RUNOFF PRODUCED FROM A RAIN INTENSITY OF AT LEAST 0.2 IN/HR.

        3. UNDER THE PCR PERFORMANCE REQUIREMENT NO. 3, PAGE PCR-9, SECTION V) (1), THE APPLICANT IS REQUIRED BY THE CITY TO USE STRUCTURAL STORMWATER CONTROL MEASURES THAT OPTIMIZE RETENTION AND RESULT IN OPTIMAL PROTECTION AND RESTORATION OF WATERSHED PROCESSES, SUCH AS STRUCTURAL CONTROL MEASURES ASSOCIATED WITH SMALL SCALE, DECENTRALIZED FACILITIES DESIGN TO INFILTRATE, EVAPOTRANSPIRATE, FILTER, OR CAPTURE AND USE STORMWATER. THE CITY STAFF RECOGNIZED THE CONSTRAINTS AND DIFFICULTIES TO PROVIDE DECENTRALIZED FACILITIES UPSTREAM AT THIS PARTICULAR PROJECT. HOWEVER, TO BEST MIMIC THE PRE-EXISTING HYDROLOGIC PROCESSES, THE CITY STAFF RECOMMENDS THE FOLLOWING ITEMS TO INCORPORATE INTO THE DESIGN:

            I. USE PERMEABLE PAVERS FOR THE DRIVEWAYS FROM ON SOME LOTS TO REDUCE IMPERVIOUS AREA FOOTPRINT, REDUCE HYDROLOGIC IMPACTS, AND OFFSET FOR THE CENTRALIZED TREATMENT AND RETENTION FACILITY.

        4. DUE TO THE LARGE BIORETENTION FOOTPRINT, THE APPLICANT SHALL PROVIDE A SITE-SPECIFIC SOIL ASSESSMENT TO DETERMINE THE NATIVE SOIL SATURATED HYDRAULIC CONDUCTIVITY. BASED ON THE SOIL ASSESSMENT THE APPLICANT SHALL EVALUATE THE DESIGN TO RETAIN THE 95TH PERCENTILE 24-HR RAINFALL EVENT OR APPLY FOR TECHNICAL INFEASIBILITY. BIORETENTION AREA FOOTPRINT SHALL BE KEPT TO THE REQUIRED MINIMUM.

    C. DESCRIBE AND PROVIDE A CONCEPTUAL DESIGN FOR STORMWATER MITIGATION FOR LOMA VISTA DRIVE EXTENSION. THE MITIGATION MAY BE PROVIDED ON OR OFF-SITE.

    D. STORM DRAINAGE

        1. PROVIDE A REDUNDANT OVERFLOW INLET STRUCTURE FOR EACH OUTFALL.

        2. RECONFIGURE AND ADD AT LEAST TWO MORE DRAINAGE OUTFALLS WITH ENERGY DISSIPATORS INTO THE BIORETENTION TO SPREAD OUT THE RUNOFF DISTRIBUTION AND REDUCE EROSION. MAINTAIN THE DRAINAGE DISTRIBUTION EQUALLY FOR EACH OUTFALL TO THE MAXIMUM PRACTICAL EXTENT FEASIBLE.

    E. SWCP & DRAINAGE STUDY

        1. EACH DRAINAGE TRIBUTARY AREA FOR EACH OUTFALL SHALL BE THE DELINEATION AS THE DRAINAGE MANAGEMENT AREA (DMA) FROM WHICH THE BIORETENTION FACILITY SHALL BE SIZED FOR TREATMENT, RETENTION, AND PEAK MANAGEMENT. A BIORETENTION BASIN SHALL BE DESIGNED FOR EACH OUTFALL; A SINGLE DMA IS NOT ACCEPTABLE.

        2. EACH BIORETENTION SHALL HAVE ONE CONTROL STRUCTURE WITH A REDUNDANT OVERFLOW. THE OVERFLOW STRUCTURE SHALL CONNECT DIRECTLY TO THE OUTFALL STORM DRAIN PIPE.

    F. DEFER TO BUILDING PERMIT STAGE, PROVIDE THE FOLLOWING:

        1. THE PRE AND POST-DEVELOPMENT RUNOFF RATES SHALL BE COMPUTED FOR EACH STORMWATER OUTFALL DISCHARGING INTO THE BIORETENTION. THE DRAINAGE CALCULATIONS FOR THE TRIBUTARY DRAINAGE AREAS SHALL INCLUDE BOTH THE PERVIOUS AND IMPERVIOUS SURFACES.

        2. REVISE THE ORIFICE CONTROL SIZING CALCULATIONS TO RELEASE THE PREDEVELOPMENT FLOWRATES FOR THE TRIBUTARY DRAINAGE AREA; IT APPEARS THAT THE PREDEVELOPMENT FLOW RATES CAME FROM THE DETENTION VOLUME SIZING CALCULATIONS WHICH ONLY ACCOUNT FOR THE PERVIOUS AREAS TO BE REPLACED WITH IMPERVIOUS.

        3. PERFORM A HYDRAULIC ANALYSIS AND SIZE THE DRAINAGE PIPE SYSTEM TO CONVEY THE 25-YEAR STORM EVENT.

        4. DEMONSTRATE THAT THE OVERFLOW CONTROL STRUCTURE CAN CONVEY THE 25-YEAR STORM EVENT THROUGH THE TRASH GRATE.

        5. PROVIDE THE DRAINAGE AND HYDRAULIC ANALYSIS AS AN APPENDIX TO THE SWCP. (CDD-E, PW)

39. **DESIGN-LEVEL GEOTECHNICAL INVESTIGATION AND FINAL GRADING PLAN (MM GEO-2).** PRIOR TO ISSUANCE OF A GRADING PERMIT FOR THE PROJECT, A DESIGN-LEVEL GEOTECHNICAL INVESTIGATION SHALL BE CONDUCTED AND MUST SHOW THAT SLOPES AND RETAINING WALLS ON THE PROJECT SITE WOULD BE STABLE UNDER BOTH STATIC AND SEISMIC CONDITIONS. THE DESIGN-LEVEL GEOTECHNICAL INVESTIGATION SHALL BE PREPARED BY A REGISTERED PROFESSIONAL GEOTECHNICAL ENGINEER AND SHALL PROVIDE SLOPE STABILITY ANALYSES BASED ON THE FINAL PROJECT DESIGN AND SHALL INCLUDE ADEQUATE FACTORS OF SAFETY FOR BOTH STATIC AND SEISMIC CONDITIONS. THE DESIGN-LEVEL GEOTECHNICAL INVESTIGATION SHALL EVALUATE THE FINAL GRADING PLAN FOR THE PROJECT AS WELL AS FINAL DESIGN PLANS FOR ONSITE STRUCTURES AND FOUNDATIONS. THE DESIGN-LEVEL GEOTECHNICAL INVESTIGATION SHALL RECOMMEND SLOPE STABILIZATION MEASURES, AS NECESSARY, TO ENSURE THAT SOILS ON THE PROJECT SITE REMAIN STABLE FOLLOWING GRADING AND CONSTRUCTION OF ONSITE STRUCTURES UNDER BOTH STATIC AND SEISMIC CONDITIONS. THESE MEASURES SHALL BE INCORPORATED INTO THE FINAL GRADING PLANS TO ENSURE SLOPES ARE STABLE UNDER THE CONDITIONS ANALYZED IN THE DESIGN-LEVEL GEOTECHNICAL INVESTIGATION. SLOPE STABILIZATION MEASURES MAY INCLUDE, BUT ARE NOT LIMITED TO: DECREASING THE INCLINATION OR HEIGHT OF THE GRADED SLOPE, BACKFILLING WITH LIGHTWEIGHT MATERIAL, INSTALLING PLASTIC MESH REINFORCEMENTS OR ROCK-FILLED BUTTRESSES, INSTALLING DRAIN PIPES OR OTHER DRAINAGE SYSTEMS, INSTALLING RETAINING WALLS, OR INSTALLING ANCHORS, BOLTS, OR MICRO-PILES, OR CHEMICALLY TREATING THE SOIL TO STABILIZE THE SLOPE. (CDD-B, -E, PW)

40. **GEOTECHNICAL EVALUATION RECOMMENDATIONS.** THE PROJECT DESIGN SHALL ADHERE TO THE SPECIFIC RECOMMENDATIONS AND CRITERIA IN THE GEOTECHNICAL EVALUATION PREPARED BY MILLER PACIFIC ENGINEERING GROUP FOR THE PROJECT (PREPARED MARCH 4, 2021; REVISED JANUARY 20, 2022). (CDD-E)

PRIOR TO RECORDATION OF THE FINAL MAP, THE FOLLOWING REQUIREMENTS SHALL BE SATISFIED:

41. PROVIDE A FINAL MAP PREPARED BY OR UNDER THE DIRECTION OF A LICENSED LAND SURVEYOR OR REGISTERED CIVIL ENGINEER, PREPARED IN ACCORDANCE WITH THE SUBDIVISION MAP ACT. SUBMIT FOUR (4) COPIES OF THE FINAL MAP, ONE 8-1/2" X 11" COPY OF THE SITE PLAN, TWO COPIES OF PROPERTY BOUNDARY CLOSURE CALCULATIONS AND ONE COPY OF A RECENT TITLE REPORT. (CDD-E)

PRIOR TO AND/OR CONCURRENT WITH ISSUANCE OF PERMITS FOR GRADING AND/OR BUILDING, THE FOLLOWING REQUIREMENTS SHALL BE SATISFIED:

42. **WORKER ENVIRONMENTAL AWARENESS PROGRAM TRAINING (MM CR-2A).** BEFORE INITIATION OF GROUND-DISTURBING ACTIVITY, WORKER ENVIRONMENTAL AWARENESS PROGRAM TRAINING SHALL BE ADMINISTERED BY A QUALIFIED PALEONTOLOGIST, AS DEFINED BY SOCIETY OF VERTEBRATE PALEONTOLOGY (SVP), OR HIS OR HER DESIGNATED REPRESENTATIVE. THE TRAINING SHALL INCLUDE A BRIEF OVERVIEW OF THE SIGNIFICANCE AND LEGAL PROTECTION OF PALEONTOLOGICAL RESOURCES AS WELL AS INFORMATION REGARDING THE TYPES OF FOSSIL RESOURCES THAT WORKERS MIGHT ENCOUNTER DURING CONSTRUCTION. A COPY OF THE TRAINING PROGRAM IN THE FORM OF HANDOUTS SHALL BE LEFT WITH CONSTRUCTION MANAGERS TO DISTRIBUTE TO NEW PERSONNEL THAT JOIN THE PROJECT CONSTRUCTION CREW AFTER THE WORKER ENVIRONMENTAL AWARENESS PROGRAM TRAINING HAS BEEN ADMINISTERED. (CDD-B, -E, PW)

43. **PRE-CONSTRUCTION CALIFORNIA RED-LEGGED FROG SURVEYS (MM BIO-2K).** WITHIN TWO WEEKS OF THE INITIATION OF CONSTRUCTION ACTIVITIES, INCLUDING MOBILIZATION AND STAGING, A BIOLOGIST APPROVED BY THE USFWS AND CDFW SHALL CONDUCT A SURVEY OF THE CONSTRUCTION AREA FOR ALL LIFE STAGES OF CALIFORNIA RED-LEGGED FROG. ALL AREAS WHERE THIS SPECIES OCCURS SHALL BE AVOIDED UNTIL THE APPROVED BIOLOGIST HAS DETERMINED THAT THIS SPECIES IS NO LONGER PRESENT. NO LIFE STAGES OF THIS SPECIES SHALL BE RELOCATED WITHOUT EITHER A USFWS-APPROVED BIOLOGICAL OPINION OR A TAKE AUTHORIZATION FROM THE USFWS AND/OR CDFW. IF RELOCATION IS AUTHORIZED, THE SPECIES SHALL BE TAKEN TO THE RELOCATION SITE DETERMINED BY MITIGATION MEASURE MM BIO-2B PRIOR TO INITIATION OF CONSTRUCTION ACTIVITIES. (CDD-B, -E, PW)

44. **EXCLUSION FENCE (MM BIO-2D).** PRIOR TO PROJECT CONSTRUCTION, SILT FENCING OR WILDLIFE EXCLUSION FENCING SHALL BE USED TO PREVENT CALIFORNIA RED-LEGGED FROGS AND WESTERN POND TURTLES FROM ENTERING WORK AREAS. THIS FENCING SHALL BE INSTALLED ALONG THE BOUNDARY OF THE PROJECT FOOTPRINT EXCEPT WHERE THIS FOOTPRINT EXTENDS INTO RIPARIAN AND MARSH HABITATS IN WATSONVILLE SLOUGH. IN RIPARIAN AND MARSH HABITAT AREAS, THE FENCING SHALL BE INSTALLED ALONG THE BOUNDARY BETWEEN RIPARIAN AND DEVELOPED HABITATS. IF EQUIPMENT NEEDS TO PASS THROUGH THIS FENCING FOR WORK ACTIVITIES, A GATE SHALL BE INSTALLED TO ALLOW ACCESS AND THE FENCE SHALL BE SEALED AT THE END OF EACH WORKING DAY.

    THE EXCLUSION FENCING SHALL BE AT LEAST THREE FEET HIGH AND THE LOWER SIX INCHES OF THE FENCE SHALL BE BURIED IN THE GROUND TO PREVENT ANIMALS FROM CRAWLING UNDER. THE REMAINING 2.5 FEET SHALL BE LEFT ABOVE GROUND TO SERVE AS A BARRIER FOR ANIMALS MOVING ON THE GROUND SURFACE. THE FENCE SHALL BE PULLED TAUT AT EACH SUPPORT TO PREVENT FOLDS OR SNAGS. FENCING SHALL BE INSTALLED AND MAINTAINED IN GOOD CONDITION DURING ALL CONSTRUCTION ACTIVITIES. SUCH FENCING SHALL BE INSPECTED AND MAINTAINED DAILY UNTIL THE COMPLETION OF EACH PROJECT PHASE. THE FENCING SHALL REMAIN UNTIL THE RETAINING WALL IS INSTALLED AND ALL CONSTRUCTION EQUIPMENT IS REMOVED FROM THE AREA BETWEEN THIS WALL AND THE EXCLUSION FENCE. (CDD-B, -E, PW)

45. **WORKER ENVIRONMENTAL AWARENESS PROGRAM (MM BIO-2A).** PRIOR TO ANY GROUND DISTURBING ACTIVITIES, A BIOLOGIST APPROVED BY THE USFWS AND CDFW SHALL CONDUCT A TRAINING SESSION FOR ALL CONSTRUCTION PERSONNEL. AT A MINIMUM, THE TRAINING SHALL INCLUDE A DESCRIPTION OF THE CALIFORNIA RED-LEGGED FROG AND WESTERN POND TURTLE, THEIR HABITAT, THE IMPORTANCE OF THE SPECIES, THE MEASURES THAT ARE BEING IMPLEMENTED TO AVOID AND MINIMIZE IMPACTS AS THEY RELATE TO THE PROJECT, AND THE BOUNDARIES WITHIN WHICH THE WORK MAY BE ACCOMPLISHED. (CDD-B, -E, PW)

46. **DETERMINATION OF APPROPRIATE RELOCATION SITE(S) (MM BIO-2B).** PRIOR TO THE INITIATION OF MITIGATION MEASURES MM BIO-2C THROUGH BIO-2I, A QUALIFIED BIOLOGIST SHALL DETERMINE, IN CONSULTATION WITH THE USFWS, APPROPRIATE RELOCATION SITES FOR ANY CALIFORNIA RED-LEGGED FROGS AND WESTERN POND TURTLES WITHIN THE SAME WATERSHED/STREAM COURSE THAT MAY BE OBSERVED DURING THE PRE-ACTIVITY SURVEY DESCRIBED BELOW AND THAT NEED TO BE RELOCATED. (CDD-B, -E, PW)

47. **PRE-ACTIVITY WESTERN POND TURTLE SURVEY (MM BIO-2C).** A QUALIFIED BIOLOGIST SHALL SURVEY THE PROJECT SITE WITHIN 48 HOURS OF INITIAL GROUND-DISTURBING ACTIVITIES FOR WESTERN POND TURTLES. IF WESTERN POND TURTLES ARE FOUND THE APPROVED BIOLOGIST SHALL RELOCATE THE INDIVIDUALS TO THE APPROPRIATE RELOCATION SITE, DETERMINED AS PART OF MITIGATION MEASURE MM BIO-2B, OUTSIDE OF THE WORK AREA. ONLY THE USFWS/CDFW-APPROVED BIOLOGISTS SHALL PARTICIPATE IN ACTIVITIES ASSOCIATED WITH THE CAPTURE AND HANDLING OF WESTERN POND TURTLES. (CDD-B, -E, PW)

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DAVID RAMSEY DATE
RCE# 73735

APN# 018-372-14
PLAN TYPE
RESIDENTIAL SUBDIVISION

CONDITIONS OF APPROVAL
HILLCREST SUBDIVISION
511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

NUMBER	BY	DESCRIPTION	DATE
C	GS/DMR	RESPONSE 3 - PLAN CHECK COMMENTS 03/11/2022	03/18/2022
B	GS/DMR	RESPONSE 2 - PLAN CHECK COMMENTS 10/08/2021	01/20/2022
A	GS/DMR	RESPONSE 1 - PLAN CHECK COMMENTS 09/21/2021	09/29/2021

REVISION BLOCK

DRAWN BY:	GS
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48. **PRE-DISTURBANCE SANTA CRUZ TARPLANT SURVEY AND MITIGATION PLANTING (MM BIO-1).** PRIOR TO CONSTRUCTION OF THE PROJECT (EITHER "PHASE I OR II" AS DEFINED IN THE EIR), A FOCUSED SURVEY FOR SANTA CRUZ TARPLANT SHALL BE CONDUCTED BY A QUALIFIED BIOLOGIST IN AREAS OF THE PROJECT SITE WHERE THE QUALIFIED BIOLOGIST IDENTIFIES SUITABLE HABITAT. THE SURVEY SHALL BE CONDUCTED IN ACCORDANCE WITH THE CDFW'S *PROTOCOLS FOR SURVEYING AND EVALUATING IMPACTS TO SPECIAL STATUS NATIVE PLANT POPULATIONS AND SENSITIVE NATURAL COMMUNITIES, WHICH WAS PUBLISHED IN MARCH 2018.* THE SURVEY SHALL BE CONDUCTED DURING THE SPECIES' BLOOMING PERIOD (MAY-NOVEMBER), AND FINDINGS OF THE SURVEY SHALL BE SUBMITTED TO THE CITY OF WATSONVILLE FOR REVIEW AND APPROVAL.

IF A POPULATION OF SANTA CRUZ TARPLANT IS FOUND, MITIGATION FOR THE LOSS OF INDIVIDUALS SHALL BE CONDUCTED. MITIGATION SHALL BE ACHIEVED BY ESTABLISHING A NEW POPULATION OF SANTA CRUZ TARPLANT IN AN AREA APPROVED BY THE USFWS AND CDFW. THIS AREA SHALL NOT BE DEVELOPED AND SHALL CONTAIN SUITABLE HABITAT TYPES FOR ESTABLISHING A NEW POPULATION. MITIGATION SHALL BE A 1:1 RATIO (IMPACT MITIGATION) OF PLANT ESTABLISHMENT ON AN ACREAGE BASIS, OR OTHER RATIO OR ALTERNATIVE MITIGATION AS DETERMINED NECESSARY BY CDFW.

MONITORING OF THE NEW MITIGATION POPULATION SHALL OCCUR ANNUALLY. ANNUAL MONITORING SHALL INCLUDE QUANTITATIVE SAMPLING OF THE SANTA CRUZ TARPLANT POPULATION TO DETERMINE THE NUMBER OF PLANTS THAT HAVE GERMINATED AND SET SEED. THIS MONITORING SHALL CONTINUE ANNUALLY OR UNTIL SUCCESS CRITERIA HAVE BEEN MET; ONCE ANNUAL MONITORING HAS DOCUMENTED THAT A SELF-SUSTAINING POPULATION OF THIS ANNUAL SPECIES HAS BEEN SUCCESSFULLY ESTABLISHED ON SITE, THIS MITIGATION MEASURE SHALL BE DETERMINED TO HAVE BEEN MET AND THE PROJECT APPLICANT RELEASED FROM FURTHER RESPONSIBILITY.

ESTABLISHMENT OF THE PLANT POPULATION SHALL BE SUBJECT TO A HABITAT MITIGATION AND MONITORING PLAN. TO ENSURE THE SUCCESS OF MITIGATION SITES REQUIRED FOR COMPENSATION OF PERMANENT IMPACTS ON SANTA CRUZ TARPLANT, THE PROJECT APPLICANT SHALL RETAIN A QUALIFIED BIOLOGIST TO PREPARE A HABITAT MITIGATION AND MONITORING PLAN. THE HABITAT MITIGATION AND MONITORING PLAN SHALL BE SUBMITTED TO THE CITY OF WATSONVILLE FOR REVIEW AND APPROVAL PRIOR TO THE START OF CONSTRUCTION. THE HABITAT MITIGATION AND MONITORING PLAN SHALL INCLUDE, AT A MINIMUM, THE FOLLOWING INFORMATION:

- A SUMMARY OF HABITAT AND SPECIES IMPACTS AND THE PROPOSED MITIGATION FOR EACH ELEMENT
- A DESCRIPTION OF THE LOCATION AND BOUNDARIES OF THE MITIGATION SITE(S) AND DESCRIPTION OF EXISTING SITE CONDITIONS
- A DESCRIPTION OF ANY MEASURES TO BE UNDERTAKEN TO ENHANCE (E.G., THROUGH FOCUSED MANAGEMENT) THE MITIGATION SITE FOR SPECIAL-STATUS SPECIES
- IDENTIFICATION OF AN ADEQUATE FUNDING MECHANISM FOR LONG-TERM MANAGEMENT
- A DESCRIPTION OF MANAGEMENT AND MAINTENANCE MEASURES INTENDED TO MAINTAIN AND ENHANCE HABITAT FOR THE TARGET SPECIES (E.G., WEED CONTROL, FENCING MAINTENANCE)
- A DESCRIPTION OF HABITAT AND SPECIES MONITORING MEASURES ON THE MITIGATION SITE, INCLUDING SPECIFIC, OBJECTIVE PERFORMANCE CRITERIA, MONITORING METHODS, DATA ANALYSIS, REPORTING REQUIREMENTS, MONITORING SCHEDULE, ETC. MONITORING WILL DOCUMENT COMPLIANCE WITH EACH ELEMENT REQUIRING HABITAT COMPENSATION OR MANAGEMENT. AT A MINIMUM, PERFORMANCE CRITERIA WILL INCLUDE A MINIMUM 1:1 MITIGATION RATIO FOR THE NUMBER OF PLANTS IN THE IMPACTED POPULATION (AT LEAST ONE PLANT PRESERVED FOR EACH PLANT IMPACTED).
- A CONTINGENCY PLAN FOR MITIGATION ELEMENTS THAT DO NOT MEET PERFORMANCE OR FINAL SUCCESS CRITERIA WITHIN DESCRIBED PERIODS; THE PLAN WILL INCLUDE SPECIFIC TRIGGERS FOR REMEDIATION IF PERFORMANCE CRITERIA ARE NOT MET AND A DESCRIPTION OF THE PROCESS BY WHICH REMEDIATION OF PROBLEMS WITH THE MITIGATION SITE (E.G., PRESENCE OF NOXIOUS WEEDS) WILL OCCUR

A REQUIREMENT THAT THE PROJECT PROPONENT WILL BE RESPONSIBLE FOR MONITORING, AS SPECIFIED IN THE HABITAT MITIGATION AND MONITORING PLAN, FOR AT LEAST THREE (3) YEARS POST-CONSTRUCTION; DURING THIS PERIOD, ANNUAL REPORTING WILL BE PROVIDED TO THE CITY'S SUPERVISING ENVIRONMENTAL PLANNER. AT THE REQUEST OF THE CDFW OR USFWS, THE ANNUAL REPORTING SHALL ALSO BE PROVIDED TO THESE AGENCIES. (CDD-B, -E, PW)

DURING CONSTRUCTION, THE FOLLOWING CONDITIONS SHALL BE ADHERED TO:

49. **NOISE.** NOISE-GENERATING CONSTRUCTION EQUIPMENT, INCLUDING TRUCK TRAFFIC ARRIVING AND DEPARTING THE SITE, SHALL NOT OCCUR BETWEEN THE HOURS OF 7:00 P.M. AND 7:00 A.M., MONDAY THROUGH SATURDAY. NO BUILDING ACTIVITY WILL BE ALLOWED ON SUNDAYS OR HOLIDAYS. (CDD-B, PW)

50. **NOISE ABATEMENT.** ALL CONSTRUCTION EQUIPMENT POWERED BY INTERNAL COMBUSTION ENGINES SHALL BE PROPERLY MUFFLED AND MAINTAINED. ALL STATIONARY NOISE GENERATING CONSTRUCTION EQUIPMENT SUCH AS AIR COMPRESSORS SHALL BE LOCATED AS FAR AS PRACTICAL FROM THE EXISTING RESIDENCES. SUCH EQUIPMENT SHALL BE ACOUSTICALLY SHIELDED WHERE POSSIBLE. THE PRUDENT SELECTION OF EQUIPMENT ALONG WITH THE USE OF PROPER MUFFLERS SHOULD RESULT IN MAXIMUM CONSTRUCTION-RELATED NOISE GENERATED BY A PARTICULAR PIECE OF EQUIPMENT OF NO MORE THAN 85 DBA WHEN MEASURED AT A DISTANCE OF 50 FEET FROM THE PIECE OF EQUIPMENT OPERATING AT ITS NOISIEST MODE. (CDD-B, PW)

51. **CONSTRUCTION NOISE REDUCTION TECHNIQUES (MM N-6).** THE APPLICANT SHALL IMPLEMENT THE FOLLOWING CONSTRUCTION NOISE REDUCTION TECHNIQUES DURING CONSTRUCTION ACTIVITIES:
    A. DURING PROJECT CONSTRUCTION, ALL EQUIPMENT, FIXED OR MOBILE, SHALL BE OPERATED WITH CLOSED ENGINE DOORS AND SHALL BE EQUIPPED WITH PROPERLY OPERATING AND MAINTAINED MUFFLERS CONSISTENT WITH MANUFACTURERS' STANDARDS.
    B. THE CONTRACTOR SHALL PROVIDE STAGING AREAS ONSITE TO MINIMIZE OFF-SITE TRANSPORTATION OF HEAVY CONSTRUCTION EQUIPMENT. THESE AREAS SHALL BE LOCATED TO MAXIMIZE THE DISTANCE BETWEEN ACTIVITY AND SENSITIVE RECEPTORS. THIS WOULD REDUCE NOISE LEVELS ASSOCIATED WITH MOST TYPES OF IDLING CONSTRUCTION EQUIPMENT.
    C. A TEMPORARY SOUND ATTENUATION BARRIER SHALL BE ERECTED ALONG THE NORTH, SOUTH, AND WEST EDGE OF THE PROJECT SITE IMMEDIATELY SUBSEQUENT TO THE COMPLETION OF THE GRADING ACTIVITIES ALONG THE WESTERLY EDGE OF THE PROJECT SITE. THIS BARRIER MUST BREAK THE LINE OF SIGHT BETWEEN CONSTRUCTION AREAS
    AND THE GROUND FLOOR LEVEL OF ADJACENT RESIDENCES TO THE WEST AND SHALL BE DESIGNED TO ACHIEVE THE MAXIMUM SOUND ATTENUATION FEASIBLE. BARRIER DESIGN AND ITS ACOUSTIC PROPERTIES SHALL BE BASED ON A SITE-SPECIFIC ACOUSTIC ANALYSIS PREPARED BY A QUALIFIED ACOUSTIC ENGINEER PRIOR TO ISSUANCE OF GRADING OR CONSTRUCTION PERMITS.
    D. DURING PROJECT CONSTRUCTION, ALL UNNECESSARY IDLING OF EQUIPMENT WITH INTERNAL COMBUSTION ENGINES SHALL BE PROHIBITED.
    E. HEAVY CONSTRUCTION ACTIVITY SHALL BE LIMITED TO WEEKDAYS BETWEEN 9:00 AM AND 5:00 PM AND SATURDAYS BETWEEN 9:00 AM AND 4:00 PM, WITH NO CONSTRUCTION ON SUNDAYS OR HOLIDAY. THIS MEASURE IS APPLICABLE THROUGH THE DURATION OF ALL GRADING ACTIVITIES.
    F. THE PROJECT APPLICANT SHALL DESIGNATE A "DISTURBANCE COORDINATOR" WHO WOULD BE RESPONSIBLE FOR RESPONDING TO ANY COMPLAINTS ABOUT CONSTRUCTION NOISE. THE DISTURBANCE COORDINATOR SHALL BE RESPONSIBLE FOR DETERMINING THE CAUSE OF THE NOISE COMPLAINT (E.G., BAD MUFFLER, ETC.) AND SHALL REQUIRE THAT REASONABLE MEASURES BE IMPLEMENTED TO CORRECT THE PROBLEM TO THE SATISFACTION OF THE COMMUNITY DEVELOPMENT DIRECTOR.
    G. THE PROJECT APPLICANT AND/OR CONSTRUCTION CONTRACTOR(S) MUST USE THE NEWEST AVAILABLE POWER CONSTRUCTION EQUIPMENT WITH STANDARD RECOMMENDED NOISE SHIELDING AND MUFFLING DEVICES.(CDD-B, PW)

52. **NOISE COMPLIANT NOTICE.** REQUIRE POSTING OF SIGNS ON THE PROPERTY THAT INFORMS RESIDENTS OF THE NAME AND PHONE NUMBER OF THE PERSON DESIGNATED BY THE APPLICANT TO ADDRESS NOISE COMPLAINTS ARISING FROM PROJECT CONSTRUCTION. THIS "DISTURBANCE COORDINATOR" SHALL BE REQUIRED TO INVESTIGATE CITIZEN COMPLAINTS WITHIN 24 HOURS OF RECEIVING THE COMPLAINT AND CONTACT THE CONCERNED PARTY TO EXPLAIN HOW THE PROBLEM HAS BEEN ADDRESSED WITHIN 48 HOURS OF THE COMPLAINT. (CDD-E)

53. **WORK HOURS.** NO WORK SHALL BE PERFORMED WITHIN THE HOURS OF 7 P.M. TO 7 A.M. MONDAY THROUGH FRIDAY, NOR PRIOR TO 8 A.M. OR AFTER 5 P.M. ON SATURDAY. NO WORK SHALL OCCUR ON SUNDAYS OR HOLIDAYS. A SIGN SHALL BE POSTED AT A CONSPICUOUS LOCATION NEAR THE MAIN ENTRY TO THE SITE, PROMINENTLY DISPLAYING THESE HOUR RESTRICTIONS AND IDENTIFYING THE PHONE # OF THE JOB SUPERINTENDENT. (CDD-B)

54. **GRADING AREA.** LIMITS OF GRADING SHALL BE STAKED OR FLAGGED IN THE FIELD. (CDD-B, - E, PW)

55. **PREVENTION OF ENTRAPMENT (MM BIO-2E).** TO PREVENT THE INADVERTENT ENTRAPMENT OF INDIVIDUALS, ALL EXCAVATED, STEEP-WALLED HOLES OR TRENCHES SHALL BE COVERED AT THE END OF EACH WORKDAY WITH PLYWOOD OR SIMILAR MATERIALS. IF THIS IS NOT POSSIBLE, ONE OR MORE ESCAPE RAMPS CONSTRUCTED OF EARTH FILL OR WOODEN PLANKS SHALL BE ESTABLISHED IN THE HOLE. BEFORE SUCH HOLES OR TRENCHES ARE FILLED, THEY SHALL BE THOROUGHLY INSPECTED FOR ANY ANIMALS. IF AT ANY TIME A CALIFORNIA RED-LEGGED FROG IS FOUND TRAPPED OR INJURED IN THESE HOLES, THE INDIVIDUAL SHALL BE RELOCATED TO THE PRE- APPROVED RELOCATION SITE(S) IDENTIFIED AS PART OF MITIGATION MEASURE MM BIO-2B BY AN APPROVED BIOLOGIST. (CDD-B, -E, PW)

56. **DELINEATION OF WORK AREA (MM BIO-2F).** THE BOUNDARIES OF THE WORK AREA SHALL BE CLEARLY DELINEATED WITH ENVIRONMENTALLY SENSITIVE AREA FENCING (ORANGE-COLORED, PLASTIC CONSTRUCTION FENCING), TO PREVENT WORKERS OR EQUIPMENT FROM INADVERTENTLY
STRAYING FROM THE WORK AREA. ALL CONSTRUCTION PERSONNEL, EQUIPMENT, AND VEHICLE MOVEMENT SHALL BE CONFINED TO DESIGNATED CONSTRUCTION AND STAGING AREAS. STAGING AREAS ARE RESTRICTED TO AREAS DELINEATED IN THE PROJECT PLANS AND ENCOMPASSED BY THE ENVIRONMENTALLY SENSITIVE AREA FENCING. (CDD-B, -E, PW)

57. **FOOD TRASH REMOVAL (MM BIO-2G).** ALL FOOD TRASH FROM PROJECT PERSONNEL SHALL BE PLACED IN CONTAINERS WITH SECURE LIDS BEFORE THE END OF WORK EACH DAY IN ORDER TO REDUCE THE LIKELIHOOD OF ATTRACTING PREDATORS TO THE PROJECT SITE. IF CONTAINERS MEETING THESE CRITERIA ARE NOT AVAILABLE, ALL RUBBISH SHALL BE REMOVED FROM THE PROJECT SITE AT THE END OF EACH WORK DAY. (CDD-B, -E, PW)

58. **BIOLOGICAL MONITORING (MM BIO-2H).** A BIOLOGIST APPROVED BY THE USFWS AND CDFW SHALL REMAIN ONSITE AT ALL TIMES DURING PROJECT ACTIVITIES THAT OCCUR WITHIN MAPPED RIPARIAN RUDERAL GRASSLAND, RIPARIAN ORNAMENTAL WOODLAND, AND PERENNIAL FRESHWATER MARSH HABITATS. PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES EACH DAY, THE CDFW/USFWS-APPROVED BIOLOGIST SHALL SURVEY THE PROJECT SITE TO ENSURE NO SPECIAL-STATUS SPECIES ARE WITHIN THE WORK AREA. AT ALL TIMES BIOLOGICAL MONITORS SHALL BE LOCATED ON THE PROJECT SITE SO THAT EACH AREA OF WORK CAN BE OBSERVED TO AVOID TAKE OF SPECIAL-STATUS SPECIES. ANY CALIFORNIA RED-LEGGED FROGS FOUND IN AREAS WHERE THEY COULD BE IMPACTED BY WORK ACTIVITIES SHALL BE RELOCATED TO THE PRE- APPROVED RELOCATION SITE(S) IDENTIFIED BY MITIGATION MEASURE MM BIO-2B. IF ANY CALIFORNIA RED-LEGGED FROGS ARE KILLED OR INJURED DURING WORK ACTIVITIES, THE USFWS SHALL BE CONTACTED WITHIN 24 HOURS. THE CDFW/USFWS-APPROVED BIOLOGIST SHALL HAVE THE AUTHORITY TO HALT ANY ACTION THAT MAY RESULT IN THE TAKE OF SPECIAL-STATUS SPECIES. (CDD-B, -E, PW)

59. **WORK WINDOW (MM BIO-2I).** PROJECT INITIAL SITE GRADING, SURFACE TRASH AND FENCE REMOVAL, TREE PRUNING, OUTFALL CONSTRUCTION, AND SOIL REMEDIATION ACTIVITIES SHALL BE RESTRICTED TO THE DRY SEASON (I.E., APRIL 15 THROUGH OCTOBER 15), AND NO VEGETATION REMOVAL OR PROJECT WORK IN MAPPED RIPARIAN OR PERENNIAL FRESHWATER MARSH HABITATS SHALL OCCUR DURING OR WITHIN 24 HOURS FOLLOWING A MEASURABLE RAINFALL EVENT. (CDD- B, -E, PW)

60. **DOCUMENTATION AND REPORTING (MM BIO-2J).** IF FEDERALLY AND/OR STATE PROTECTED SPECIES ARE HARMED, A BIOLOGIST APPROVED BY THE USFWS AND CDFW SHALL DOCUMENT THE CIRCUMSTANCES THAT LED TO HARM AND SHALL DETERMINE IF PROJECT ACTIVITIES SHOULD CEASE OR BE ALTERED IN AN EFFORT TO AVOID ADDITIONAL HARM TO THESE SPECIES. DEAD OR INJURED SPECIAL STATUS-SPECIES SHALL BE DISPOSED OF AT THE DISCRETION OF THE CDFW AND USFWS. ALL INCIDENCES OF HARM SHALL BE REPORTED TO THE CDFW AND USFWS WITHIN 48 HOURS. (CDD-B, -E, PW)

61. **CALIFORNIA RED-LEGGED FROG HABITAT AVOIDANCE AND MINIMIZATION (MM BIO- 2L).** IF CALIFORNIA RED-LEGGED FROGS ARE DETECTED IN THE VICINITY OF THE PROJECT SITE, A BIOLOGIST APPROVED BY THE USFWS AND CDFW SHALL BE PRESENT ONSITE DURING ALL GROUND DISTURBING ACTIVITIES, INCLUDING VEGETATION REMOVAL, GRADING, AND EXCLUSION FENCE INSTALLATION AND REMOVAL. ONCE THESE ACTIVITIES HAVE BEEN COMPLETED, THE APPROVED BIOLOGIST SHALL CONDUCT PERIODIC INSPECTIONS OF THE WORK SITE OF NOT LESS THAN ONCE PER WEEK WHEN CONSTRUCTION ACTIVITIES ARE OCCURRING IN/ADJACENT TO SUITABLE HABITAT. ADDITIONAL SITE VISITS SHOULD OCCUR DURING RAIN EVENTS WHEN SPECIAL- STATUS AMPHIBIANS ARE LIKELY TO BE MOBILE TO ENSURE THAT THEY ARE NOT ENTERING WORK
AREAS. WORK ACTIVITIES IN OR ADJACENT TO SUITABLE HABITAT SHALL BE COMPLETED BETWEEN APRIL 15 AND OCTOBER 15 TO THE GREATEST EXTENT FEASIBLE.

ALL VEHICLE MAINTENANCE/FUELING/STAGING SHALL OCCUR NO LESS THAN 100 FEET FROM ANY RIPARIAN HABITAT OR WATER BODY. SUITABLE CONTAINMENT PROCEDURES SHALL BE IMPLEMENTED TO PREVENT SPILLS. A MINIMUM OF ONE SPILL KIT SHALL BE AVAILABLE AT EACH WORK LOCATION NEAR RIPARIAN HABITAT OR WATER BODIES.

THE CDFW/USFWS-APPROVED BIOLOGIST SHALL REMOVE INVASIVE AQUATIC SPECIES SUCH AS BULLFROGS AND CRAYFISH FROM SUITABLE AQUATIC HABITAT WHENEVER OBSERVED AND SHALL DISPATCH THEM IN A HUMANE MANNER AND DISPOSE OF PROPERLY. (CDD-B, - E, PW)

62. **ONSITE RIPARIAN ENHANCEMENT (MM BIO-2M).** THE PROJECT APPLICANT SHALL COMPENSATE FOR PROJECT IMPACTS ON BREEDING AND FORAGING HABITAT FOR CALIFORNIA RED- LEGGED FROGS BY RESTORING HIGH QUALITY, NATURAL/HISTORICAL FUNCTIONS TO THE LOW-QUALITY, DEGRADED RIPARIAN HABITAT AND PERENNIAL FRESHWATER MARSH HABITAT WITHIN THE PROJECT SITE, AS DESCRIBED IN THE SUNSHINE VISTA DEVELOPMENT PROJECT MITIGATION AND MONITORING PLAN (MMP) PREPARED BY H.T. HARVEY & ASSOCIATES (APPENDIX G TO THE DRAFT EIR FOR THE PROJECT). THE PROPOSED MITIGATION SHALL BE COMMENSURATE WITH THE AMOUNT AND TYPE OF IMPACT ARISING FROM THE PHASED DEVELOPMENT OF THE PROJECT, AND SHALL PROVIDE HABITAT FOR THE CALIFORNIA RED-LEGGED FROG OF GREATER VALUE THAN THE HABITAT BEING AFFECTED ON THE PROJECT SITE.

THE PROJECT APPLICANT SHALL USE A COMBINATION OF NONNATIVE EUCALYPTUS REMOVAL, SELECTIVE INVASIVE PLANT CONTROL, AND ARROYO WILLOW REVEGETATION TO RESTORE NATIVE WILLOW THICKET HABITAT ALONG WATSONVILLE SLOUGH, AS DESCRIBED IN THE MMP. BOTH TEMPORARY AND PERMANENT IMPACTS TO PERENNIAL FRESHWATER MARSH HABITAT FROM THE PHASED DEVELOPMENT OF THE PROJECT SHALL BE RESTORED THROUGH NATURAL RE- ESTABLISHMENT AND ACTIVE PLANTING WITH LOCALLY COLLECTED ARROYO WILLOW THICKET PLANTINGS. THESE PLANTINGS SHALL PROVIDE COVER, FORAGING OPPORTUNITIES, AND EGG MASS ATTACHMENT SITE FOR CALIFORNIA RED-LEGGED FROGS. NATIVE WILLOW CUTTINGS SHALL BE PLANTED IN 50-FOOT-LONG BY 10-FOOT-WIDE THICKETS ALONG THE WATERLINE ALONG APPROXIMATELY 1,400 LINEAR FEET OF SLOUGH ADJACENT TO AND IN THE PROJECT SITE. THE THICKETS SHALL BE SEPARATED BY APPROXIMATELY 50-FOOT-LONG GAPS TO PROMOTE NATURAL RECRUITMENT AND HABITAT DIVERSITY ALONG THE SLOUGH EDGE. INITIAL WILLOW THICKET PLANTING EFFORT SHALL PROVIDE APPROXIMATELY 0.16 ACRE OF NATIVE DOMINATED RIPARIAN HABITAT.

APPROXIMATELY 83 NONNATIVE EUCALYPTUS TREES AND UP TO 10 ADDITIONAL NONNATIVE TREES WOULD BE CUT AND REMOVED FROM THE MITIGATION AREA. EACH STUMP SHALL BE CUT AT GROUND LEVEL AND LEFT IN PLACE TO MINIMIZE GROUND DISTURBANCE AND PRESERVE BANK STABILITY. NO NATIVE RIPARIAN TREES SHALL BE REMOVED. PRIOR TO TREE REMOVAL ACTIVITIES, A QUALIFIED BIOLOGIST SHALL CONDUCT A TREE SURVEY TO IDENTIFY ALL EXISTING TREES WITHIN THE RESTORATION AREA TO ENSURE ONLY NON- NATIVE TREES WILL BE REMOVED. ALL NONNATIVE TREES TO BE REMOVED SHALL BE FLAGGED CLEARLY IN THE FIELD BY THE QUALIFIED BIOLOGIST AND REMOVED TO ENSURE THE SUCCESS OF PLANTING AND RECRUITMENT OF NATIVE RIPARIAN PLANTS. BECAUSE THE EUCALYPTUS TREES IN THE MITIGATION AREA ARE MATURE AND HAVE EXTENSIVE ROOT SYSTEMS, THE EUCALYPTUS STUMPS SHALL BE LEFT IN PLACE. LEAVING THESE IN PLACE WILL PREVENT BANK FAILURE OR DESTABILIZATION WHILE STILL REMOVING THE
UNDESIRABLE LITTER INPUT AND SHADING OF THE SHORELINE. THE STUMPS SHALL BE GROUND DOWN TO SURFACE LEVEL. HOWEVER, ONGOING CONTROL ACTIVITIES SHALL BE REQUIRED TO PREVENT RE-SPROUTING OF THESE TREES. THE PROJECT APPLICANT SHALL BE RESPONSIBLE FOR CONDUCTING CONTROL ACTIVITIES. RE-SPROUTING CONTROL ACTIVITIES SHALL BE CONDUCTED WITH HAND TOOLS AND POWER TOOLS THAT DO NOT REQUIRE GROUND DISTURBANCE, SUCH AS PRUNING SHEARS, HAND SAWS AND CHAIN SAWS. SIMILARLY, BACKPACK SPRAYERS NOT REQUIRING GROUND DISTURBANCE SHALL BE USED FOR APPLICATION OF HERBICIDES TO CONTROL RE- SPROUTING. CONTROL ACTIVITIES SHALL BE CONDUCTED FOR A PERIOD OF TWO YEARS, COMMENCING WITHIN 30 DAYS OF STUMP GRINDING. AN ASSESSMENT SHALL BE MADE AFTER TWO YEARS TO DETERMINE IF THE APPLICANT MUST CONTINUE TO IMPLEMENT CONTROL ACTIVITIES OR IF SPROUTING HAS EFFECTIVELY BEEN PREVENTED. EVENTUALLY POISON OAK AND BLACKBERRY WILL LIKELY EXPAND TO COVER THE STUMP AREAS.

REMOVAL AND ONGOING CONTROL OF NONNATIVE, INVASIVE SPECIES SHALL BE REQUIRED IN THE IMMEDIATE VICINITY OF THE WILLOW THICKET PLANTING AREAS. HOWEVER, DUE TO THE POTENTIAL PRESENCE OF CALIFORNIA RED-LEGGED FROGS AND THEIR LIKELY USE OF AREAS BELOW THE DENSE HIMALAYAN BLACKBERRY, AND IVY VEGETATION, THE APPLICANT SHALL NOT REMOVE THE UNDERSTORY WEED INFESTATIONS WITHIN THE RESTORED RIPARIAN HABITAT. DISTURBANCE FROM OUTFALL TRENCHING AREAS SHALL BE RE-SEEDED WITH A NATIVE GRASSLAND SEED MIX FOR EROSION CONTROL, AND ALLOWED TO NATURALLY REVEGETATE WITH POISON OAK AND BLACKBERRY.

THE SOIL REMEDIATION AREA BELOW TOP OF BANK ON APN 018-381-01 SHALL BE CAPPED DUE TO LEACHABLE LEAD. IT SHALL BE EXCAVATED, CAPPED WITH AN IMPERMEABLE ASPHALT OR CONCRETE CAP, AND THEN TWO FEET OF CLEAN, IMPORT SOIL SHALL BE PLACED OVER THE CAP IN A STABLE CONFIGURATION. THIS CAPPED AREA SHALL BE SEEDED WITH A NATIVE GRASSLAND MIX, PLANTED WITH CALIFORNIA ROSE, POISON OAK, AND COYOTE BRUSH, AND SHALL BE MAINTAINED AS A SENSITIVE HABITAT AREA BEHIND THE SPLIT RAIL FENCE.

THE PROJECT APPLICANT SHALL SUBMIT THE MMP TO THE USFWS FOR APPROVAL AT LEAST 30 CALENDAR DAYS BEFORE THE DATE OF INITIAL GROUND DISTURBANCE REQUIRED FOR THE PHASED DEVELOPMENT OF THE PROJECT. GROUND DISTURBANCE SHALL NOT BE INITIATED UNTIL APPROVAL OF THE MMP HAS BEEN RECEIVED FROM THE USFWS. THE PROJECT APPLICANT IS ULTIMATELY RESPONSIBLE FOR OVERSEEING IMPLEMENTATION OF ACTIVITIES DESCRIBED IN THE MMP, INCLUDING ANY MODIFICATIONS, REVISIONS, OR ADDITIONS PENDING USFWS APPROVAL, AND SHALL BE RESPONSIBLE FOR FUNDING THE PLANNING AND IMPLEMENTATION OF ANY REMEDIAL MEASURES REQUIRED BY THE USFWS. (CDD-B, -E, PW)

63. **NESTING BIRD AVOIDANCE (MM BIO-3).** TO THE EXTENT FEASIBLE, CONSTRUCTION ACTIVITIES SHALL BE SCHEDULED TO AVOID THE NESTING SEASON. IF CONSTRUCTION ACTIVITIES ARE SCHEDULED TO TAKE PLACE OUTSIDE THE NESTING SEASON, ALL IMPACTS ON NESTING BIRDS PROTECTED UNDER THE MIGRATORY BIRD TREATY ACT AND CALIFORNIA FISH AND GAME CODE WILL BE AVOIDED. THE NESTING SEASON FOR MOST BIRDS IN SANTA CRUZ COUNTY EXTENDS FROM FEBRUARY 1 THROUGH AUGUST 31.

IF IT IS NOT POSSIBLE TO SCHEDULE CONSTRUCTION ACTIVITIES BETWEEN SEPTEMBER 1 AND JANUARY 31 THEN PRECONSTRUCTION SURVEYS FOR NESTING BIRDS SHALL BE CONDUCTED BY A QUALIFIED ORNITHOLOGIST TO ENSURE THAT NO NESTS WILL BE DISTURBED DURING PROJECT IMPLEMENTATION. THESE SURVEYS SHALL BE CONDUCTED NO MORE THAN SEVEN DAYS PRIOR TO THE INITIATION OF CONSTRUCTION ACTIVITIES AND SHALL BE CONDUCTED PRIOR TO TREE
REMOVAL, TREE TRIMMING, OR OTHER VEGETATION CLEARING. DURING THE SURVEY, THE ORNITHOLOGIST SHALL INSPECT ALL TREES AND OTHER POTENTIAL NESTING HABITATS, INCLUDING TREES, SHRUBS, RUDERAL GRASSLANDS, AND BUILDINGS IN AND IMMEDIATELY ADJACENT TO THE IMPACT AREAS FOR NESTS.

IF AN ACTIVE NEST IS FOUND SUFFICIENTLY CLOSE TO WORK AREAS TO BE DISTURBED BY THESE ACTIVITIES, THE ORNITHOLOGIST SHALL DETERMINE THE EXTENT OF A CONSTRUCTION-FREE BUFFER ZONE TO BE ESTABLISHED AROUND THE NEST (TYPICALLY 300 FEET FOR RAPTORS AND 100 FEET FOR OTHER SPECIES), TO ENSURE THAT NO NESTS OF SPECIES PROTECTED BY THE MIGRATORY BIRD TREATY ACT AND CALIFORNIA FISH AND GAME CODE SHALL BE DISTURBED DURING PROJECT IMPLEMENTATION.

IF CONSTRUCTION ACTIVITIES ARE NOT BE INITIATED UNTIL AFTER THE START OF THE NESTING SEASON, ALL POTENTIAL NESTING SUBSTRATES, INCLUDING BUSHES, TREES, GRASSES, AND OTHER VEGETATION, THAT ARE SCHEDULED TO BE REMOVED BY THE PROJECT SHALL BE REMOVED PRIOR TO THE START OF THE NESTING SEASON ON FEBRUARY 1. THIS WILL PRECLUDE THE INITIATION OF NESTS IN THIS VEGETATION, AND PREVENT THE POTENTIAL DELAY OF THE PROJECT DUE TO THE PRESENCE OF ACTIVE NESTS IN THESE SUBSTRATES. (CDD-B, -E, PW)

64. **PREVENT THE SPREAD OF INVASIVE SPECIES (MM BIO-4).** INVASIVE PLANTS FOUND WITHIN THE PHASE ONE AND TWO FOOTPRINTS SHALL BE REMOVED AND DISPOSED OF IN A SANITARY LANDFILL, INCINERATED OFF-SITE, OR DISPOSED OF IN A HIGH-TEMPERATURE COMPOSTING FACILITY THAT CAN COMPOST USING METHODS KNOWN TO KILL WEED SEEDS. HIMALAYAN BLACKBERRY HAS HABITAT VALUES FOR THE CALIFORNIA RED-LEGGED FROG AND SHALL NOT BE SYSTEMATICALLY REMOVED FROM THE PROJECT SITE. WHEN REMOVING INVASIVE PLANT MATERIAL FROM THE RIPARIAN HABITAT, SEED AND/OR PROPAGULE DISPERSAL SHALL BE MINIMIZED BY BAGGING MATERIAL OR COVERING TRUCKS TRANSPORTING SUCH MATERIAL FROM THE PROJECT SITE.

DURING CONSTRUCTION ACTIVITIES, ALL SEEDS AND STRAW MATERIALS USED ON SITE SHALL BE WEED-FREE, AND ALL GRAVEL AND FILL MATERIAL SHALL BE CERTIFIED WEED FREE TO THE EXTENT FEASIBLE. IN ADDITION, CONSTRUCTION VEHICLES AND ALL EQUIPMENT SHALL BE WASHED, INCLUDING WHEELS, UNDERCARRIAGES, AND BUMPERS, BEFORE ENTERING THE PHASE ONE AND TWO FOOTPRINTS. VEHICLES SHALL BE CLEANED AT EXISTING CONSTRUCTION YARDS OR CAR WASHES. THE PROJECT APPLICANT SHALL DOCUMENT THAT ALL VEHICLES HAVE BEEN WASHED PRIOR TO COMMENCING WORK. IN ADDITION, TOOLS SUCH AS CHAINSAWS, HAND CLIPPERS, AND PRUNERS SHALL BE WASHED BEFORE ENTERING THE WORK AREAS. ALL WASHING SHALL TAKE PLACE WHERE RINSE WATER IS COLLECTED AND DISPOSED OF IN EITHER A SANITARY SEWER OR A LANDFILL. (CDD-B, -E, PW)

65. **RIPARIAN WOODLAND PROTECTION AND RESTORATION (MM BIO-5).** FOR OUTFALL TRENCHING ACTIVITIES, AN AIR SPADE SHALL BE USED WHEN UNDER THE DRIPLINE OF THE RIPARIAN CANOPY TO AVOID DAMAGE TO PRIMARY ROOT SYSTEMS OF RIPARIAN TREES.

NO TREES WITHIN THE RIPARIAN ZONE SHALL BE REMOVED DURING PROJECT CONSTRUCTION ACTIVITIES. PRIOR TO THE START OF CONSTRUCTION, THE BOUNDARIES OF THE WORK AREAS WITHIN THE RIPARIAN ZONE SHALL BE CLEARLY DELINEATED WITH ENVIRONMENTALLY SENSITIVE AREA FENCING (ORANGE-COLORED, PLASTIC CONSTRUCTION FENCING), TO PREVENT WORKERS OR EQUIPMENT FROM INADVERTENTLY STRAYING FROM THE WORK AREA. ALL CONSTRUCTION PERSONNEL, EQUIPMENT, AND VEHICLE MOVEMENT SHALL BE CONFINED TO DESIGNATED
CONSTRUCTION AND STAGING AREAS. STAGING AREAS ARE RESTRICTED TO AREAS DELINEATED IN THE PROJECT PLANS AND ENCOMPASSED BY THE ENVIRONMENTALLY SENSITIVE AREA FENCING. NO STAGING SHALL BE ALLOWED UNDER THE DRIPLINE OF THE RIPARIAN CANOPY.

PERMANENT IMPACTS ON THE UNDERSTORY OF RIPARIAN ORNAMENTAL WOODLANDS SHALL BE MITIGATED AS PER THE DESCRIPTION IN MITIGATION MEASURE MM BIO-2M AT A REPLACEMENT RATIO OF 2:1 (REPLACEMENT WILLOW PLANTING AREA TO PERMANENT IMPACT AREA) FOR A TOTAL OF 0.02 ACRE. COMPENSATION REQUIREMENTS FOR TEMPORARY PROJECT- RELATED IMPACTS TO RIPARIAN WOODLAND SHALL BE BASED ON THE REMOVED ACREAGE OF UNDERSTORY COVER, AND SHALL BE MITIGATED AT A REPLACEMENT RATIO OF AT LEAST 1:1 (WILLOW PLANTING AREA TO SHRUB REMOVAL AREA) FOR A TOTAL OF 0.01 ACRE. THE MITIGATION SHALL BE DEEMED COMPLETE AND THE PROJECT APPLICANT SHALL BE RELEASED FROM FURTHER RESPONSIBILITIES WHEN THE FINAL SUCCESS CRITERIA HAVE BEEN MET AS DETERMINED BY THE CITY AND RESPONSIBLE PERMITTING AGENCIES. (CDD-B, -E, PW)

66. **RIPARIAN RUDERAL GRASSLAND COMMUNITY RESTORATION (MM BIO-6).** TEMPORARY IMPACTS TO RIPARIAN RUDERAL GRASSLAND SHALL BE MITIGATED AT A REPLACEMENT RATIO OF 1:1 (REPLACEMENT PLANTING AREA TO TEMPORARY IMPACT AREA) FOR A TOTAL OF 0.32 ACRE. THE MITIGATION PLANTING AREA SHALL BE ESTABLISHED ON THE CAPPED AREA ON APN 018- 381-01. THE CAPPED AREA SHALL BE SEEDED WITH A NATIVE GRASSLAND MIX, PLANTED WITH CALIFORNIA ROSE, POISON OAK, AND COYOTE BRUSH, AND SHALL BE MAINTAINED AS A SENSITIVE HABITAT AREA BEHIND THE SPLIT RAIL FENCE POST CONSTRUCTION. THE MITIGATION SHALL BE DEEMED COMPLETE AND THE PROJECT APPLICANT SHALL BE RELEASED FROM FURTHER RESPONSIBILITIES WHEN THE FINAL SUCCESS CRITERIA HAVE BEEN MET AS DETERMINED BY THE CITY AND RESPONSIBLE PERMITTING AGENCIES. (CDD-B, -E, PW)

67. **PERENNIAL FRESHWATER MARSH COMMUNITY RESTORATION (MM BIO-7).** PERMANENT IMPACTS ON PERENNIAL FRESHWATER MARSH SHALL BE MITIGATED AT A REPLACEMENT RATIO OF 3:1 (REPLACEMENT WILLOW PLANTING AREA TO IMPACT AREA) FOR A TOTAL OF 0.01 ACRE. BOTH TEMPORARY AND PERMANENT IMPACTS TO PERENNIAL FRESHWATER MARSH HABITAT SHALL BE RESTORED THROUGH NATURAL RE-ESTABLISHMENT AND ACTIVE PLANTING WITH LOCALLY COLLECTED ARROYO WILLOW THICKET PLANTINGS ALONG THE WATSONVILLE SLOUGH WITHIN THE PROJECT SITE. THE MITIGATION SHALL BE DEEMED COMPLETE AND THE PROJECT APPLICANT SHALL BE RELEASED FROM FURTHER RESPONSIBILITIES WHEN THE FINAL SUCCESS CRITERIA HAVE BEEN MET AS DETERMINED BY THE CITY AND THE RESPONSIBLE PERMITTING AGENCIES. (CDD-B, -E, PW)

68. **ARCHAEOLOGICAL RESOURCES CONSTRUCTION MONITORING (MM CR-1A).** ALL PROJECT- RELATED GROUND DISTURBING ACTIVITIES IN NATIVE SOILS AT THE PROJECT SITE SHALL BE MONITORED BY A QUALIFIED ARCHAEOLOGIST. ARCHAEOLOGICAL MONITORING SHALL BE PERFORMED UNDER THE DIRECTION OF AN ARCHAEOLOGIST MEETING THE SECRETARY OF THE INTERIOR'S PROFESSIONAL QUALIFICATION STANDARDS FOR ARCHAEOLOGY (NATIONAL PARK SERVICE, 1983). SHOULD THE PROJECT SITE BE DETERMINED TO HAVE LITTLE IF ANY POTENTIAL TO YIELD SUBSURFACE CULTURAL RESOURCES DEPOSITS, THE QUALIFIED ARCHAEOLOGIST MAY RECOMMEND THAT MONITORING BE REDUCED OR ELIMINATED AFTER CONSULTING WITH THE CITY AND NATIVE AMERICAN REPRESENTATIVES. (CDD-B, -E, PW)

69. **UNANTICIPATED DISCOVERY OF CULTURAL RESOURCES (MM CR-1B).** IN THE EVENT THAT CULTURAL RESOURCES ARE ENCOUNTERED DURING GROUND-DISTURBING ACTIVITIES, WORK IN THE IMMEDIATE AREA SHALL HALT, AND THE QUALIFIED ARCHAEOLOGIST SHALL EVALUATE THE FIND.
EVALUATION OF SIGNIFICANCE FOR THE FIND MAY INCLUDE THE DETERMINATION OF WHETHER OR NOT THE FIND QUALIFIES AS AN ARCHAEOLOGICAL SITE. IF NECESSARY, THE EVALUATION SHALL REQUIRE PREPARATION OF A TREATMENT PLAN AND ARCHAEOLOGICAL TESTING FOR CRHR ELIGIBILITY. IF THE DISCOVERY PROVES TO BE SIGNIFICANT UNDER CEQA AND CANNOT BE AVOIDED BY THE PROJECT, ADDITIONAL WORK, SUCH AS DATA RECOVERY EXCAVATION, MAY BE WARRANTED TO MITIGATE ANY SIGNIFICANT IMPACTS TO HISTORICAL RESOURCES. MITIGATION OF SIGNIFICANT IMPACTS TO THE FIND MAY INCLUDE A DAMAGE ASSESSMENT OF THE FIND, ARCHIVAL RESEARCH, AND/OR DATA RECOVERY TO REMOVE ANY IDENTIFIED ARCHAEOLOGICAL DEPOSITS, AS DETERMINED BY THE QUALIFIED ARCHAEOLOGIST. AFTER EFFECTS TO THE FIND HAVE BEEN APPROPRIATELY MITIGATED, WORK IN THE AREA MAY RESUME. (CDD-B, -E, PW)

70. **UNANTICIPATED DISCOVERY OF PALEONTOLOGICAL RESOURCES (MM CR-2B).** IF FOSSILS ARE DISCOVERED BY CONSTRUCTION PERSONNEL, ALL WORK IN THE IMMEDIATE VICINITY OF THE FIND SHALL CEASE AND A QUALIFIED PALEONTOLOGIST SHALL BE CONTACTED TO EVALUATE THE FIND BEFORE RESTARTING WORK IN THE AREA. A QUALIFIED PALEONTOLOGIST IS DEFINED BY THE SVP STANDARDS AS AN INDIVIDUAL WITH A MASTER'S OF SCIENCE OR DOCTORATE DEGREE IN PALEONTOLOGY OR GEOLOGY WHO IS EXPERIENCED WITH PALEONTOLOGICAL PROCEDURES AND TECHNIQUES, WHO IS KNOWLEDGEABLE IN THE GEOLOGY OF CALIFORNIA, AND WHO HAS WORKED AS A PALEONTOLOGICAL MITIGATION PROJECT SUPERVISOR FOR A LEAST ONE YEAR (SVP, 2010). IF THE QUALIFIED PALEONTOLOGIST DETERMINES THAT THE FOSSIL OR FOSSILS ARE SCIENTIFICALLY SIGNIFICANT, THE FIND SHALL BE RECOVERED UNDER HIS OR HER SUPERVISION. IF NECESSARY, THE PALEONTOLOGIST SHALL HAVE THE AUTHORITY TO TEMPORARILY DIRECT, DIVERT, OR HALT CONSTRUCTION ACTIVITY TO ENSURE THAT THE FOSSIL OR FOSSILS CAN BE REMOVED IN A SAFE AND TIMELY MANNER. ONCE SALVAGED, SIGNIFICANT FOSSILS SHALL BE IDENTIFIED TO THE LOWEST POSSIBLE TAXONOMIC LEVEL, PREPARED TO A CURATION-READY CONDITION AND CURATED IN A SCIENTIFIC INSTITUTION WITH A PERMANENT PALEONTOLOGICAL COLLECTION, SUCH AS THE UNIVERSITY OF CALIFORNIA MUSEUM OF PALEONTOLOGY, ALONG WITH ALL PERTINENT FIELD NOTES, PHOTOS, DATA, AND MAPS. FOSSILS OF UNDETERMINED SIGNIFICANCE AT THE TIME OF COLLECTION MAY ALSO WARRANT CURATION AT THE DISCRETION OF THE QUALIFIED PALEONTOLOGIST. ADDITIONAL MEASURES SUCH AS IMPLEMENTATION OF A PALEONTOLOGICAL MITIGATION AND MONITORING PROGRAM AND PREPARATION OF A FINAL MITIGATION AND MONITORING REPORT MAY ALSO BE WARRANTED. POTENTIAL MITIGATION REQUIRED IN A PALEONTOLOGICAL MITIGATION AND MONITORING PROGRAM MAY INCLUDE, BUT WOULD NOT BE LIMITED TO IDENTIFICATION OF AREAS REQUIRING MONITORING, CONTRACTING OF A QUALIFIED PALEONTOLOGICAL MONITOR(S) TO CONDUCT ONGOING MONITORING, COLLECTION OF PALEONTOLOGICAL RESOURCES AND ASSOCIATED DATA, CURATION OF PALEONTOLOGICAL RESOURCES IN AN ACCREDITED INSTITUTION AND PREPARATION OF A FINAL MITIGATION AND MONITORING REPORT. (CDD-B, -E, PW)

71. **NATIVE AMERICAN CONSTRUCTION MONITORING (MM CR-4).** A NATIVE AMERICAN REPRESENTATIVE SHALL MONITOR ALL EARTH-MOVING ACTIVITIES WITHIN NATIVE SOIL. IF CULTURAL MATERIALS THAT MAY BE IMPORTANT TO NATIVE AMERICANS ARE IDENTIFIED DURING CONSTRUCTION, WORK IN THE IMMEDIATE AREA MUST HALT AND THE FIND EVALUATED FOR SIGNIFICANCE UNDER CEQA. SHOULD THE PROJECT SITE BE DETERMINED TO HAVE LITTLE IF ANY POTENTIAL TO IDENTIFY CULTURAL MATERIALS THAT MAY BE IMPORTANT TO NATIVE AMERICANS, THE NATIVE AMERICAN REPRESENTATIVE MAY RECOMMEND THAT MONITORING BE REDUCED OR ELIMINATED AFTER CONSULTING WITH THE CITY. (CDD-B, -E, PW)

72. **DESIGN-LEVEL GEOTECHNICAL INVESTIGATION AND FINAL GRADING PLAN (MM GEO-2).** PRIOR TO ISSUANCE OF A GRADING PERMIT FOR THE PHASED DEVELOPMENT OF THE PROJECT, A DESIGN-LEVEL GEOTECHNICAL INVESTIGATION SHALL BE CONDUCTED AND MUST SHOW THAT SLOPES AND RETAINING WALLS ON THE PROJECT SITE WOULD BE STABLE UNDER BOTH STATIC AND SEISMIC CONDITIONS. THE DESIGN-LEVEL GEOTECHNICAL INVESTIGATION SHALL BE PREPARED BY A REGISTERED PROFESSIONAL GEOTECHNICAL ENGINEER AND SHALL PROVIDE SLOPE STABILITY ANALYSES BASED ON THE FINAL PROJECT DESIGN AND SHALL INCLUDE ADEQUATE FACTORS OF SAFETY FOR BOTH STATIC AND SEISMIC CONDITIONS. THE DESIGN-LEVEL GEOTECHNICAL INVESTIGATION SHALL EVALUATE THE FINAL GRADING PLAN FOR THE PROJECT AS WELL AS FINAL DESIGN PLANS FOR ONSITE STRUCTURES AND FOUNDATIONS. THE DESIGN-LEVEL GEOTECHNICAL INVESTIGATION SHALL RECOMMEND SLOPE STABILIZATION MEASURES, AS NECESSARY, TO ENSURE THAT SOILS ON THE PROJECT SITE REMAIN STABLE FOLLOWING GRADING AND CONSTRUCTION OF ONSITE STRUCTURES UNDER BOTH STATIC AND SEISMIC CONDITIONS. THESE MEASURES SHALL BE INCORPORATED INTO THE FINAL GRADING PLAN FOR THE PROJECT TO ENSURE SLOPES ARE STABLE UNDER THE CONDITIONS ANALYZED IN THE DESIGN-LEVEL GEOTECHNICAL INVESTIGATION. SLOPE STABILIZATION MEASURES MAY INCLUDE, BUT ARE NOT LIMITED TO: DECREASING THE INCLINATION OR HEIGHT OF THE GRADED SLOPE, BACKFILLING WITH LIGHTWEIGHT MATERIAL, INSTALLING PLASTIC MESH REINFORCEMENTS OR ROCK-FILLED BUTTRESSES, INSTALLING DRAIN PIPES OR OTHER DRAINAGE SYSTEMS, INSTALLING RETAINING WALLS, OR INSTALLING ANCHORS, BOLTS, OR MICRO-PILES, OR CHEMICALLY TREATING THE SOIL TO STABILIZE THE SLOPE. (CDD-B, -E, PW)

73. **RAINGARDEN OPERATIONS & MAINTENANCE MANUAL (MM HWQ-1).** THE PROJECT APPLICANT SHALL PREPARE AN OPERATIONS AND MAINTENANCE MANUAL FOR THE PROPOSED RAINGARDENS. THE OPERATIONS AND MAINTENANCE MANUAL SHALL INCLUDE, AT A MINIMUM, A SCHEDULE OF ANNUAL MAINTENANCE ACTIVITIES THAT THE APPLICANT SHALL BE RESPONSIBLE FOR COMPLETING. IN ORDER TO FACILITATE MAINTENANCE OF THE RAINGARDENS, THE OPERATIONS AND MAINTENANCE MANUAL SHALL SPECIFY THAT THE RAINGARDENS WILL BE PLANTED WITH NATIVE GRASSES, SEDGES AND RUSHES, AND THAT PLANTING OF TREES IN THE RAINGARDENS SHALL BE AVOIDED. THE OPERATIONS AND MAINTENANCE MANUAL SHALL ALSO PROHIBIT MAINTENANCE ACTIVITIES FROM OCCURRING DURING THE BREADING SEASON OF CALIFORNIA RED-LEGGED FROG (DECEMBER THROUGH MAY), AND THAT IDEALLY MAINTENANCE SHALL BE CONDUCTED DURING SEPTEMBER. THE APPLICANT SHALL SUBMIT THE OPERATIONS AND MAINTENANCE MANUAL TO THE CITY FOR REVIEW AND APPROVAL PRIOR TO ISSUANCE OF THE SITE GRADING OR BUILDING PERMITS FOR PHASE TWO OF THE PROJECT. (CDD-E, PW)

74. **DUST CONTROL.** BLOWING DUST SHALL BE REDUCED BY TIMING CONSTRUCTION ACTIVITIES SO THAT PAVING AND BUILDING CONSTRUCTION BEGIN AS SOON AS POSSIBLE AFTER COMPLETION OF GRADING, AND BY LANDSCAPING DISTURBED SOILS AS SOON AS POSSIBLE. FURTHER, WATER TRUCKS SHALL BE PRESENT AND IN USE AT THE CONSTRUCTION SITE. ALL PORTIONS OF THE SITE SUBJECT TO BLOWING DUST SHALL BE WATERED AS OFTEN AS DEEMED NECESSARY BY THE CITY IN ORDER TO INSURE PROPER CONTROL OF BLOWING DUST FOR THE DURATION OF THE PROJECT. WATERING ON PUBLIC STREETS SHALL NOT OCCUR. STREETS WILL BE CLEANED BY STREET SWEEPERS OR BY HAND AS OFTEN AS DEEMED NECESSARY BY THE CITY. ALL PUBLIC STREETS AND MEDIANS SOILED OR LITTERED DUE TO THIS CONSTRUCTION ACTIVITY ARE TO BE CLEANED AND SWEPT ON A DAILY BASIS DURING THE WORKWEEK TO THE SATISFACTION OF THE CITY. TO MINIMIZE DUST/GRADING IMPACTS DURING CONSTRUCTION THE APPLICANT SHALL:
    a. SPRAY WATER ON ALL EXPOSED EARTH SURFACES DURING CLEARING, GRADING, EARTH MOVING AND OTHER SITE PREPARATION ACTIVITIES THROUGHOUT THE DAY TO MINIMIZE DUST.
    b. USE TARPAULINS OR OTHER EFFECTIVE COVERS ON ALL STOCKPILED EARTH MATERIAL AND ON ALL HAUL TRUCKS TO MINIMIZE DUST.
    c. SWEEP THE ADJACENT STREET FRONTAGES AT LEAST ONCE A DAY OR AS NEEDED TO REMOVE SILT AND OTHER DIRT WHICH IS EVIDENT FROM CONSTRUCTION ACTIVITIES.
    d. ENSURE THAT CONSTRUCTION VEHICLES ARE CLEANED PRIOR TO LEAVING THE CONSTRUCTION SITE TO PREVENT DUST AND DIRT FROM BEING TRACKED OFF-SITE.
    e. THE CITY SHALL HAVE THE AUTHORITY TO STOP ALL GRADING OPERATIONS, IF IN OPINION OF CITY STAFF, INADEQUATE DUST CONTROL OR EXCESSIVE WIND CONDITIONS CONTRIBUTE TO FUGITIVE DUST EMISSIONS. (CDD-E, PW)

75. **CONSTRUCTION TRAFFIC ROUTES (MM TRA-4).** CONSTRUCTION TRUCK TRAFFIC SHALL TRAVEL TO AND FROM THE SITE VIA BEACH STREET AND OHLONE PARKWAY SOUTH OF THE SITE. CONSTRUCTION TRUCK TRAFFIC MUST AVOID TRAVELLING ALONG THE MAIN STREET CORRIDOR AND IMMEDIATELY IN FRONT OF THE LANDMARK ELEMENTARY SCHOOL. ADDITIONALLY, A FLAGGER SHALL BE PROVIDED WHERE CONSTRUCTION TRUCK TRAFFIC ENTERS AND EXITS OHLONE PARKWAY. (CDD-E, PW)

76. **CONSTRUCTION TRAFFIC ROUTE VIA ERRINGTON ROAD.** CONSTRUCTION TRUCK TRAFFIC TO AND FROM THE SITE SHALL USE ERRINGTON ROAD AND AVOID USING LOMA VISTA DRIVE. CONSTRUCTION TRUCK TRAFFIC INCLUDES TRIPS ASSOCIATED WITH GRADING, DEMOLITION AND BUILDING ACTIVITIES. AS NOTED IN CONDITION OF APPROVAL NO. 72, A FLAGGER SHALL BE PROVIDED WHERE CONSTRUCTION TRUCK TRAFFIC ENTERS AND EXITS OHLONE PARKWAY. (CDD- E, PW)

RAMSEY
CIVIL ENGINEERING INC
CIVIL ENGINEERING
LAND PLANNING
PROJECT MANAGEMENT
CONSTRUCTION SUPPORT
QSD AND QSP SERVICES
2905 KRISTIE COURT
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REGISTERED PROFESSIONAL ENGINEER
DAVID RAMSEY
NO. C73735
CIVIL
STATE OF CALIFORNIA
DAVID RAMSEY
RCE# 73735
DATE

APN# 018-372-14
PLAN TYPE
RESIDENTIAL SUBDIVISION

CONDITIONS OF APPROVAL
HILLCREST SUBDIVISION
511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

NUMBER	BY	DESCRIPTION	DATE
C	GS/DMR	RESPONSE 3 - PLAN CHECK COMMENTS 03/11/2022	03/18/2022
B	GS/DMR	RESPONSE 2 - PLAN CHECK COMMENTS 10/08/2021	01/20/2022
A	GS/DMR	RESPONSE 1 - PLAN CHECK COMMENTS 09/21/2021	09/29/2021

REVISION BLOCK

DRAWN BY:	GS
DESIGNED BY:	DMR
DATE:	08/12/2021
SCALE:	AS NOTED
PROJECT NO:	20-021
SHEET:	C1.2

77. **ONSITE SUPERINTENDENT.** APPLICANT SHALL HAVE ONSITE AT ALL TIMES, A SUPERINTENDENT THAT SHALL ACT AS THE OWNER'S REPRESENTATIVE AND AS A POINT OF CONTACT FOR THE CITY'S PUBLIC WORKS INSPECTOR. THE SUPERINTENDENT SHALL BE AUTHORIZED BY THE OWNER TO DIRECT THE WORK OF ALL CONTRACTORS DOING WORK ON PUBLIC AND PRIVATE IMPROVEMENTS. (PW)

78. **UTILITY SCREENING.** THE LOCATIONS OF SURFACE MOUNTED UTILITY FACILITIES SUCH AS PEDESTALS, TRANSFORMERS BACKFLOW DEVICES AND FIRE SERVICES SHALL BE PLANNED SO THAT MAY BE SCREENED UTILIZING LANDSCAPING OR OTHER ACCEPTABLE, VISUALLY PLEASING MEANS, SUBJECT TO THE REVIEW AND APPROVAL OF THE COMMUNITY DEVELOPMENT DIRECTOR. (CDD-P, -E, PW)

79. **UNDERGROUND UTILITY SERVICE.** ELECTRIC AND COMMUNICATIONS SERVICES TO NEW BUILDINGS SHALL BE CONSTRUCTED UNDERGROUND. AERIAL SERVICES ARE PROHIBITED. (CDD- E, PW)

80. **LETTERS FROM DESIGN PROFESSIONALS.** PRIOR TO FINAL CITY ACCEPTANCE OF THE PROJECT, ALL DESIGN PROFESSIONALS WHO PREPARED IMPROVEMENT PLANS FOR THE PROJECT (CIVIL, GEOTECHNICAL, ELECTRICAL AND STRUCTURAL ENGINEERS), SHALL PROVIDE LETTERS ATTESTING THAT THEY HAVE PERIODICALLY MONITORED THE CONSTRUCTION AND HAVE REVIEWED THE COMPLETED WORK AND THAT IT WAS CONSTRUCTED IN SUBSTANTIAL CONFORMANCE WITH THEIR PLANS AND RECOMMENDATIONS. WHERE SPECIAL INSPECTIONS AND TESTING WERE INVOLVED, THE LETTERS OF COMPLIANCE SHALL BE ACCOMPANIED BY INSPECTION LOGS, TESTING AND ANALYSIS THAT SUPPORT THE ENGINEER'S CONCLUSIONS. (CDD-B, -E, PW)

81. **HAZARDOUS MATERIALS.** THE SUBDIVIDER SHALL BE SUBJECT TO COMPLIANCE WITH ALL APPLICABLE REGULATIONS GOVERNING THE DISPOSAL, USE, STORAGE, AND TRANSPORTATION OF HAZARDOUS MATERIALS INCLUDING: LOCAL FIRE CODES; THE HAZARDOUS MATERIALS TRANSPORTATION ACT; THE CALIFORNIA HEALTH AND SAFETY CODE; THE RESOURCE CONSERVATION AND RECOVERY ACT OF 1976; AND THE CALIFORNIA HAZARDOUS WASTE CONTROL ACT. (PW)

82. **SOLID WASTE.** ALL SOLID WASTE GENERATED INSIDE WATSONVILLE CITY LIMITS MUST BE HAULED FROM THE SITE OF GENERATION BY THE CITY OF WATSONVILLE SOLID WASTE DIVISION AS PER WATSONVILLE MUNICIPAL CODE, CHAPTER 6-3, CITY UTILITIES. THIS INCLUDES ALL WASTES GENERATED AT CONSTRUCTION SITES, EXCAVATION PROJECTS, LAND CLEARING, DEMOLITION, EARTHWORK PROJECTS, REMODELS, GRADING AND TENANT IMPROVEMENT PROJECTS. (PW)

83. **SOLID WASTE DISPOSAL.** THE APPLICANT SHALL PROVIDE SOLID WASTE DISPOSAL CONTAINERS ON-SITE DURING ALL PHASES OF CONSTRUCTION. THE ACCUMULATION OF REFUSE AND DEBRIS WHICH MAY CONSTITUTE AN UNSIGHTLY/UNSAFE PUBLIC NUISANCE TO SURROUNDING PROPERTIES IS NOT PERMITTED. (PW)

84. **ADDRESS ASSIGNMENTS.** APPLICANT SHALL SUBMIT AN APPLICATION FOR AN ADDRESS ASSIGNMENT FOR EACH NEW LOT. (CDD-E).

PRIOR TO OCCUPANCY, THE FOLLOWING CONDITIONS MUST BE ADHERED TO:

85. **IMPROVEMENTS.** ALL PUBLIC AND PRIVATE IMPROVEMENTS NECESSARY TO SERVE EACH UNIT INCLUDING WATER, SEWER, STORM DRAIN, LIGHTING, AND LANDSCAPING AND IRRIGATION SHALL BE CONSTRUCTED TO THE SATISFACTION OF THE COMMUNITY DEVELOPMENT AND PUBLIC WORKS AND UTILITIES DEPARTMENTS. (CDD-E, PW)

86. **AS BUILT PLANS.** SUBMIT ELECTRONIC COPIES (PREFERABLY IN PDF FILE FORMAT) OF THE APPROVED AS BUILT PLANS FOR CIVIL AND LANDSCAPE/IRRIGATION AND THE STORM WATER CONTROL PLAN & SEWER OPERATION & MAINTENANCE PLAN FOR CITY RECORD KEEPING. (CDD-E)

87. **RIGHT TURN OVERLAP SIGNAL PHASE (MM TRA-2A).** THE PROJECT APPLICANT SHALL ADD AN EASTBOUND MAIN STREET (HIGHWAY 152) RIGHT TURN OVERLAP SIGNAL PHASE TO THE INTERSECTION OF OHLONE PARKWAY - CLIFFORD AVENUE/MAIN STREET. THE ADDITION OF THIS SIGNAL PHASE WOULD ALLOW EASTBOUND MAIN STREET RIGHT TURN TRAFFIC TO PROCEED UNIMPEDED WHILE THE NORTHBOUND OHLONE PARKWAY LEFT TURN TRAFFIC IS ALSO MOVING. (PW, CALTRANS)

88. **SIGNAL TIMING & COORDINATION (MM TRA-2B).** THE PROJECT APPLICANT SHALL PROVIDE FOR MINOR SIGNAL TIMING ADJUSTMENTS AT THE INTERSECTION OF GREEN VALLEY ROAD/MAIN STREET (HIGHWAY 152). THE PROJECT APPLICANT SHALL ACCOMPLISH THESE TIMING ADJUSTMENTS BY EITHER RE-OPTIMIZING THE SIGNAL COORDINATION ALONG MAIN STREET, OR BY PROVIDING PRO RATA CONTRIBUTION TO INCLUDE THIS INTERSECTION IN THE CITY'S ADAPTIVE TRAFFIC CONTROL SYSTEM ALONG GREEN VALLEY ROAD AND INSTALL THE INTERSECTION IMPROVEMENTS REQUESTED VIA CALTRANS ENCROACHMENT PERMIT APPLICATION 0518 NSN 0244, SCR-152-T0.68. THE ENCROACHMENT PERMIT APPLICATION CALLS FOR THE
INSTALLATION OF A 2070 NAZTEC CONTROLLER WITH SYNCHROGREEN ADAPTIVE MODULE NETWORK SWITCH, AND PTZ CAMERA. IMPLEMENTATION OF THIS MITIGATION MEASURE WILL REQUIRE CALTRANS APPROVAL. THE PROJECT APPLICANT SHALL WORK WITH CALTRANS AND THE CITY TO FINALIZE SIGNAL TIMING MODIFICATIONS. (PW, CALTRANS)

89. **STOP SIGN AT WESTBOUND LOMA VISTA (STREET "A") AT PARAISO COURT/DEL RIO COURT.** THE PROJECT APPLICANT SHALL PROVIDE A STOP SIGN AT WESTBOUND LOMA VISTA (STREET "A") AT ITS INTERSECTION AT PARAISO COURT/DEL RIO COURT, WHICH WILL REDUCE SPEEDS AND PROVIDE MORE EQUAL RIGHT OF WAY PRIORITY FOR TRAFFIC EXITING THE EXISTING TOWNHOMES VIA PARAISO COURT AND DEL RIO COURT. IT WILL BE EXPECTED TO REDUCE SPEEDS OF VEHICLES EXITING THE PROJECT SITE AS THEY APPROACH THIS INTERSECTION. (PW)

KEY TO DEPARTMENT RESPONSIBILITY

CDD-B- COMMUNITY DEVELOPMENT DEPARTMENT (BUILDING) CDD-P - COMMUNITY DEVELOPMENT DEPARTMENT (PLANNING) CDD-E - COMMUNITY DEVELOPMENT DEPARTMENT (ENGINEERING) PW - PUBLIC WORKS DEPARTMENT
WFD - WATSONVILLE FIRE DEPARTMENT WPD - WATSONVILLE POLICE DEPARTMENT CAT - CITY ATTORNEY

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WPD - CITY ATTORNEY

CITY OF WATSONVILLE **EXHIBIT C**
PLANNING COMMISSION

APPLICATION NO: PP2016-199 & PP2017-116

APN: 018-372-14 & 018-381-01

APPLICANT: CALIFORNIA SUNSHINE DEVELOPMENT
HEARING DATE: JUNE 5, 2018

SPECIFIC DEVELOPMENT PLAN/SPECIAL USE PERMIT WITH DESIGN REVIEW
CONDITIONS OF APPROVAL

GENERAL CONDITIONS:

1. **APPROVAL.** THIS APPROVAL APPLIES TO THE PLAN SET IDENTIFIED AS "SUNSHINE VISTA HOMES" LOCATED AT 511 OHLONE PARKWAY, RECEIVED BY THE COMMUNITY DEVELOPMENT DEPARTMENT ON MAY 21, 2018, AND FILED BY PACIFIC SUNSHINE DEVELOPMENT LLC, APPLICANT/PROPERTY OWNER. (CDD-P)

2. **CONDITIONAL APPROVAL TIMEFRAME.** THIS SPECIAL USE PERMIT SHALL BE NULL AND VOID IF NOT ACTED UPON WITHIN **24 MONTHS** FROM THE EFFECTIVE DATE OF THE APPROVAL THEREOF. TIME EXTENSIONS MAY BE CONSIDERED UPON RECEIPT OF WRITTEN REQUEST SUBMITTED NO LESS THAN FORTY-FIVE (45) DAYS PRIOR TO EXPIRATION AND IN ACCORDANCE WITH THE PROVISIONS OF SECTION 14-10.1201 OF THE WATSONVILLE MUNICIPAL CODE (WMC). (CDD-P)

3. **MODIFICATIONS.** MODIFICATIONS TO THE PROJECT OR CONDITIONS IMPOSED MAY BE CONSIDERED IN ACCORDANCE WITH WMC SECTIONS 14-12.1000 AND 14-10.1305. ALL REVISIONS SHALL BE SUBMITTED PRIOR TO FIELD CHANGES AND ARE TO BE CLOUDED ON THE PLANS. (CDD-P)

4. **SUBSTANTIAL COMPLIANCE.** PROJECT DEVELOPMENT SHALL BE ACCOMPLISHED IN SUBSTANTIAL ACCORDANCE WITH THE APPROVED PLAN SET. ANY REQUIRED REVISIONS TO THE PLAN SET SHALL BE COMPLETED TO THE SATISFACTION OF THE COMMUNITY DEVELOPMENT DIRECTOR OR DESIGNEE. (CDD-P)

5. **GROUNDS FOR REVIEW.** THE PROJECT SHALL BE IN COMPLIANCE WITH THE CONDITIONS OF APPROVAL, ALL LOCAL CODES AND ORDINANCES, APPROPRIATE DEVELOPMENT STANDARDS, AND CURRENT CITY POLICIES. ANY DEVIATION WILL BE GROUNDS FOR REVIEW BY THE CITY AND MAY POSSIBLY RESULT IN REVOCATION OF THE USE PERMIT, PURSUANT TO PART 13 OF WMC CHAPTER 14-10. (CDD-P)

6. **EFFECTIVE DATE.** THIS USE PERMIT SHALL NOT BE EFFECTIVE UNTIL 14 DAYS AFTER APPROVAL BY THE DECISION-MAKING BODY OR FOLLOWING FINAL ACTION ON ANY APPEAL. (CDD-P)

7. **NECESSARY REVISIONS.** THE APPLICANT SHALL MAKE AND NOTE ALL REVISIONS NECESSARY TO COMPLY WITH ALL CONDITIONS OF APPROVAL. THE APPLICANT SHALL CERTIFY IN WRITING BELOW THE LIST(S) OF CONDITIONS THAT THE BUILDING PLANS COMPLY WITH THE CONDITIONS OF APPROVAL. (CDD-P)

8. **CONDITIONS OF APPROVAL.** A COPY OF THE FINAL CONDITIONS OF APPROVAL MUST BE PRINTED ON THE FIRST OR SECOND SHEET OF PLANS SUBMITTED FOR FUTURE PERMITS. ***PLANS WITHOUT THE CONDITIONS OF APPROVAL PRINTED DIRECTLY ON THE FIRST OR SECOND PAGE WILL NOT BE ACCEPTED AT THE PLAN CHECK PHASE.*** (CDD-P)

PROJECT SPECIFIC CONDITIONS:

9. **MITIGATION & MONITORING PLAN (MMP).** WHERE NOT IN CONFLICT WITH SPECIFIC CONDITIONS OF APPROVAL, THE PROJECT IS SUBJECT TO COMPLIANCE WITH THE MITIGATION & MONITORING PLAN ADOPTED FOR THE PROJECT. A REPORTING PROGRAM SHALL BE PREPARED AND SUBMITTED TO THE CITY THAT ESTABLISHES A FORMAT AND TIMING FOR SUBMITTAL OF HOW MITIGATIONS HAVE BEEN IMPLEMENTED. (CDD-P)

10. **AFFORDABLE HOUSING AGREEMENT.** THE APPLICANT SHALL EXECUTE AN AFFORDABLE HOUSING AGREEMENT APPROVED BY THE CITY COUNCIL IN ACCORDANCE WITH THE WMC CHAPTER 14-46, WHICH REQUIRES A MINIMUM OF 20 PERCENT OF THE UNITS TO BE RESERVED AS AFFORDABLE UNITS. THE AFFORDABLE HOUSING AGREEMENT SHALL BE EXECUTED PRIOR TO ISSUANCE OF A BUILDING PERMIT. (CDD-H, CAT)

11. **FENCING PLAN.** THE APPLICANT SHALL SUBMIT A FENCING PLAN FOR REVIEW AND APPROVAL BY THE COMMUNITY DEVELOPMENT DIRECTOR PRIOR TO ISSUANCE OF A BUILDING PERMIT. THE FENCING PLAN SHALL PROVIDE THE MATERIALS AND DESIGN ALONG WITH THE LOCATION AND HEIGHT OF THE NEW FENCING THAT ENCLOSES THE PRIVATE YARD AND/OR PATIO AREAS. ACCEPTABLE MATERIALS AND DESIGNS INCLUDE SOLID BOARD, DECORATIVE WOOD, ROD IRON AND MASONRY WALL FENCING. NEW FENCING SHALL NOT ENCLOSE COMMON OPEN SPACE AREAS TO THE REAR OF THE PROPOSED DUPLEX-STYLE TOWNHOUSES (I.E., BEHIND LOTS #46-57 AND LOTS #97-102). (CDD-P)

12. **COLORS & MATERIALS.** THE APPLICANT SHALL SUBMIT A COLOR AND MATERIALS BOARD FOR REVIEW AND APPROVAL BY THE COMMUNITY DEVELOPMENT DIRECTOR OR DESIGNEE PRIOR TO ISSUANCE OF A BUILDING PERMIT. (CDD-P)

13. **PEDESTRIAN ACCESS TO EMERGENCY ACCESS ROAD.** PEDESTRIAN ACCESS SHALL BE PROVIDED TO THE EMERGENCY VEHICLE/RESTRICT ACCESS ROAD CONNECTING THE SOUTHEAST CORNER OF THE PROJECT SITE TO AN EMERGENCY VEHICLE ACCESS ROAD EXTENDING FROM THE END OF A STREET IN THE SUNSHINE GARDEN RESIDENTIAL PROJECT. (CDD-P, -B)

14. **LANDSCAPING & IRRIGATION PLAN.** THE APPLICANT SHALL SUBMIT THREE COPIES OF THE FINAL LANDSCAPING AND IRRIGATION PLAN FOR REVIEW AND APPROVAL BY THE COMMUNITY DEVELOPMENT DIRECTOR PRIOR TO ISSUANCE OF A BUILDING PERMIT. THE LANDSCAPING PLAN SHALL PROVIDE DROUGHT-TOLERANT PLANTS SUITABLE FOR THE CENTRAL COAST REGION IN LANDSCAPING THE FRONT YARD, PATIO, PLANTER AND PERIMETER AREAS. THE IRRIGATION PLAN SHALL PROVIDE AN AUTOMATIC WATER SYSTEM (*E.G.,* DRIP SYSTEM) TO IRRIGATE ALL LANDSCAPE AREAS. (CDD-B-E-P)

A. LANDSCAPING - THE LANDSCAPE PLAN SHALL INDICATE THE TYPES, QUANTITIES, LOCATIONS AND SIZES OF ALL PLANT MATERIAL, INCLUDING ANY EXISTING MAJOR VEGETATION DESIGNATED TO REMAIN AND METHOD OF PROTECTING PLANTING AREAS FROM VEHICULAR TRAFFIC. THE LANDSCAPE PLAN SHALL BE DRAWN TO SCALE, AND PLANT TYPES SHALL BE CLEARLY LOCATED AND LABELED. THE PLANT LIST SHALL GIVE THE BOTANICAL NAME, COMMON NAME, GALLON SIZES TO BE PLANTED, AND QUANTITY OF EACH PLANTING. A MINIMUM OF 25 PERCENT OF ALL SHRUB MATERIAL SHALL HAVE A MINIMUM 5-GALLON CONTAINER SIZE. (CDD-E-P)

B. IRRIGATION SYSTEM - AUTOMATIC, LOW-FLOW IRRIGATION SYSTEM(S) SHALL BE INSTALLED IN ALL LANDSCAPED AREAS. IRRIGATION SHALL BE PROGRAMMED FOR NIGHT OR EARLY MORNING HOURS IN ORDER TO MINIMIZE EVAPORATION. (CDD-P)

C. WATER CONSERVATION - THE PROJECT SHALL UTILIZE WATER CONSERVATION, WATER RECYCLING, AND XERISCAPING TO THE MAXIMUM EXTENT POSSIBLE. IRRIGATION SYSTEMS SHALL BE DESIGNED AND MAINTAINED TO AVOID RUN-OFF, OVER-SPRAY, OR OTHER SIMILAR CONDITIONS WHERE WATER FLOWS TO WASTE. (CDD-B-E-P)

D. NEW TREES - AS PROPOSED IN THE PRELIMINARY LANDSCAPE PLANS, THE PROJECT SHALL PROVIDE A MINIMUM OF THIRTEEN TREES.

E. LANDSCAPE & IRRIGATION INSTALLATION - ALL LANDSCAPING AND IRRIGATION SHALL BE APPROVED AND INSTALLED PRIOR TO OCCUPANCY OF THE PROJECT. (CDD-P)

F. WATER EFFICIENT LANDSCAPE ORDINANCE - THE APPLICANT SHALL SUBMIT A LANDSCAPE DOCUMENTATION PACKAGE AND DEMONSTRATE COMPLIANCE WITH WMC SECTION 6-3.8 WATER EFFICIENT LANDSCAPE ORDINANCE. (CDD-P, -E)

15. **LANDSCAPE PLAN REVISIONS.** THE APPLICANT SHALL REVISE THE LANDSCAPE PLAN (SHEET L-1.0) TO:

A. PROVIDE LANDSCAPING AND/OR REVEGETATION ALONG THE PERIMETER OF THE SITE, IN BETWEEN THE NATURE TRAIL AND THE SLOUGH;

B. SHOW AN ACCESS PATH TO THE CONCRETE CAP/KNOB/OVERLOOK AREA; AND

C. ADD A NOTE STATING, "ALL PLANT MATERIAL USED WITHIN THE TRAIL CORRIDOR, RAINGARDEN, AND ALL AREAS OUTSIDE RESIDENTIAL AND STREET AREAS NEAR WETLANDS OR NATURAL OPEN SPACE, SHOULD INCLUDE ONLY PLANT SPECIES NATIVE TO THE WATSONVILLE SLOUGH WATERSHED. PRIOR TO PLANTING, CITY APPROVED BIOLOGIST SHALL REVIEW AND APPROVE PLANT MATERIAL, AND PROVIDE INSTRUCTIONS TO LANDSCAPE CONTRACTOR FOR LAYOUT OF PLANT MATERIAL. NATIVE PLANT MATERIAL SHOULD BE CONTRACTED IN ADVANCE SO IT CAN BE SOURCED FROM WITHIN THE PAJARO VALLEY WATERSHED TO THE MAXIMUM EXTENT POSSIBLE."

16. **NATURE TRAIL AND RAINGARDEN AREA PLANT MATERIAL.** THE APPLICANT SHALL REVISE THE LANDSCAPE PLAN (SHEET L-1.0) TO MODIFY THE PLANT MATERIAL AS FOLLOWS:

A. ENSURE CLEAR LINE-OF-SITE BETWEEN THE NATURE TRAIL AND RAINGARDEN, THEREBY BENEFITTING TRAIL USER SAFETY AND MORE EASILY FACILITATING ON-GOING MAINTENANCE OF THE RAINGARDEN;

B. WITHIN TRAIL CORRIDOR, WETLANDS, AND OPEN SPACE ADJACENT TO WETLANDS, PLANT MATERIAL SHOULD REFLECT PLANTS NATIVE TO WATSONVILLE SLOUGH WATERSHED;

C. FOR ALL LARGE NATIVE TREES OUTSIDE OF RETAINING WALL, WITHIN TRAIL CORRIDOR AND ADJACENT TO RAINGARDEN AREA, USE ONLY COAST LIVE OAK (*QUERCUS AGRIFOLIA*) OR WESTERN SYCAMORE (*PLANTANUS RACEMOSE*), WHERE POSSIBLE DUE TO SOIL MOISTURE CONDITIONS;

D. FOR ALL SMALL NATIVE TREES WITHIN THIS AREA, USE ONLY COFFEEBERRY (*FRANGULA CALIFORNICA*), TOYON (*HETEROMELES CALIFORNICA*), AND/OR ELDERBERRY (*SAMBUCUS CAERULEA*);

E. EXISTING RAINGARDEN AREA LANDSCAPE SELECTION PRESENTS SIGNIFICANT CONCERN FOR ANNUAL MAINTENANCE OF RAINGARDEN AND IS LIKELY TO PROVIDE LOCATIONS FOR ENCAMPMENTS AND HANGOUTS. IT WILL ALSO PROVIDE BENEFICIAL HABITAT FOR THREATENED WILDLIFE, SUCH AS CALIFORNIA RED-LEGGED FROGS AND NESTING BIRDS, COMPLICATING MAINTENANCE. MODIFY PLANT MATERIAL LIST FOR THE RAINGARDEN TO INCLUDE ONLY LOW GROWING NATIVE GRASSES, SEDGES AND RUSHES, SUCH AS:

I. CREEPING WILDRYE (*ELYMUS TRITICOIDES*)

II. MEADOW BARLEY (*HORDEUM BRACYANTHERUM*)

III. RED FESCUE (*FESTUCA RUBRA*)

IV. WESTERN GOLDENROD (*EUTHAMIA OCCIDENTALIS*)

V. MARSH BACCHARIS (*BACCHARIS GLUTINOSA*)

VI. BOG RUSH (*JUNCUS EFFUSES*)

VII. SPREADING RUSH (*JUNCUS PATENS*)

VIII. DENSE RUSH (*CAREX DENSA*)

IX. SANTA BARBARA SEDGE (*CAREX BARABARAE*)

F. SUBSTITUTE THE PROPOSED GROUND COVERS AND LOW SHRUBS WITH PLANTS FROM THE FOLLOWING LIST:

X. CREEPING WILDRYE (*ELYMUS TRITICOIDES*)

XI. HILL-DWELLER SEDGE (*CAREX TUMILACOLA*)

XII. CALIFORNIA LILAC (*CEANOTHUS THYSIFLORUS, "CARMEL CREEPER"*)

XIII. PACIFIC COAST IRIS (*IRIS DOUGLAUSIANA, "NON HYBRID"*)

XIV. HOOKERS MANZANITA (*ARCTOSTAPHYLOS HOOKERI*)

XV. PAJARO MANZANITA (*ARCTOSTAPHYLOS PAJAROENSIS*)

XVI. OCEAN SPRAY (*HOLODISCUS DISCOLOR*)

XVII. OTHER PLANT SPECIES NATIVE TO THE WATSONVILLE SLOUGH WATERSHED

BUILDING AND FIRE-RELATED CONDITIONS:

17. **REQUIRED PERMITS.** THE APPLICANT SHALL OBTAIN ALL REQUIRED BUILDING PERMITS (BUILDING, ELECTRICAL, PLUMBING, MECHANICAL, GRADING, ETC.) FOR THIS PROJECT. (CDD-B, -E)

18. **BUILDING CODE.** PROJECT CONSTRUCTION SHALL COMPLY WITH THE LATEST VERSION OF THE CALIFORNIA BUILDING CODE. (CDD-B)

19. **FIRE CODE.** PROJECT CONSTRUCTION SHALL COMPLY WITH CALIFORNIA FIRE CODE AS ADOPTED BY THE CITY (COMMENT SHEET ATTACHED). (WFD)

20. **KNOX BOX.** PLANS FOR A KEY LOCK BOX (KNOX-BOX) SYSTEM SHALL BE SUBMITTED TO THE CITY FIRE DEPARTMENT FOR APPROVAL AND PERMITS PRIOR TO INSTALLATION OF THE BOX. (WFD)

21. **ENERGY EFFICIENCY.** THE PROJECT DESIGN SHALL CONFORM WITH ENERGY CONSERVATION MEASURES ARTICULATED IN TITLE 24 OF THE CALIFORNIA ADMINISTRATIVE CODE AND WILL ADDRESS MEASURES TO REDUCE ENERGY CONSUMPTION SUCH AS LOW-FLOW SHOWER HEADS, FLOW RESTRICTORS FOR TOILETS, LOW CONSUMPTION LIGHTING FIXTURES, AND INSULATION AND SHALL USE DROUGHT TOLERANT LANDSCAPING. (CDD-B)

22. **ADDRESS ASSIGNMENT.** PRIOR TO BUILDING PERMIT ISSUANCE, COMPLETE AND SUBMIT AN

HILLCREST - ADEIR Mitigation Measures

APPLICATION FOR ADDRESS ASSIGNMENT. (CDD-E)

23. **WORK HOURS.** NO WORK FOR WHICH A BUILDING PERMIT IS REQUIRED SHALL BE PERFORMED WITHIN THE HOURS OF 7 P.M. TO 7 A.M. MONDAY THROUGH FRIDAY, NOR PRIOR TO 8 A.M. OR AFTER 5 P.M. ON SATURDAY. NO WORK SHALL OCCUR ON SUNDAYS OR HOLIDAYS. A SIGN SHALL BE POSTED AT A CONSPICUOUS LOCATION NEAR THE MAIN ENTRY TO THE SITE, PROMINENTLY DISPLAYING THESE HOUR RESTRICTIONS AND IDENTIFYING THE PHONE # OF THE JOB SUPERINTENDENT. (CDD-B)

PRIOR TO OCCUPANCY, THE FOLLOWING CONDITIONS SHALL BE MET:

24. ALL TRASH AND CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE SITE. (CDD-B, PW)

ONGOING CONDITIONS:

25. ALL TRASH, RECYCLING AND GREENWASTE MATERIALS GENERATED ONSITE SHALL BE DISPOSED OF AT A CITY-APPROVED LANDFILL OR RECYCLING CENTER. THE APPLICANT SHALL CONTACT THE SOLID WASTE DIVISION OF THE CITY PUBLIC WORKS DEPARTMENT TO COORDINATE DISPOSAL OF ALL TRASH, RECYCLING AND GREENWASTE MATERIALS. (PW)

26. TRASH AND RECYCLING CONTAINERS SHALL BE STORED OUT OF PUBLIC VIEW WITHIN THE GARAGE OR STORAGE SHED OF EACH BUILDING, EXCEPT FOR THE 18-HOUR PERIODS DIRECTLY BEFORE AND AFTER SCHEDULED CITY COLLECTION SERVICES. (PW)

27. LANDSCAPING AND ALL OTHER SITE IMPROVEMENTS SHALL BE MAINTAINED IN PERPETUITY. LANDSCAPING SHALL BE MAINTAINED IN GOOD GROWING CONDITION BY A PROFESSIONAL LANDSCAPE MAINTENANCE COMPANY; AND SUCH MAINTENANCE SHALL INCLUDE, WHERE APPROPRIATE, WEEDING, MOWING, PRUNING, CLEANING, FERTILIZING AND REGULAR WATERING. ALL DEAD, DYING AND DISEASED VEGETATION SHALL BE IMMEDIATELY REPLACED IN KIND. (CDD-P)

28. COMMON OPEN SPACE AREAS, LANDSCAPING, STREET TREES, ROADWAY PAVEMENT, DRIVEWAYS, PARKING SPACES, WALKS, FENCES AND RETAINING WALLS SHALL BE MAINTAINED ON AN ONGOING BASIS BY THE HOMEOWNERS ASSOCIATION (HOA) FOR THE ENTIRE DEVELOPMENT AREA. (CDD-P)

KEY TO DEPARTMENT RESPONSIBILITY

CDD-B - COMMUNITY DEVELOPMENT DEPARTMENT (BUILDING)
CDD-P - COMMUNITY DEVELOPMENT DEPARTMENT (PLANNING)
CDD-E - COMMUNITY DEVELOPMENT DEPARTMENT (ENGINEERING)
CDD-H – COMMUNITY DEVELOPMENT DEPARTMENT (HOUSING)
PW - PUBLIC WORKS DEPARTMENT
WFD - WATSONVILLE FIRE DEPARTMENT
WPD - WATSONVILLE POLICE DEPARTMENT
WPD - CITY ATTORNEY

RAMSEY
CIVIL ENGINEERING INC
CIVIL ENGINEERING
LAND PLANNING
PROJECT MANAGEMENT
CONSTRUCTION SUPPORT
QSD AND QSP SERIVCES
2905 KRISTIE COURT
SANTA CRUZ, CA 95065
TEL (831) 462-2905
www.ramseycivilengineering.com

REGISTERED PROFESSIONAL ENGINEER
DAVID RAMSEY
NO. C73735
CIVIL
STATE OF CALIFORNIA

DAVID RAMSEY DATE
RCE# 73735

APN# 018-372-14
PLAN TYPE
RESIDENTIAL
SUBDIVISION

CONDITIONS OF APPROVAL
HILLCREST SUBDIVISION
511 OHLONE PARKWAY, WATSONVILLE, CA, 95076

NUMBER	BY	DESCRIPTION	DATE
C	GS/DMR	RESPONSE 3 - PLAN CHECK COMMENTS 03/11/2022	03/18/2022
B	GS/DMR	RESPONSE 2 - PLAN CHECK COMMENTS 10/08/2021	01/20/2022
A	GS/DMR	RESPONSE 1 - PLAN CHECK COMMENTS 09/21/2021	09/29/2021

REVISION BLOCK

DRAWN BY:	GS
DESIGNED BY:	DMR
DATE:	08/12/2021
SCALE:	AS NOTED
PROJECT NO:	20-021

SHEET:
C1.3

APPENDIX E

Soil Sampling Field Methodology for Hydraulic Driven Probes

Field Methodology for Shallow Soil Sampling

This following provides detailed descriptions of methods used during shallow soil sampling investigations. Included are specifications for shallow soil sampling with a slide hammer, and decontamination procedures.

Shallow Soil Sampling Procedures: A backhoe, two person power auger, or a hand auger will be used to get to a point immediately above the sampling depth. Once at the desired sampling depth, a slide hammer will be used to drive a clean stainless steel liner encased in the slide hammer sampling shoe to obtain a relatively undisturbed sample. The slide hammer consists of a metal rod with one end containing a sampling shoe and cutting head with which a sample liner can be installed. At the other end of the metal rod there is a handle that is constrained on the rod, but slides up and down the rod allowing force to be applied to the sampling shoe. Manual operation is used to slide the handle down the rod to force the sampling shoe equipped with the liner into native soils.

Materials retrieved from the sampler will be logged on an as-needed basis by the experienced field geologist using the Unified Soil Classification System (USCS), noting in particular, the lithology of the soils, moisture content, and any unusual odor or discoloration. The liner and relatively undisturbed soils will then be removed from the sampling shoe. The liner is then protected at both ends with Teflon tape, sealed with non-reactive caps, taped, and immediately stored in an insulated container cooled with blue ice at a temperature of 4 degree Celsius or less. Soil samples selected for Volatile Organic Compound (VOC) analysis may follow field preservation protocols according to EPA Method 5035, as described in DTSC's *Guidance Document for the Implementation of United States Environmental Protection Agency Method 5035: Methodologies for Collection, Preservation, Storage, and Preparation of Soils to be Analyzed for Volatile Organic Compounds*, dated November 2004. Selected samples will be transported under appropriate chain-of-custody documentation to a State certified laboratory performing the targeted analysis.

Upon completion of sampling at the designated location, the location will be backfilled and compacted with the materials that were removed prior to sampling, supplemented by clean imported fill as necessary.

Equipment Decontamination and Containerization Procedures: All sampling equipment will be cleaned prior to arriving on site to prevent possible transfer of contamination from another site. Additionally, sampling equipment will be thoroughly cleaned between each sampling run with a Liqui-Nox ® or Alconox ® solution followed by a double rinsing with distilled water to prevent the vertical transfer of contamination, and/or contamination from location to location onsite. Accordingly, all sampling equipment will be cleaned following sampling operations to prevent the possible transfer of contamination to another site.

All cleaning rinsate, and wash water produced during the shallow soil sampling and decontamination process will be containerized on site in D.O.T. approved 55-gallon drums for subsequent profiling and disposal at an approved facility.

ENVIRONMENTAL HEALTH

County of Santa Cruz

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http://www.co.santa-cruz.ca.us/

Site Mitigation Program Standards
Santa Cruz County Environmental Health Services

Chemical Analyses

- All chemical analyses shall be performed by an analytical laboratory certified to perform the specified analyses by the State of California.

- The chemical analyses, laboratory methods, and method detection limits must be proposed in advance in the project work plan and included in the project report.

- When proposing chemical analyses, the current version of applicable guidance documents shall be considered including the (1) *Interim List of Gasoline Related Constituents and Associated Method Detection Limits* (California Regional Water Quality Control Board, Central Coast Region), (2) *Interim Guidance for Sampling Agricultural Properties* (Department of Toxic Substances Control), and (3) *Interim Final, Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air* (DTSC, 2005),.

- Appropriate Quality Control/Quality Assurance must be performed and included along with all laboratory results in the project report.

Confirmation Sampling and Profiling for Excavations

- To characterize chemical concentrations remaining in-situ following soil excavation, our agency requires collection and analyses of soil samples from the excavation sidewalls and bottom as well as samples of any groundwater that enters the excavation.

- Soil and groundwater sampling and laboratory analyses must adequately characterize the lateral and vertical distribution of chemical concentrations remaining at the limits of the excavation.

- At minimum, sidewall soil samples should be collected and individually analyzed by a State of California certified laboratory at least every 5 vertical feet, at significant lithologic changes, at the top of any saturated zones, from any soil zones containing field indications of chemical impact, and from the same depth intervals as previously detected elevated concentrations.

- A minimum of one vertical set of soil samples should be collected every 20 lateral feet along each excavation sidewall

- For excavations with sidewalls less than 20-feet long, a minimum of one vertical set of soil samples should be collected from each excavation sidewall.

- In addition, at least one excavation bottom sample should be collected for every 400 square feet of area exposed at the bottom of an excavation.

- If groundwater is encountered in the excavation, at least one grab groundwater sample should be collected to characterize this water.

- Depending on the size of the excavation and actual field conditions, more than one grab groundwater sample may be prudent.

- It is permissible to evacuate the water from the excavation and allow the excavation to recharge prior to groundwater sampling, as long as the evacuated water is properly handled, characterized, treated, and/or disposed.

Construction Over Chemically Impacted Areas

- Our agency typically does not approve construction of new buildings above contaminated soil if this construction limits the ability to investigate or remediate the soil.

- In addition, prior to new construction above contaminated soil, we would require professionally prepared recommendations, specifications, and/or plans that will assure our agency that human health and the environment are protected.

- When subsurface contamination is present, an evaluation is required to assess the health and safety conditions for the occupants of any proposed or existing buildings.

- Our agency does not typically object to construction of a new building over an area of chemically impacted groundwater as long as human health and safety are protected, this construction does not impede the ability to investigate and/or remediate the impacted water or soil, and the lead groundwater oversight agency does not object.

Cost Recovery

- In accordance with Santa Cruz County Code Chapter 7.100 (Hazardous Materials/Hazardous Waste/Underground Storage Tanks), which allows the Health Officer to recover costs for oversight of hazardous materials issues, our department will bill the Responsible party for our time spent in oversight of Site Mitigation Program cases.

Deed Restrictions

- In most cases, deed restrictions will only be considered by our agency after accessible contaminants have been actively remediated, all residual contamination is inaccessible, and it has been determined that there is no significant risk to human health or the environment under the conditions specified in the deed restriction.

Duty to Report an Unauthorized Release of Hazardous Material

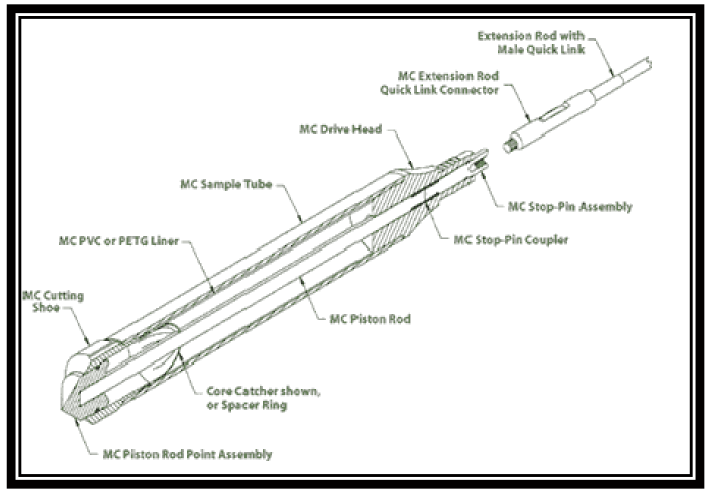
- Any person who has knowledge of soil or groundwater contamination or a release of hazardous material of which he or she knows or reasonably suspects to be unauthorized shall report the contamination or known or suspected release to the County of Santa Cruz Health Officer or SCCEHS staff immediately or as soon as practically possible in accordance with Chapter 7.100, Hazardous Materials/Hazardous Waste/Underground Storage Tanks, of the Santa Cruz County Code.

FIELD METHODOLOGY FOR:

HYDRAULIC DRIVEN PROBES
(if necessary)

Using Macro-Core®, Large Bore® or Dual Tube® Hydraulic Driven Probes

Direct push exploratory borings are “drilled” with a Hydraulic Driven Probe drill rig, which hydraulically vibrates and drives steel probes into the soil. This sampling technology has the ability for either continuous or discrete sampling using a 4-foot long nickel-plated sampling probes fitted with clear acetate liners. During coring operations, the sampler remains open as it is driven into undisturbed soil over its entire 4-foot sampling interval.



The soil cores are logged by an experienced geologist using the Unified Soil Classification System (USCS), noting in particular, the lithology of the soils, moisture content, and any unusual odor or discoloration. Relatively undisturbed soil samples are obtained for both lithologic logging and laboratory analysis. A portion of individual soil cores are stored in a sealed plastic bags for field screening of hydrocarbons and/or volatile organic compounds by an Photoionization Detector (PID). Vapor readings in parts per million (ppm) are recorded on the boring logs. The PID is also used during drilling for monitoring the work area for site safety.

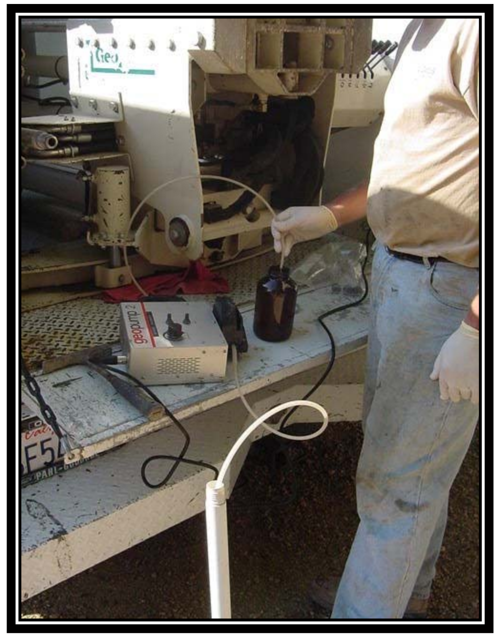
All drilling equipment is decontaminated prior to arriving on-site to prevent possible transfer of contamination from another site. The sampling probe and all other soil sampling equipment are thoroughly cleaned between each borehole by washing in a Liqui-Nox or Alconox solution followed by a double rinsing with distilled water to prevent the transfer of contamination.

After drilling, all exploratory boreholes are grouted with continuous pour neat cement grout from the bottom of the borehole to the ground surface. Soil cuttings and purge water generated during sampling are stored on site in DOT-approved, drums for disposal by a state-licensed contractor pending laboratory analysis results.

Samples Targeted for Laboratory Analysis:

<u>Soil Samples</u>: Soil samples targeted for laboratory analysis are immediately cut from the acetate sample liner and protected at both ends with Teflon tape, sealed with non-reactive caps, taped, labeled, placed in a plastic ZipLock baggie, and immediately stored in an insulated container chilled to a temperature of 4 degree Celsius. Soil samples selected for Volatile Organic Compound (VOC) analysis will follow field preservation protocols according to EPA Method 5035, as described in DTSC’s *Guidance Document for the Implementation of United States Environmental Protection Agency Method 5035: Methodologies for Collection, Preservation, Storage, and Preparation of Soils to be Analyzed for Volatile Organic Compounds*, dated November 2004.

Groundwater Samples: Once encountered, depth to groundwater is measured to the nearest hundredth (0.01) of a foot with an pre-cleaned, electric sounder (subsequent measurements may be made to evaluate first encountered vs. stabilized levels). Groundwater samples are collected after temporary PVC casing is placed in the hole and at least one borehole volume is purged and groundwater is visually observed to be free of sediment.



Relatively representative groundwater samples are collected either: 1) using a peristaltic pump and dedicated polyethylene tubing and dispensed directly into containers specifically prepared for the analyses (typically for groundwater encountered at depths of less than 27 feet below ground surface (bgs)); or 2) by mechanically lifting groundwater through a clean stainless steel foot valve and dedicated polyethylene and dispensed directly into containers specifically prepared for the analyses.

During purging, the purge water is monitored. A calibrated, YSI Professional Plus Multi-Parameter flow-through meter is used to measure the physical parameters of temperature, conductivity, pH, dissolved oxygen (D.O.) concentration, and Oxidation-Reduction Potential (ORP) to evaluate stabilized parameters (i.e., measured parameters are within ~ 10 percent of the previous measurement). Purging is determined to be complete (stabilized aquifer conditions reached) when the physical parameters have stabilized and/or the removal of approximately two well casings for driven probes and three-to-five well volumes of water for permanent wells.

Samples being analyzed for dissolved metals will be preserved and acidified by the testing laboratory following their receipt of samples. Once collected, groundwater sample containers are placed in ZipLock bags and are stored in an insulated container chilled to a temperature of 4 degree Celsius.

All field data (depth-to-groundwater, well purge volume, physical parameters, and sampling method) is recorded on field data sheets

Sample Transport: All samples are transported in chilled coolers to a State-certified laboratory under appropriate chain-of-custody documents. Soil samples that may be put on "hold" for potential future analysis will be stored in a dedicated sample freezer, be frozen, and stored under chain-of-custody documentation. Hold times will be confirmed with the testing laboratory to ensure that potential analysis of any "hold" samples will be analyzed within the laboratory hold times.

Thomas Harder & Co.
Groundwater Consulting

October 26, 2017

Mr. Pat Hoban, PG
Weber, Hayes & Associates
120 Westgate Drive
Watsonville, California 95076

Re: Response to September 29, 2017 Huntley Environmental Comments 2 through 12 to:
***Remedial Action Plan (RAP)* dated September 13, 2017**
***Site Preparation Tasks for Redevelopment (SPTR)* dated July 13, 2017**
Former Clusters Storage Yard
511 Ohlone Parkway
Watsonville, California

Dear Mr. Hoban:

As you requested, this letter provides Thomas Harder & Company's (TH&Co's) responses to Comment 2 through Comment 12 provided by Huntley Environmental (Huntley) to the Remedial Action Plan (RAP) and Site Preparation Tasks for Redevelopment (SPTR) for the Former Clusters Storage Yard located at 511 Ohlone Parkway in Watsonville, California. Both documents were prepared by Weber, Hayes & Associates (WHA) and submitted to the Santa Cruz County Environmental Health Service (SCCEHS). Our responses immediately follow each of the Huntley comments, which are shown in italics and were copied and pasted directly from the electronic portable document file (pdf) provided to TH&Co by WHA via electronic mail on October 2, 2017.

Huntley Comment 2: *The basis for making the decision to remediate soils to 2 ft is not clear in the RAP. Potential health risks in soils at 0-2 ft are not presented in the RAP for the COPCs identified. Moreover, cumulative noncancer and cancer risks are not presented in the RAP as the basis for remediating the upper 2 ft of soil or leaving soil deeper than 2 ft in place. While the decision to remediate soils to a depth of 2 ft can be made based on COPC exceedances of ESLs, the decision to leave soils in place at 2 ft and deeper should be supported by calculated cumulative noncancer and cancer risks, noting that four carcinogens (arsenic, hexavalent chromium, naphthalene, and nickel) were identified as COPCs. I would recommend that estimated cumulative noncancer and*

APPENDIX F

Agency Documentation

Santa Cruz County Health Services Agency (& Third-Party Toxicologist Reviews)	
SC-HSA Comments Regarding the Updated Remedial Action Plan, **dated January 12, 2021. And,** ***Public Notice of Remedial Action Activities***	**September 16, 2021** **June 25, 2021**
County 3rd-Party toxicologist Steve Huntley concurrence that dust evaluation was satisfactory, based on review of:	**June 24, 2019**
SC-HSA Agency Comments regarding: 1) Field Notification startup schedule, 2) Windblown Dust Assessment, and 3) Proposed Fencing Plan (for implementation during proposed construction phasing work)	**May 21, 2019**
SC-HSA Agency Conditional Approval of the Phased Remedial Excavation Approach **(2 phases of remedial excavation work)**	**December 18, 2018**
SC-HSA Agency Conditional Approval of the Revised Remedial Action Plan, dated June 15, 2018. **(single phase mobilization)**	**June 20, 2018**

County of Santa Cruz

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ENVIRONMENTAL HEALTH

September 16, 2021 SC-HSA Agency Comments
regarding the *Updated Remedial Action Plan,* dated January 12, 2021.

September 16, 2021

California Sunshine Development, LLC
c/o Ms. Lisa Li and Mr. John Frey
444 Airport Boulevard
Watsonville, California 95076
EMAIL: casunshinerc@gmail.com
EMAIL: john@cdmre.com

SUBJECT: Response to Updated Remedial Action Plan, Former Clusters Storage Yard (Proposed Hillcrest Project), 511 Ohlone Parkway, Watsonville, California

Dear Ms. Li and Mr. Frey:

The County of Santa Cruz Environmental Health Division (CSCEHD) has reviewed the following document for the subject site: (1) *Updated Remedial Action Plan* (Updated RAP, dated January 12, 2021, by Weber, Hayes & Associates [WHA]). Thank you for the submittal. This Updated RAP was modified from the *Revised Remedial Action Plan (rev. 2)* (RRAP, dated June 15, 2018, by WHA), which was approved with conditions by our agency's letter dated June 20, 2018, with further modification approvals by electronic correspondences (emails) dated December 18, 2018, and July 15 and 16, 2019. Additionally, as part of our review of the Updated RAP our agency conducted a 30-day public notification process, which ended on July 25, 2021.

The Updated RAP documents the magnitude and extent of impacted soils at the subject site and proposes to implement Remedial Action Alternative 3: "Burial Envelope with Soil Cap." This alternative consists of excavating impacted shallow soils (less than two feet below grade) and deeper areas with known chemical concentrations exceeding applicable environmental screening levels (ESLs), off-hauling hazardous chemical soil concentrations to an appropriate disposal facility, and burying non-hazardous chemical soil concentrations in a 35-foot-deep caped envelope on-site. The Updated RAP proposes the upper 16-feet of the capped envelope include a retaining wall along its northern edge. Following remedial excavations, the Updated RAP proposes where necessary to collect base and sidewall confirmation soil samples for confirmation laboratory testing in accordance with CSCEHD standards, soil stockpile management, landfill acceptance profiling and disposal documentation, and summary reporting. The Updated RAP indicates the implementation of Remedial Action Alternative 3 follows state guidance for the remedial technologies of metals in soil (DTSC, 2008).

Based on our review, the currently submitted document does not include the required data and documentation required under the DTSC, 2008 guidance:

- The Updated RAP does not include an adequate design plan. In accordance with DTSC, 2008, sufficient data should be collected to support the engineering design of the selected remedial action. Technical plans for implementing the selected cleanup alternative should be prepared and submitted to the regulatory agency, either in the remedy selection document or provided as a stand-alone document. Technical plans should contain the specific engineering design details of the proposed cleanup approach, including designs for any long-term structures (e.g., retaining walls as part of the design feature of a remedial cap). As applicable, the design plans should include the design criteria, process diagrams, and final plans.

- The Updated RAP does not provide adequate information on the long-term stewardship of the selected cleanup alternative, which is necessary when long-term management of contaminated environmental media is proposed (e.g., caps) to ensure that human health and the environment is protected over time. As discussed in DTSC, 2008, long-term stewardship information includes, but is not limited to, the following: (1) drafts of institutional controls (ICs) such as Land Use Covenants (LUCs); (2) financial assurance descriptions to assure that sufficient monies are available to implement any required corrective action activities and on-going operation and maintenance (O&M) activities; and (3) a regulatory oversight agreement for a contingency plan if a future immediate response action is required and the ongoing periodic review of integrity assessments and O&M activities associated with the implemented remedial action, including inspections, repairs and maintenance, reporting, recordkeeping, and notifications.

Therefore, our agency rejects the Updated RAP, dated January 12, 2021. You are required to take the following actions:

- Submit a modified draft RAP that includes all the engineering technical design plans and long-term stewardship requirements in accordance with DTSC, 2008 guidance. The draft RAP must be submitted to our agency and the City of Watsonville agency with authority to review technical engineering building permit applications.

  OR

- Implement the RRAP approved by our agency in June 2018 and subsequent correspondences through the 2019 calendar year.

You are responsible for indicating to our agency your path forward with your remedial action case by **November 15, 2021**. You are responsible for providing a progress schedule for implementing the RRAP or for submitting the modified draft RAP to our agency and the City of Watsonville agency with authority to review technical engineering building permit applications by **December 15, 2021**. Document copies for our agency should be submitted electronically directly to my email (John.Gerbrandt@santacruzcounty.us). If the report is greater than 150 mb, please contact me for alternative submittal options. If you have any comments or questions regarding this letter, you may contact me at the above email address or at (831) 454-2731.

Sincerely,

John B. Gerbrandt, P.G., R.E.H.S.
Professional Geologist
County of Santa Cruz Health Services Agency
Environmental Health Division
Site Mitigation Program
701 Ocean Street, Suite 312
Santa Cruz, CA 95060

Cc: Senator John Laird, (Senator.Laird@senate.ca.gov)
Supervisor Greg Caput, (greg.caput@santacruzcounty.us)
Mr. Greg Bishop, CCRWQCB (Greg.Bishop@waterboards.ca.gov)
Ms. Angela M. Chesnut, Senator John Larid's Office (angela.chesnut@sen.ca.gov)
Mr. Tony Gregorio, Analyst, Supervisor Caput, County of Santa Cruz (tony.gregorio@santacruzcounty.us)
Mr. Pat Hoban, WHA (pat@weber-hayes.com)
Mr. Tom Lanphar, DTSC (tom.lanphar@dtsc.ca.gov)
Mr. Justin Meek, City of Watsonville, Building and Planning (justin.meek@cityofwatsonville.org)
Ms. Suzi Merriam, City of Watsonville, Community Development Department Director (suzi.merriam@cityofwatsonville.org)
Mr. Chad Mitcham, USFWS (chad_mitcham@fws.gov)
Mr. Steve Palmisano, City of Watsonville, Public Works & Utilities Director (steve.palmisano@cityofwatsonville.org)
Ms. Julie Pettijohn, DTSC (julie.pettijohn@dtsc.ca.gov)

References:

California Department of Toxic Substances Control (DTSC). 2008. *Proven Technologies and Remedies Guidance, Remediation of Metals in Soil*, August 29, 2008, 420 p. https://dtsc.ca.gov/proven-technologies-remedies-documents/

County of Santa Cruz

HEALTH SERVICES AGENCY

701 OCEAN STREET, ROOM 312, SANTA CRUZ, CA 95060-4073

(831) 454-2022 FAX: (831) 454-3128

http://www.co.santa-cruz.ca.us/

ENVIRONMENTAL HEALTH

June 25, 2021 SC-HSA Public Notice
(public comment period for review/comments on the *Updated Remedial Action Plan*, dated January 12, 2021.

June 25, 2021

Interested Parties-

Subject: Public Notice of Remedial Action Activities

Site: 511 Ohlone Parkway, Watsonville, California

The County of Santa Cruz Environmental Health Division (CSCEHD) is a regulatory agency responsible for the protection of environmental health within the County of Santa Cruz. As such, we are overseeing the investigation and cleanup of contamination released from the former Clusters Storage Yard at the above referenced site. California Sunshine Development, LLC (represented by Ms. Li and Mr. Fry) is the responsible party for investigation and cleanup of the site. We are notifying the nearby property owners and other stakeholders of the proposed remedial action activities. Please provide your comments or concerns regarding the remediation activities proposed for this case by July 25, 2021. It is not necessary to respond if you have no comments. A summary of activities related to investigation and cleanup follows:

Historical land use maps indicate that 511 Ohlone Parkway was previously used by various automotive wrecking/dismantling and vehicle storage businesses (i.e., junkyard salvaging of vehicles, sales of dismantled parts, and towing company storage) from approximately the late 1950s to 2016. Research and environmental investigations have documented evidence of surface and shallow soil contamination due to the decades of vehicle storage activities at the site.

To reduce environmental risks at the site, the responsible party has proposed remedial actions in an *Updated Remedial Action Plan* submitted to CSCEHD on February 10, 2021. The *Updated Remedial Action Plan* concluded that localized residual concentrations of contaminates in soil exceed risk-based screening threshold concentrations for residential land use. Therefore, the goal of proposed remedial action will be to reduce, minimize, or eliminate potential future exposure of humans to near surface soil contamination. Specifically, remedial action would include excavating impacted shallow soils (less than 2 feet below ground surface) and deeper areas with known contamination and burying these soils in an on-site envelope following appropriate state guidance. Deeper soils, if determined to be absent of elevated concentrations of contaminants of concern, would be used to backfill over the envelop as a "soil cap." Additionally, the recording a deed restriction is proposed with an *Environmental Site Management Plan*, which would require that the thickness of the fill cover be regularly checked and maintained as necessary to provide the protective cover that serves to eliminate potential exposure to any underlying impacted soil. Completion of remedial activities would ensure that there is no long-term connectivity between residual contamination in the subsurface to onsite residents, workers, visitors, and/or the environment with an easy to maintain remedial cap. Remediation activities are tentatively scheduled for the Fall 2021 through Spring 2022.

More information regarding the details of the remedial action and investigation is available for review on the CSCEHD files web site link:

- http://scceh.com/Home/SantaCruzEHSfiles.aspx

You can view a site location map at the following website link using the site address or Assessor's Parcel Number (APN) (APN 018-372-14):

- https://gis.santacruzcounty.us/gisweb/

If you have questions, wish to obtain additional information, or would like to provide comments, please contact John Gerbrandt at (831) 454-2731, John.Gerbrandt@santacruzcounty.us, or John Gerbrandt, County of Santa Cruz Health Services Agency, Environmental Health Division, 701 Ocean Street, Room 312, Santa Cruz, CA 95060.

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June 24, 2019 SC-HSA Agency Comments
-County 3rd-Party toxicologist Steve Huntley concurrence that dust evaluation was satisfactory, based on review of:
1) March 1, 2019 *Screening Modeling and Health Analysis for Impacts from Windblown Dust* (Bluescape), and
2) Bluescape revision dated June 21, 2019.

Pat Hoban

From: John Gerbrandt <John.Gerbrandt@santacruzcounty.us>
Sent: Monday, June 24, 2019 3:33 PM
To: Pat Hoban
Cc: Scott Carson
Subject: FW: Re: 511 Ohlone Pkwy, Response to Screening Modeling and Health Analysis for Impacts from Windblown Dust
Attachments: Weber Hayes Santa Cruz Lead Impacts Report Revised 062019.pdf

Hi Pat,

Please see Steve Huntley's email response last Friday to the attached report.

Since I am covering for Scott on this project, please let me know where we are in this project and let me if you need any response from our agency on any documents. I am aware that there is some document with a name like "Fencing and Phase Plan" that may need a response. But I am not sure about that.

Anyways, just to let you know, I would be <u>very</u> tentative to approve any new documents that Scott and Steve Huntley, if needed, have not already reviewed and given there approval for already.

Sincerely,

John Gerbrandt, P.G., R.E.H.S. | Environmental Health Specialist
Hazardous Materials Program
Environmental Health Division | Santa Cruz County Health Services Agency
701 Ocean Street, Room 312, Santa Cruz, CA 95060

From: Scott Carson <Scott.Carson@santacruzcounty.us>
Sent: Friday, June 21, 2019 5:11 PM
To: John Gerbrandt <John.Gerbrandt@santacruzcounty.us>
Subject: FW: Re: 511 Ohlone Pkwy, Response to Screening Modeling and Health Analysis for Impacts from Windblown Dust

FYI

Sincerely,

Scott E. Carson, PG, CEG
Professional Geologist
County of Santa Cruz Health Services Agency
Environmental Health Division
Site Mitigation Program
701 Ocean Street, Suite 312
Santa Cruz, CA 95060

Voice 831-454-2758, Fax 831-454-3128, Email Scott.Carson@santacruzcounty.us
County Main http://www.co.santa-cruz.ca.us/, EHS Home http://www.scceh.com/
Site Mitigation Home http://www.scceh.com/Home/Programs/SiteMitigation.aspx

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From: Steve Huntley <shuntley@huntleyenvironmental.com>
Sent: Friday, June 21, 2019 6:40 AM
To: Scott Carson <Scott.Carson@santacruzcounty.us>; John Gerbrandt <John.Gerbrandt@santacruzcounty.us>
Subject: Fwd: Re: 511 Ohlone Pkwy, Response to Screening Modeling and Health Analysis for Impacts from Windblown Dust

Hi Scott and John,

I have reviewed the revised BlueScape Screening Modeling and Health Analysis report for the 511 Ohlone Pkwy project. I note that BlueScape did not provide formal response to comments (RTCs) nor did they provide a redline/strikeout version of the report.

Nevertheless, I was able to verify that all of my previous comments on the March 1, 2019 version of this report have been adequately addressed. I have no further comments.

Steve

--

HUNTLEY ENVIRONMENTAL
8898 Oak Trail Dr.
Santa Rosa, CA 95409
(775) 720-5330
www.huntleyenvironmental.com

-------- Forwarded Message --------
Subject: Re: 511 Ohlone Pkwy, Response to Screening Modeling and Health Analysis for Impacts from Windblown Dust
Date: Fri, 21 Jun 2019 00:01:32 +0000
From: James Westbrook | BlueScape <jwestbrook@bluescapeinc.com>
To: Pat Hoban <pat@weber-hayes.com>, (Risk) Steve Huntley <shuntley@huntleyenvironmental.com>, (SC-HSA) Scott Carson <scott.carson@co.santa-cruz.ca.us>, (SC-HSA) John Gerbrandt <John.Gerbrandt@santacruzcounty.us>

All – here is the revised report addressing the comments. Please let me know if you have additional questions or comments.

Thanks, James

From: Pat Hoban <pat@weber-hayes.com>
Date: Tuesday, June 18, 2019 at 3:37 PM
To: James Westbrook <jwestbrook@bluescapeinc.com>
Cc: "(Risk) Steve Huntley" <shuntley@huntleyenvironmental.com>, "(SC-HSA) Scott Carson" <scott.carson@co.santa-cruz.ca.us>, "(SC-HSA) John Gerbrandt" <John.Gerbrandt@santacruzcounty.us>
Subject: FW: 511 Ohlone Pkwy, Response to Screening Modeling and Health Analysis for Impacts from Windblown Dust

James,

Could you please send your revised report directly to Steve, Scott and John (cc:ed above) when it is completed as I'm sure I will add no value to a review. Thank you for your efforts.

I will be out the remainder of the week.

All the best,
Pat

Pat Hoban, PG
Weber, Hayes & Associates
(831) 722-3580

From: Scott Carson <Scott.Carson@santacruzcounty.us>
Sent: Friday, June 14, 2019 11:01 AM
To: Pat Hoban <pat@weber-hayes.com>
Cc: (Sunshine Vista) Lisa Li <casunshinerc@gmail.com>; 'Tom Sharp' <tom.sharp@cityofwatsonville.org>; shuntley@huntleyenvironmental.com
Subject: 511 Ohlone Pkwy, Response to Screening Modeling and Health Analysis for Impacts from Windblown Dust

Hello Pat,

Our agency and our third party Toxicologist, Mr. Steve Huntley of Huntley Environmental, have reviewed the *Screening Modeling and Health Analysis for Impacts from Windblown Dust at the California Sunshine Development Project Site at 511 Ohlone Parkway in Watsonville, California* (received May 1, 2019, dated March 1, 2019, by Bluescape Environmental). We have determined that modifications are required in accordance with the attached Huntley Environmental Technical Memorandum dated June 14, 2019, before we will be able to approve the document and the planned project. To help accommodate an efficient review of your response, please provide a Response to Comments in response to the Huntley Memorandum, as well as a revised windblown dust assessment in redline/strikeout and final modes. If you have any questions or would like to arrange a teleconference to discuss the comments, both Mr. Huntley and myself are available most of next week. I will be out of the office and unavailable June 24 through July 9.

Sincerely,

Scott E. Carson, PG, CEG
Professional Geologist
County of Santa Cruz Health Services Agency
Environmental Health Division
Site Mitigation Program
701 Ocean Street, Suite 312
Santa Cruz, CA 95060

Voice 831-454-2758, Fax 831-454-3128, Email Scott.Carson@santacruzcounty.us
County Main http://www.co.santa-cruz.ca.us/, EHS Home http://www.scceh.com/

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May 21, 2019 SC-HSA Agency Comments regarding
1) Field Notification startup schedule
2) *Windblown Dust Assessment,* and
3) Proposed *Fencing Plan* to implement during proposed construction phasing work.

Pat Hoban

From: Scott Carson <Scott.Carson@santacruzcounty.us>
Sent: Tuesday, May 21, 2019 12:29 PM
To: Pat Hoban
Cc: (Sunshine Vista) Lisa Li; 'Tom Sharp'; 'Justin Meek'
Subject: RE: Status Update: Phase I Excavation Work is Targeted for June (Sunshine Vista Environmental Grading and Phasing, Watsonville)

Hello Pat,

Thank you for your May 1, 2019 email below and associated attachments. This email presents our response.

Thank you for the email responses to the county's December 18, 2018, comments. Other than your responses to our Comments 3 and 4, we accept your responses. Regarding your response to our Comments 3 and 4, the *Environmental Management Plan* must be provided at least 3 months prior to occupancy of any newly constructed homes as suggested, and also at least 30 days in advance of finishing the earthworks for the Phase 1-a remediation and Phase 1 development so that it can be implemented immediately upon completion of these activities.

We have reviewed the initial "Phase II Separation Fencing Plan". We have discussed the Fencing Plan with you, and you have already provided updates. Based on our discussions yesterday and today, I understand that you are going to submit a newly revised version of the Fencing Plan for our review this week. Approval of this plan must be obtained before beginning remediation and development work at the site.

In addition, we have received the report titled "Screening Modeling and Health Risk Analysis for Impacts from Windblown Dust". I am forwarding the report to our third party Toxicologist, Steve Huntley, for review. Approval of this report must be obtained before beginning remediation and development work at the site.

Please let me know if you have any questions.

Sincerely,

Scott E. Carson, PG, CEG
Professional Geologist
County of Santa Cruz Health Services Agency
Environmental Health Division
Site Mitigation Program
701 Ocean Street, Suite 312
Santa Cruz, CA 95060

Voice 831-454-2758, Fax 831-454-3128, Email Scott.Carson@santacruzcounty.us
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Site Mitigation Home http://www.scceh.com/Home/Programs/SiteMitigation.aspx

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From: Pat Hoban <pat@weber-hayes.com>
Sent: Wednesday, May 01, 2019 3:32 PM
To: Scott Carson <Scott.Carson@santacruzcounty.us>
Cc: (Sunshine Vista) Lisa Li <casunshinerc@gmail.com>
Subject: RE: Status Update: Phase I Excavation Work is Targeted for June (Sunshine Vista Environmental Grading and Phasing, Watsonville)

ATTACHMENTS:

1. *Screening Modeling and Health Risk Analysis for Impacts from Windblown Dust at the California Sunshine Development Project Site* (Bluescape Environmental)
2. Fencing and Signage (map and photos)

Hi Scott,

This is just a quick update to you regarding the Phase I grading work. It's still about a month off but is looks like the grading crew is looking to mobilize in early June to initiate the Phase I portion of the earthworks. I'll keep you updated as we get closer regarding schedule and work tasks. Here is the status on the tasks to complete prior to residents:

1. We requested and will review an assessment of the potential for unacceptable dust risks from remaining contaminants to any new residents.
   - **Response**: A leading air modeling firm (https://bluescapeinc.com/) has completed an assessment of worst case dust conditions and potential risks to Phase I residents (there is no risk). A copy of their report is attached.

2. We requested and will review a more detailed description of the proposed engineering controls (fencing and signage) from the limited perspective of whether they are sufficient to protect the public from direct exposure to the remaining chemically-impacted soil.
   - **Response**: Attached is a draft of the fencing and signage plan (notices will be positioned at every access gate into the site and attached on 80-ft centers to the interior fence, Fence #2). which delineates the Phase I (remediated) from the Phase II (un-remediated) areas. There are actually going to be three (3) fences to be installed:
     1) Fence #1, encapsulates the entire site to prevent unauthorized access (and is to eliminate public entry) into the Site during construction (cyclone fencing - see attached detail/photo);
     2) Fence #2, will be installed to document the boundary between the Phase I (remediated) and the Phase II (un-remediated) areas (construction fencing tied onto driven fence rods), and
     3) Fence #3, will be a sturdy residential installed around the first phase of construction. This is to be installed for resident home security and to prevent residents from entering ongoing construction areas.

3. We requested and will review an Environmental Management Plan, which will likely include periodic inspections of the proposed engineering controls and area of impacted soil to assure protection of the public while contaminants remain on site.
   - **Response**: At least 3 months prior to occupancy of any newly constructed home, we will provide a detailed *Environmental Management Plan* describing inspections and controls put in place to prevent access to the fenced off, un-remediated area. At a minimum, there will be weekly inspections of the fence line to confirm its integrity is maintained and inspect the un-remediated (Phase II) area to confirm it remains undisturbed.

4. The "Phasing Schedule for the agency-approved, Revised Remedial Action Plan" (dated November 14, 2018, submitted by Weber, Hayes & Associates) appears to be reasonable.
   Once the above supporting documents are submitted and deemed satisfactory, we anticipate being able to issue a single letter approving the dust assessment, the engineering controls, the Environmental Management Plan, and the "Phasing Schedule for the agency-approved, Revised Remedial Action Plan".
   - **Response**: Noted. We will follow-up with the *Environmental Management Plan* (at least 3 months prior to occupancy) to obtain the approval letter for the Phase II work.

5. We will inspect field activities for implementation of the "Revised Remedial Action Plan (rev. 2)" (dated June 15, 2018), the "Phasing Schedule for the agency-approved, Revised Remedial Action Plan", and related actions.

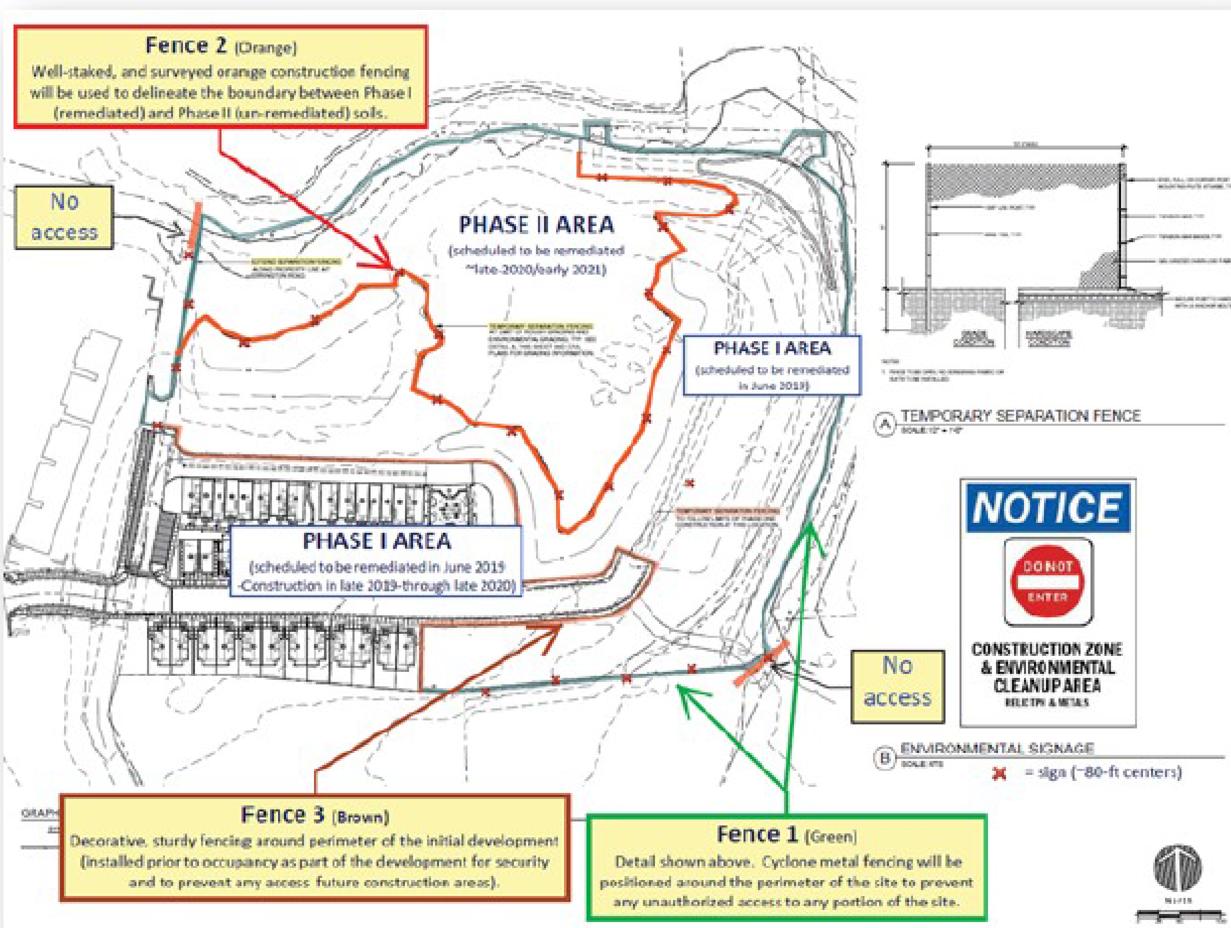
- **Response**: Noted. We will provide start up date *at least* one week prior to initiation of any field work and will provide brief weekly updates of ongoing work to include daily field sheets, results of dust monitoring, and any ongoing laboratory results.

6. We will receive and review a report on the activities, results, and conclusions of the Phase 1 soil remediation and mitigation measures (identified as Phase 1a soil remediation during our December 17 telephone conversation). As requested, this email confirms that our agency will be able to issue a notice or letter of satisfactory completion once the Phase 1 soil remediation proposed in the Phasing Schedule and related reporting have been completed. Once the fencing and signage have been installed, our agency could upon request also provide a brief confirmation that these proposed engineering controls have been satisfactorily installed.
    - **Response**: Noted, thank you.

7. We will review results of the site inspections as performed in accordance with the Environmental Management Plan and reported to our agency
    - **Response**: Noted. Photo-documented inspection sheets will be submitted on a weekly basis to document compliance with the *Environmental Management Plan.*

The Phase II Remediation Area will remain un-remediated, fenced off, and monitored until development of that subdivision is started. As I understand it, development of the Phase II Remediation Area will be triggered when the "final subdivision map" for that area is filed (i.e., triggers contracts with the City to build infrastructure improvements and record the map). The developer will complete the Phase II environmental grading work prior to obtaining the final subdivision map for the Phase II area of the property where environmental grading was not complete.

Pat Hoban, PG
Weber, Hayes & Associates
(831) 722-3580



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December 18, 2018 SC-HSA *Agency* Conditional Approval of the Phased Remedial Excavation Approach -

Remedial excavation to be carried out in 2 phases instead of the single mobilization described in the agency-approved, *Revised Remedial Action Plan, dated June 15, 2018.*

Pat Hoban

From:	Scott Carson <Scott.Carson@santacruzcounty.us>
Sent:	Tuesday, December 18, 2018 2:08 PM
To:	Tom Sharp; Pat Hoban; Justin Meek
Subject:	RE: Sunshine Vista Environmental Grading and Phasing, 511 Ohlone Parkway, Watsonville

Hello Tom, Justin, and Pat,

Thank you Tom for the helpful summary of yesterday's telephone conversation regarding the actions the city will take to protect the residents of the initial home construction. Our agency concurs with these plans. As discussed, our agency has already taken or will take the following actions to assist the stakeholders and to assure worker safety and public health during development of 511 Ohlone Parkway:

- We requested and will review an assessment of the potential for unacceptable dust risks from remaining contaminants to any new residents.

- We requested and will review a more detailed description of the proposed engineering controls (fencing and signage) from the limited perspective of whether they are sufficient to protect the public from direct exposure to the remaining chemically-impacted soil.

- We requested and will review an Environmental Management Plan, which will likely include periodic inspections of the proposed engineering controls and area of impacted soil to assure protection of the public while contaminants remain on site.

- The "*Phasing Schedule for the agency-approved, Revised Remedial Action Plan*" (dated November 14, 2018, submitted by Weber, Hayes & Associates) appears to be reasonable. Once the above supporting documents are submitted and deemed satisfactory, we anticipate being able to issue a single letter approving the dust assessment, the engineering controls, the Environmental Management Plan, and the "*Phasing Schedule for the agency-approved, Revised Remedial Action Plan*".

- We will inspect field activities for implementation of the "*Revised Remedial Action Plan (rev. 2)*" (dated June 15, 2018), the "*Phasing Schedule for the agency-approved, Revised Remedial Action Plan*", and related actions.

- We will receive and review a report on the activities, results, and conclusions of the Phase 1 soil remediation and mitigation measures (identified as Phase 1a soil remediation during our December 17 telephone conversation). As requested, this email confirms that our agency will be able to issue a notice or letter of satisfactory completion once the Phase 1 soil remediation proposed in the *Phasing Schedule* and related reporting have been completed. Once the fencing and signage have been installed, our agency could upon request also provide a brief confirmation that these proposed engineering controls have been satisfactorily installed.

- We will review results of the site inspections as performed in accordance with the Environmental Management Plan and reported to our agency.

For the record, our agency has received an emailed request from Weber, Hayes & Associates dated December 5, 2018, for an extension of the due date for "completion of the Phase I remedial earthworks and submittal of the *Phase I Remedial Completion Report*". In a previous response letter dated June 20, 2018, our agency approved the "*Revised Remedial Action Plan (rev. 2)*" (dated June 15, 2018, by Weber, Hayes & Associates). As discussed above, we have also received for review the "*Phasing Schedule for the agency approval, Revised Remedial Action Plan*", which proposes to split the work described in the "*Revised Remedial Action Plan (rev. 2)*" into two phases. Based on the information provided and the planned implementation schedule, our agency does not object to extending the due date for reporting the work proposed in the "*Revised Remedial Action Plan (rev. 2)*", including the proposed Phase 1 activities described in the *Phasing Schedule*, to the requested due date of **July 20, 2019**.

I hope the above notes accurately capture the comments and activities of the county as discussed yesterday. If I missed anything or you have any other suggested changes please let me know.

Sincerely,

Scott E. Carson, PG, CEG
Professional Geologist
County of Santa Cruz Health Services Agency
Environmental Health Division
Site Mitigation Program
701 Ocean Street, Suite 312
Santa Cruz, CA 95060

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Site Mitigation Home http://www.scceh.com/Home/Programs/SiteMitigation.aspx

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From: Tom Sharp <tom.sharp@cityofwatsonville.org>
Sent: Monday, December 17, 2018 11:24 AM
To: Pat Hoban <pat@weber-hayes.com>; Scott Carson <Scott.Carson@santacruzcounty.us>; Justin Meek <justin.meek@cityofwatsonville.org>
Subject: Sunshine Vista Environmental Grading and phasing

The following summarizes the steps which will be taken to safely allow phased environmental grading for 511 Ohlone residential development. The plan proposed by the developer would perform the environmental grading for the development footprint of 39 of the homes which would allow them to be built and occupied before the environmental grading is performed for the rest of the property.

The city will take the following actions to protect the residents of the initial home construction of the development. These requirements will be included in the development agreement

1. The city will require the developer to issue specific disclosures to any prospective buyer that the adjacent land has not been cleaned up yet and that enter this land will expose a person to a health hazard.

2. The city will require the developer to construct and maintain fencing and information signs to keep the public from the portions of the property with contaminated soil. The duty to maintain the fencing and signs will lie with the homeowners association and will be included in the Conditions Covenants and Restrictions document.

3. If the developer wishes to implement subsequent phases of the subdivision (contract with the city to build infrastructure improvements; establish improvement security; record subdivision map) on portions of the property where environmental grading hasn't been performed, the developer will required to guarantee performance for the environmental grading work. This is the city's standard subdivision procedure (WMC 13-7.11 "Improvement Agreement, and 13-7.12 Improvement Security)

4. The city will share the proposed disclosure documents and related materials with SCC EHS.

Please let me know if this is your understanding of what is agreed to with regard to Sunshine Vista Phasing and Environmental Grading.

--
Thomas J. Sharp
City of Watsonville Community Development and Public Works and Utilities Department
250 Main Street
Watsonville, CA 95076
(831)768-3076

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County of Santa Cruz

HEALTH SERVICES AGENCY
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ENVIRONMENTAL HEALTH

June 20, 2018

June 20, 2018, SC-HSA *Agency Conditional Approval of* the *Revised Remedial Action Plan, dated June 15, 2018.*

Ms. Lisa Li & Mr. Kevin Wang
California Sunshine Development LLC
casunshinerc@gmail.com
Kevinpsd@hotmail.com

SUBJECT: Response to Revised Remedial Action Plan (rev. 2), Clusters Property (County RO# 0000365), 511 Ohlone Parkway, Watsonville, CA

Dear Ms. Li & Mr. Wang:

The County of Santa Cruz Environmental Health Division (CSCEHD) and our third-party Toxicologist (Mr. Steve Huntley) have reviewed the following document for the subject site: (1) *Revised Remedial Action Plan (rev. 2)* ([*RRAP*] dated June 15, 2018, by Weber, Hayes & Associates [WHA]). Thank you for the submittal. This *RRAP* was modified from previous versions in response to various comments from the CSCEHD and Mr. Huntley. This letter presents our response.

The *RRAP* documents the magnitude and extent of impacted soils at the subject site and proposes to implement Remedial Action Alternative 2: "Site-wide Shallow Soil Excavation (2-feet), Targeted Deeper Excavation and Off-Site Disposal". This alternative includes scraping and separate stockpile segregation of the upper 6-inches of soil from across the property, to be followed with excavation and stockpiling of the underlying 18-inches of soil. In addition, deeper excavations would be completed if any visibly-impacted areas are discovered (i.e., any soils with chemical staining/odors) as well as at locations where previous testing showed deeper contamination. The collection of confirmation soil samples is planned. Excavated soils will be hauled to an appropriate landfill.

Provided the following conditions are met, our agency does not object to the implementation of the *RRAP*:

- Throughout the soil removal project, you are required to submit brief updates with figures describing any new field indications of previously unidentified and significant soil contamination and including associated conclusions and recommendations.

- Our agency requires notification of all field dates, estimated start and end times, field contact person, and contact-person phone number at least 5 business days in advance of all field activities.

- Appropriately licensed and qualified professionals must perform or direct all work requiring engineering, geologic, and/or other professional evaluations or judgments and must properly sign and stamp all reports containing professional evaluations or judgments.

- You are responsible for complying with all regulatory and permitting requirements.

- Any project-generated soil and water that may contain chemicals of concern must be properly characterized, handled, treated, and/or disposed of in accordance with applicable regulations. The project report must describe these activities and include copies of the fully signed manifests or other appropriate shipping and disposal documentation.

You are responsible for having the specified work performed and for submitting the project report to our agency by **December 20, 2018**. The copies for our agency should be submitted electronically directly to my email (Scott.Carson@santacruzcounty.us). If you have any comments or questions regarding this letter, you may contact me at (831) 454-2758, 8:00 a.m. to 9:30 a.m., Monday through Friday.

Sincerely,

Scott E. Carson

Scott E. Carson, P.G., C.E.G.
Professional Geologist
County of Santa Cruz Health Services Agency
Environmental Health Division
Site Mitigation Program
701 Ocean Street, Suite 312
Santa Cruz, CA 95060

Cc: Patrick Hoban, WHA (pat@weber-hayes.com)
Mr. Steve Huntley, Huntley Environmental, (shuntley@huntleyenvironmental.com)
Mr. Richard Tso, richctso@gmail.com

APPENDIX G

Model *Land Use Covenant* Template *(*deed restriction) Financial Assurance Details, and Soil Management Plan

Recording Requested By:

[CURRENT OWNER]

When Recorded, Mail To:
County of Santa Cruz
Environmental Health Division
701 Ocean Street, No. 312
Santa Cruz, CA 95060
Attn: Director of Environmental Health

COVENANT AND ENVIRONMENTAL RESTRICTION
ON PROPERTY

[NAME OF SITE and ADDRESS OF PROPERTY]

This Covenant and Environmental Restriction on Property (this "Covenant") is made as of the ____ day of __________, 20__ by [CURRENT OWNER/S] ("Covenantor") who is the Owner of record of that certain property situated at ___(address)___, in the City of _____________, County of _______________, State of California, which is more particularly described in Exhibit A attached hereto and incorporated herein by this reference (such portion hereinafter referred to as the "Burdened Property"), for the benefit of the COUNTY of SANTA CRUZ ENVIRONMENTAL HEALTH DIVISION (the “Division”)., with reference to the following facts:

A. The Burdened Property and groundwater underlying the property contains hazardous materials.

B. Contamination of the Burdened Property. Soil at the Burdened Property was contaminated by [BRIEFLY DESCRIBE OPERATIONS THAT CAUSED CONTAMINATION] conducted by _____________________. These operations resulted in contamination of [SOIL AND/OR GROUNDWATER] with [INORGANIC AND/OR ORGANIC] chemicals including ______________________, which constitute hazardous materials as that term is defined in Health & Safety Code Section 25260. [BRIEFLY DESCRIBE REMEDIATION AND CONTROLS IMPLEMENTED].

C. Exposure Pathways. The contaminants addressed in this Covenant are present in [SOIL AND/OR GROUNDWATER] on the Burdened Property. Without the mitigation measures which have been performed on the Burdened Property, exposure to these contaminants could take place via [LIST AS APPROPRIATE: IN-PLACE CONTACT, SURFACE-WATER RUNOFF, AND WIND DISPERSAL, RESULTING IN DERMAL CONTACT, INHALATION, OR INGESTION BY HUMANS, ETC.]. The risk of public exposure to the contaminants has been substantially lessened by the remediation and controls described herein.

D. Adjacent Land Uses and Population Potentially Affected. The Burdened Property is used for ______________________ and is adjacent to [LIST AS APPROPRIATE: INDUSTRIAL, COMMERCIAL, RESIDENTIAL] land uses.

E. Full and voluntary disclosure to the Division of the presence of hazardous materials on the Burdened Property has been made and extensive sampling of the Burdened Property has been conducted.

F. Covenantor desires and intends that in order to benefit the Division, and to protect the present and future public health and safety, the Burdened Property shall be used in such a manner as to avoid potential harm to persons or property that may result from hazardous materials that may have been deposited on portions of the Burdened Property.

ARTICLE I
GENERAL PROVISIONS

1.1 Provisions to Run with the Land. This Covenant sets forth protective provisions, covenants, conditions and restrictions (collectively referred to as "Restrictions") upon and subject to which the Burdened Property and every portion thereof shall be improved, held, used, occupied, leased, sold, hypothecated, encumbered, and/or conveyed. The restrictions set forth in Article III are reasonably necessary to protect present and future human health and safety or the environment because of the presence on the land of hazardous materials. Each and all the Restrictions shall run with the land and pass with each and every portion of the Burdened Property, and shall apply to, inure to the benefit of, and bind the respective successors in interest thereof, for the benefit of the Water Board and all Owners and Occupants. Each and all of the Restrictions are imposed upon the entire Burdened Property unless expressly stated as applicable to a specific portion of the Burdened Property. Each and all of the Restrictions run with the land pursuant to section 1471 of the Civil Code. Each and all of the Restrictions are enforceable by the Water Board.

1.2 Concurrence of Owners, Occupants, and Lessees Presumed. All Owners, Occupants, purchasers, lessees, or possessors of any portion of the Burdened Property shall be deemed by their purchase, leasing, or possession of such Burdened Property, to be in accord with the foregoing and to agree for and among themselves, their heirs, successors, and assignees, and the agents, employees, and lessees of such Owners, Occupants, heirs, successors, and assignees, that the Restrictions as herein established must be adhered to for the benefit of the Division and the Owners and Occupants of the Burdened Property and that the interest of the Owners and Occupants of the Burdened Property shall be subject to the Restrictions contained herein.

1.3 Incorporation into Deeds and Leases. Covenantor desires and covenants that the Restrictions set out herein shall be incorporated in and attached to each and all deeds and leases of any portion of the Burdened Property. Recordation of this Covenant shall be deemed binding on all successors, assigns, and lessees, regardless of whether a copy of this Covenant and Agreement has been attached to or incorporated into any given deed or lease.

1.4 Purpose. It is the purpose of this instrument to convey to the Division real property rights, which will run with the land, to facilitate the remediation of past environmental contamination and to protect human health and the environment by reducing the risk of exposure to residual hazardous materials.

ARTICLE II
DEFINITIONS

2.1 The Division. " Division" shall mean the County of Santa Cruz Environmental Health Division and shall include its successor agencies, if any.

2.2 Improvements. "Improvements" shall mean all buildings, roads, driveways, regarding, and paved parking areas, constructed or placed upon any portion of the Burdened Property.

2.3 Occupants. "Occupants" shall mean Owners and those persons entitled by ownership, leasehold, or other legal relationship to the exclusive right to use and/or occupy all or any portion of the Burdened Property.

2.4 Owner or Owners. "Owner" or "Owners" shall mean the Covenantor and/or its successors in interest, who hold title to all or any portion of the Burdened Property.

ARTICLE III
DEVELOPMENT, USE AND CONVEYANCE OF THE BURDENED PROPERTY

3.1 Restrictions on Development and Use. Covenantor promises to restrict the use of the Burdened Property as follows:

[INCLUDE THE FOLLOWING PROVISIONS, A-I, IF APPROPRIATE]:

a. Development of the Burdened Property shall be restricted to industrial, commercial or office space;

b. No residence for human habitation shall be permitted on the Burdened Property;

c. No hospitals shall be permitted on the Burdened Property;

d. No schools for persons under 21 years of age shall be permitted on the Burdened Property;

e. No day care centers for children or day care centers for Senior Citizens shall be permitted on the Burdened Property;

f. No Owners or Occupants of the Property or any portion thereof shall conduct any excavation work on the Property, unless expressly permitted in writing by the Division. Any contaminated soils brought to the surface by grading, excavation, trenching, or backfilling shall be managed by Covenantor or his agent in accordance with all applicable provisions of local, state and federal law;

g. All uses and development of the Burdened Property shall be consistent with any applicable Division Order or Risk Management Plan, each of which is hereby incorporated by reference including future amendments thereto. All uses and development shall preserve the integrity of any cap, any remedial measures taken or remedial equipment installed, and any groundwater monitoring system installed on the Burdened Property pursuant to the requirements of the Division unless otherwise expressly permitted in writing by the Division.

h. No Owners or Occupants of the Property or any portion thereof shall drill, bore, otherwise construct, or use a well for the purpose of extracting water for any use, including but not limited to, domestic, potable, or industrial uses, unless expressly permitted in writing by the Division.

i. The Owner or Occupant shall notify the Division of each of the following: (1) The type, cause, location and date of any disturbance to any cap, any remedial measures taken or remedial equipment installed, and of the groundwater monitoring system installed on the Burdened Property pursuant to the requirements of the Division, which could affect the ability of such cap or remedial measures, remedial equipment, or monitoring system to perform their respective functions and (2) the type and date of repair of such disturbance. Notification to the Division shall be made by registered mail within ten (10) working days of both the discovery of such disturbance and the completion of repairs;

j. The Covenantor agrees that the Division and/or any persons acting pursuant to Division orders, shall have reasonable access to the Burdened Property for the purposes of inspection, surveillance, maintenance, or monitoring, as provided for in Division 7 of the Water Code.

k. No Owner or Occupant of the Burdened Property shall act in any manner that will aggravate or contribute to the existing environmental conditions of the Burdened Property. All use and development of the Burdened Property shall preserve the integrity of any capped areas.

3.2 Enforcement. Failure of an Owner or Occupant to comply with any of the restrictions, as set forth in paragraph 3.1, shall be grounds for the Division, by reason of this Covenant, to have the authority to require that the Owner or Occupant modify or remove any Improvements constructed in violation of that paragraph. Violation of the Covenant shall be grounds for the Division to file civil actions against the Owner as provided by law.

3.3 Notice in Agreements. After the date of recordation hereof, all Owners and Occupants shall execute a written instrument which shall accompany all purchase agreements or leases relating to the property. Any such instrument shall contain the following statement:

> The land described herein contains hazardous materials in soils and in the ground water under the property, and is subject to a deed restriction dated as of ________________, 20__, and recorded on _______________, 20__, in the

Official Records of ___________ County, California, as Document No. __________, which Covenant and Restriction imposes certain covenants, conditions, and restrictions on usage of the property described herein. This statement is not a declaration that a hazard exists.

ARTICLE IV
VARIANCE AND TERMINATION

4.1 Variance. Any Owner or, with the Owner's consent, any Occupant of the Burdened Property or any portion thereof may apply to the Division for a written variance from the provisions of this Covenant.

4.2 Termination. Any Owner or, with the Owner's consent, any Occupant of the Burdened Property or a portion thereof may apply to the Division or a termination of the Restrictions as they apply to all or any portion of the Burdened Property.

4.3 Term. Unless terminated in accordance with paragraph 4.2 above, by law or otherwise, this Covenant shall continue in effect in perpetuity.

ARTICLE V
MISCELLANEOUS

5.1 No Dedication Intended. Nothing set forth herein shall be construed to be a gift or dedication, or offer of a gift or dedication, of the Burdened Property or any portion thereof to the general public.

5.2 Notices. Whenever any person gives or serves any notice, demand, or other communication with respect to this Covenant, each such notice, demand, or other communication shall be in writing and shall be deemed effective (1) when delivered, if personally delivered to the person being served or official of a government agency being served, or (2) three (3) business days after deposit in the mail if mailed by United States mail, postage paid certified, return receipt requested:

If To: "Covenantor"
[Owners name and address]

If To: the "Division"
County of Santa Cruz
Environmental Health Division
701 Ocean Street, Room 312
Santa Cruz, CA 95060
Attn: Director of Environmental Health

5.3 Partial Invalidity. If any portion of the Restrictions or terms set forth herein is determined to be invalid for any reason, the remaining portion shall remain in full force and effect as if such portion had not been included herein.

5.4 Article Headings. Headings at the beginning of each numbered article of this Covenant are solely for the convenience of the parties and are not a part of the Covenant.

5.5 Recordation. This instrument shall be executed by the Covenantor and by the Division's Director of Environmental Health. This instrument shall be recorded by the Covenantor in the County of ______________ within ten (10) days of the date of execution.

5.6 References. All references to Code sections include successor provisions.

5.7 Construction. Any general rule of construction to the contrary notwithstanding, this instrument shall be liberally construed in favor of the Covenant to effect the purpose of this instrument and the policy and purpose of the Water Code. If any provision of this instrument is found to be ambiguous, an interpretation consistent with the purpose of this instrument that would render the provision valid shall be favored over any interpretation that would render it invalid.

IN WITNESS WHEREOF, the parties execute this Covenant as of the date set forth above.
Covenantor: ____________________________________

By: ____
Title: ____
Date: ____

Agency: Division: COUNTY OF SANTA CRUZ ENVIRONMENTAL HEALTH DIVISION

By:____
Title:____
Date:____

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of _______________

On _________________ *(insert date)*, before me, _________________________*(insert name and title of the officer)*, personally appeared _______________________________________ [Covenantor], who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature ______________________________ **(Seal)**

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of _______________

On _________________ *(insert date)*, before me, _________________________*(insert name and title of the officer)*, personally appeared _______________________________________ [Executive Officer], who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature ______________________________ **(Seal)**

EXHIBIT A

LEGAL DESCRIPTION OF PROPERTY

DTSC's Financial Assurance Quick Reference Guide

What is financial assurance?

Proponents working with the Department of Toxic Substances Control (DTSC) under voluntary agreements are required by statute and regulation to provide adequate financial resources to pay for the long-term operation of certain types of cleanup systems. These financial resources are known as financial assurance mechanisms. These mechanisms ensure that financial resources are available for DTSC to take over the management and stewardship of a cleanup in case a Proponent fails to meet its obligations due to financial insolvency or other reasons. DTSC can ensure that human health and the environment are protected without placing a burden upon California taxpayers.

When is financial assurance required for voluntary agreements?

DTSC requires financial assurance for projects where a long-term cleanup system is required to maintain environmental and human safety. Examples include (but are not limited to):

- Vapor barriers
- Sub-slab depressurization systems
- Certain types of in-situ treatment
- Certain types of engineered caps
- Systems that have an option for conversion from passive to active cleanup
- Systems that require routine sampling to ensure long-term efficacy and effectiveness

A financial assurance mechanism is required to be submitted to DTSC within 90 days of DTSC's approval of an operation and maintenance plan.

What are the allowable financial assurance mechanisms?

The regulations allow for the use of the following forms of financial assurance mechanisms (as per California Code of Regulations, Title 22, Section 66265.143):

- Trust fund
- Letter of credit
- Financial test
- Alternative financial mechanism
- Payment bond
- Insurance
- Corporate guarantee

DTSC's Financial Responsibility Unit has experts who will work the with Proponents to set up the required mechanisms and ensure regulatory compliance.

How is the financial assurance amount calculated?

DTSC reviews and approves the Proponent's financial assurance estimates on a case-by-case basis. The estimate must include costs associated with managing, operating, inspecting, and maintaining cleanup system(s), including Land Use Covenants, for a minimum of 30 years and/or until the remedial goals are met, as described in the cleanup plan and in coordination with the Proponent's technical team and DTSC staff.

When can the financial assurance mechanism be dissolved?

DTSC's Financial Responsibility Unit will work with the Proponent on a financial assurance mechanism release when:

- A Proponent submits an approved replacement of the mechanism
- The cleanup system is adjusted and requires significant modifications
- DTSC determines that the cleanup is complete and the system is no longer required for the protection of human health and the environment

As a matter of practice, long-term cleanup systems are reviewed by DTSC every five years.

For more information contact:

Julie Mullins
Department of Toxic Substances Control
Financial Responsibility Unit
Julie.Mullins@dtsc.ca.gov
(916) 255-3678

Refer to Division 4.5 of Title 22 of the California Code of Regulations

INSTRUCTIONS FOR
CERTIFICATE OF INSURANCE
(OPERATIONS AND MAINTENANCE)

HSC section 25355.2 / CCR, title 22, section 66265.143(d)
With language from section 66264.151(e)

An owner or operator may satisfy the requirements of section 66265.143 by obtaining closure insurance which conforms to the requirements of section 66265.143(d) and submitting a certificate of such insurance to DTSC**.**

INSURED:

1. Complete insured information, facilities covered, and insurer certification types on page 1.
2. Send to insurer for submittal to DTSC.

INSURER:

1. Complete the insurer information, policy number, effective date, and face amount on page 1.
2. Complete signatory information on page 2. Be sure representative is authorized to sign and that original signatures are submitted to DTSC.

a) The owner or operator shall submit to DTSC a letter from an insurer stating that the insurer is considering issuance of closure insurance conforming to the requirements of section 66265.143(d) to the owner or operator.

b) The insurer shall be licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more states.

c) The wording of the certificate of insurance shall be identical to the wording specified in section 66264.151(e).

d) The operations and maintenance insurance policy shall be issued for a face amount at least equal to the current closure cost estimate.

e) The certificate of insurance shall contain original signatures and be submitted to DTSC. The certificate shall be signed by the appropriate party as authorized by the insurance company. Insurance brokers are not considered authorized signatories. Documentation may be requested to verify authorization of signatory.

f) The owner/operator of record for the facility shall be the provider of the certificate. If the certificate is provided by a party other than the named owner/operator of record, then proper guarantor agreement or wholly owned subsidiary documentation shall be submitted with the certificate.

g) The operations and maintenance cost for each facility should be included under the "operations and maintenance insurance amount" of "hazardous substances sites covered".

h) Whenever requested by DTSC, the Insurer agrees to furnish to the DTSC a duplicate original of the original policy listed above, including all endorsements thereon.

Privacy Statement Applicable to Individuals

Pursuant to Government Code section 11019.9 and Civil Code section 1798, et seq., this information is requested by the Department of Toxic Substances Control, Hazardous Waste Management Program under Health and Safety Code section 25245 in order to verify adequate financial assurance of hazardous waste facilities and transportable treatment units. Completion of the applicable form or submission of a document containing the wording specified in California Code of Regulations, title 22, section 66264.151 is mandatory. The consequence of not completing the form (or a document containing the specified wording) is denial of a permit to operate a hazardous waste facility or transportable treatment unit. Information may be provided to various government agencies including, U. S. Environmental Protection Agency, State Attorney General, California Environmental Protection Agency, Air Resources Board, California Integrated Waste Management Board, Energy Resources Conservation and Development Commission, Water Resources Control Board and California Regional Water Quality Control Boards. This information may be subject to disclosure under the Public Records Act (Government Code section 6250, et seq.). Section 1798.3, Civil Code defines an individual as a "natural person."

For more information or access to your records, contact:

Department of Toxic Substances Control
Financial Responsibility Section
8800 Cal Center Drive, 3rd Floor
Sacramento, California 95826
(916) 255-3545

State Privacy Policy

Pursuant to Government Code Section 11019.9, all departments and agencies of the State of California shall enact and maintain a permanent privacy policy, in adherence with the Information Practices Act of 1977 (Civil Code Section 1798 et seq.), that includes, but not necessarily limited to, the following principles:

(a) Personally identifiable information may only be obtained through lawful means.

(b) The purposes for which personally identifiable data are collected shall be specified at or prior to the time of collection, and any subsequent use of the data shall be limited to and consistent with the fulfillment of those purposes previously specified.

(c) Personal data may not be disclosed, made available, or otherwise used for a purpose other than those specified, except with the consent of the subject of the data, or as required by law or regulation.

(d) Personal data collected shall be relevant to the purpose for which it is needed.

(e) The general means by which personal data is protected against loss, unauthorized access, use, modification, or disclosure shall be posted, unless the disclosure of those general means would compromise legitimate agency objectives or law enforcement purposes.

Each department shall implement this privacy policy by:

- Designating which position within the department or agency is responsible for the implementation of and adherence to this privacy policy;
- Prominently posting the policy physically in its offices and on its Internet website, if any;
- Distributing the policy to each of its employees and contractors who have access to personal data;
- Complying with the Information Practices Act (Civil Code Section 1798 et seq.), the Public Records Act (Government Code Section 6250 et seq.), Government Code Section 11015.5, and all other laws pertaining to information privacy, and
- Using appropriate means to successfully implement and adhere to this privacy policy.

CERTIFICATE OF INSURANCE – OPERATIONS AND MAINTENANCE

If additional space is needed, add attachment.

Insurer Name:		**Insured Name:**
Insurer Address:		**Insured Address:**
License Number:	**Issued by State of:**	

Hazardous Substances Sites Covered:

(Enter Operations and Maintenance Amounts Separately; Amounts Must Represent Total Face Amount).

Name	Address	Hazardous Substances Site Identification Number	Operations and Maintenance Insurance Amount

Policy Number	Effective Date	Face Amount

Insurer Certification

The Insurer hereby certifies that it has issued to the Insured the policy of insurance identified above to provide financial assurance for operations and maintenance (O&M) for the hazardous substances site(s) identified above. The Insurer further warrants that such policy conforms in all respects with the requirements of California Code of Regulations, title 22, division 4.5, chapter 15, article 8, section 66265.143, subsection (d) and California Health and Safety Code section 25355.2, as applicable and as such regulations were constituted on the date shown below. It is agreed that any provision of the policy inconsistent with such regulations is hereby amended to eliminate such inconsistency.

The Insurer certifies that it will not cancel, terminate, or fail to renew this policy except for failure to pay the premium, and that the automatic renewal of the policy provides the insured with the option of renewal at the face amount of the expiring policy. If there is a failure to pay the premium and the Insurer elects to cancel, terminate, or not renew the policy, the Insurer will send notice by either registered or certified mail to the owner or operator and the Department of Toxic Substances Control (DTSC). Cancellation, termination, or failure to renew may not occur, however, during the one hundred twenty (120) days beginning with the date of receipt of the notice by the owner or operator and the DTSC as evidence by the return receipt. Cancellation, termination or failure to renew will not occur and the policy will remain in full force and effect in the event that on or before the date of expiration:

(1) The DTSC deems the site abandoned; or

(2) The operations and maintenance agreement is terminated, revoked, or replaced by a new agreement; or

(3) Operations and maintenance is ordered by the DTSC; or any other State or Federal agency, or a court of competent jurisdiction; or

(4) The responsible party is named as a debtor in a voluntary or involuntary proceeding under Title 11 (Bankruptcy) U. S. Code; or

(5) The premium due is paid.

Whenever requested by the Department of Toxic Substances Control (DTSC) of the State of California, the Insurer agrees to furnish to the DTSC a duplicate original of the original policy listed above, including all endorsements thereon.

In the event this policy is used in combination with another mechanism, this policy shall be considered:

☐ primary coverage ☐ excess coverage

The parties below certify that the wording of this certificate is identical to the wording specified in California Code of Regulations, title 22, section 66264.151, subsection (e) and is being executed in accordance with the requirements of California Code of Regulations, title 22, division 4.5, chapter 15, article 8 and California Health and Safety Code section 25355.2.

Authorized Signature of Insurer	**Title**
Typed or Printed Name of Person Signing	
Signature of Witness or Notary	**Date**

County of Santa Cruz

ENVIRONMENTAL HEALTH

HEALTH SERVICES AGENCY

701 OCEAN STREET, ROOM 312, SANTA CRUZ, CA 95060-4073
(831) 454-2022 FAX: (831) 454-3128
http://www.scceh.com

REMEDIAL ACTION AGREEMENT

November 17, 2020

Mr. Jan Strawmyer
100 Doyle Street, Suite C
Santa Cruz, CA 95062
EMAIL: DebnJan@mac.com

SUBJECT: Performance of Remedial Action and Investigation, Commercial Property, 2335 Soquel Drive, Santa Cruz, California

Dear Mr. Strawmyer:

The County of Santa Cruz Environmental Health Division (CSCEHD) has received the following document for the subject site: *Phase I/Phase II Environmental Site Assessment for a Commercial Property* (dated August 18, 2020, by Weber, Hayes & Associates). Thank you for the submittal. Based on review of the report, it appears that a discharge of waste[1] to soil gas in the form of tetrachloroethene (PCE) has occurred at the subject site, requiring further characterization and possible remediation of a potential threat to human health or the environment.

CSCEHD is assuming the role as the regulatory oversight agency for characterization and potential remediation of the released waste under Sections 101480 through 101490 of the California Health and Safety Code. CSCEHD has determined that RESPONSIBLE PARTY is the Responsible Party[2] for this release of waste. By entering into this Remedial Action Agreement (Agreement), you agree to the following conditions:

- All subsequent directives and written correspondence from CSCEHD regarding characterization, monitoring, cleanup, and mitigation of contamination, as well as project due dates, collectively referred to as Corrective Action, will be considered a part of this Agreement.

- All Corrective Action activities will follow applicable corrective action requirements of the California Health and Safety Code, California Code of Regulations, California Environmental Protection Agency guidance documents, and CSCEHD Site Mitigation Program Standards. Regardless of the level of oversight from CSCEHD, you are responsible for the timely reporting, investigation, and cleanup of soil and groundwater pollution so that the beneficial uses of waters of the State as well as public health are protected in compliance with applicable laws, regulations and policies. You are also responsible for compliance with any new laws or regulations that may

[1] Waste as defined in Health and Safety Code Section 101075.
[2] Responsible Party as defined in Section 101480 of the Health and Safety Code.

be applicable during the term of this agreement. CSCEHD must be notified 5 days in advance of all field activities and contacted for permitting requirements prior to any monitoring well installations and destructions.

- If, at any time, the Responsible Party is not in compliance with directives from CSCEHD that constitute a portion of this Agreement, CSCEHD can terminate this Agreement. If the Agreement is terminated prior to adequate completion of the Agreement, the case will be referred to the Department of Toxic Substances Control (DTSC) or Regional Water Quality Control Board (RWQCB) for issuance of a State Corrective Action Order, Cleanup and Abatement Order, or other order or enforceable agreement, as appropriate, for further remedial action directives.

- If, upon further characterization, CSCEHD determines that the release of waste that is the subject of this Agreement is sufficiently complex, may present such a significant potential hazard to human health or the environment, or may not be in the best interest of CSCEHD to continue as lead agency, the case may be referred to DTSC or RWQCB for further action. In the event this case is referred to and accepted by DTSC or RWQCB then this Agreement is terminated.

- After determining that the Responsible Party has completed the actions required by this Agreement, CSCEHD will provide the Responsible Party with a letter that certifies that the cleanup goals embodied in the Agreement have been accomplished and no further action is required.

- As authorized by Section 101490 of the Health and Safety Code, CSCEHD will invoice the Responsible Party to recover the reasonable and necessary costs for oversight of the identified release. Hours already worked will be included in the first invoice. CSCEHD staff time will be invoiced quarterly at the rate specified in the County Fee Ordinance adopted by the Board of Supervisors. Failure to pay invoices within 90 days may result in assignment of the charges to the County's Department of Collections for legal collections, and potential termination of this Remedial Action Agreement with subsequent referral to the DTSC or RWQCB.

Please sign and date below and return one copy of this Remedial Action Agreement in the enclosed envelope within 30 days of the date of this letter. Should you have any questions, please contact Heather Hanna, the staff assigned to this case, at Heather.Hanna@santacruzcounty.us or (831) 454-4813.

Sincerely,

Marilyn C. Underwood, PhD, REHS
Director of Environmental Health

Signature Representing Responsible Party Date

Printed Name

Attachments: Return Envelope

APPENDIX H

Reference:

Geotechnical Evaluation, Hillcrest Residential Subdivision and Retaining Wall Design Details

Miller Pacific Engineering (MPE) Group; 2022

GEOTECHNICAL EVALUATION
HILLCREST RESIDENTIAL SUBDIVISION
WATSONVILLE, CALIFORNIA

January 20, 2022

Project No. 1333.001

Prepared For:
LANDCO ARESC, LLC
P.O. Box 2058
Burlingame, California 94011

Attn: Mr. Mark Lester

CERTIFICATION

This document is an instrument of service, prepared by or under the direction of the undersigned professionals, in accordance with the current ordinary standard of care. The service specifically excludes the investigation of radon, asbestos, toxic mold and other biological pollutants, and other hazardous materials. The document is for the sole use of the client and consultants on this project. Use by third parties or others is expressly prohibited without written permission. If the project changes, or more than two years have passed since issuance of this report, the findings and recommendations must be reviewed by the undersigned.

MILLER PACIFIC ENGINEERING GROUP
(a California corporation)

REVIEWED BY

Benjamin S. Pappas
Geotechnical Engineer No. 2786
(Expires 9/30/22)

Scott Stephens
Geotechnical Engineer No. 2398
(Expires 6/30/23)

GEOTECHNICAL EVALUATION
HILLCREST RESIDENTIAL SUBDIVISION
WATSONVILLE, CALIFORNIA

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FIGURES

1.0 INTRODUCTION

This report summarizes our Geotechnical Evaluation for the planned Hillcrest Residential Subdivision located on an approximate 12-acre undeveloped lot located on Errington Road in southern Watsonville, California. A Site Location Map is shown on Figure 1. Our services have been provided in accordance with our Agreement dated November 17, 2021. The purpose of our services is to evaluate the site geologic conditions, significant geologic hazards which may affect the project, and provide geotechnical recommendations and design criteria for use in project planning, design and construction. The scope of our services is described in our proposal letter dated November 15, 2021, and includes the following:

- A brief summary of the geologic setting and seismicity,
- Review of available aerial photos, geotechnical and geologic data,
- Supplemental subsurface exploration with four soil borings and four cone penetration tests,
- A geologic hazards evaluation and recommended mitigation measures,
- Recommendations for grading, including cut slope inclinations, compaction criteria and soil engineering drainage,
- Recommended foundation system, including geotechnical design criteria for shallow and deep foundations,
- Recommendations for retaining walls, including mechanically stabilized earth walls,
- CBC/ASCE seismic design criteria,
- Trench backfill criteria, and
- Access road pavement sections.

We previously provided our geotechnical engineering services for the previous developer, CDM. These services included a geotechnical peer review of the original subdivision plans, produced by the previous owners, and geotechnical report for the project produced by Cornerstone Earth Group. The results of our review were summarized in a letter dated June 10, 2020, and our opinions/conclusions are summarized in Section 3.0 of this report. This report completes our supplemental geotechnical investigation (Phase 1) services and future phases of work are anticipated to include a Geotechnical Consultation/Plan Review and Construction Observation and Testing.

2.0 PROJECT DESCRIPTION

Based on our review the preliminary project plans, we understand the existing plan is to construct 144-single-family residences, duplex and townhomes that will be constructed in 5 phases. Significant site grading will be required to develop building pads and allow access to the subdivision. Currently fills up to 23-feet in height and cuts up to 15-feet in depth are planned. Additionally, we understand the upper 2-feet of surficial soils will be removed from the site and buried in an existing depression on the northwestern corner of the site. Retaining walls up to 16-feet in height will be constructed along the north and eastern ends of the property to create level areas for a pedestrian trail and “rain-garden”. New asphalt paved streets will be constructed to allow access to the residences. New site utilities will also be constructed to provide the subdivision with services. A site plan indicating the approximate extents of the planned improvements is shown on Figure 2.

3.0 DOCUMENT REVIEW

As part our peer review services, we reviewed the project documents that were developed for the previous property owners. This first phase of our work, repeated in the following sections of this report, included reviewing the following documents:

- Cornerstone Earth Group "Geotechnical Investigation Sunshine Vista Residential Development," February 10, 2017.
- Ifland Engineers, "Sunshine Vista," October 27, 2017, Sheets C2.0, C3.6, C5.0, C5.2, and C9.0.

3.1 Geotechnical Report Review

Previous subsurface exploration by Cornerstone Earth Group and Butano include a total of 22 borings, 11 Cone Penetration Tests (CPTs) and 11 exploratory trenches. Additionally, Cornerstone observed 58-test pits performed by the environmental engineering firm Trinity Source Group. Laboratory testing included moisture content, dry density, percent material passing the #200 sieve, plasticity index and triaxial compression. The boring, CPT and trench logs were provided; however, the logs from the 58-test pits performed by Trinity Source Group were not provided. The results of the previous subsurface explorations are presented in Appendix A.

The Cornerstone report indicates the project site is underlain by 0 to 10-feet of highly expansive fill intermixed with minor to significant amounts of debris consisting of tires, automobile parts, trash, concrete, wood, etc. Very stiff, highly expansive clay underly the fill followed by intermixed layers of very stiff to hard silts with variable amounts of sand, and medium dense to dense silty sands and poorly graded sands.

Cornerstone Earth Group provided various recommendations to develop the project site and construct the proposed improvements. Based on the review of the report, we made the following comments and recommendations:

Slope Stability Analysis – The geotechnical investigation report provides a preliminary slope stability analyses of three cross sections along the northwestern, northeastern, and southeastern corners of the property. The slope stability analyses were performed utilizing the program GSTABL7 and the "Bishop Method" of analysis under both static and pseudo-static conditions. The following recommendations that should be incorporated into the final slope stability analyses.

1. An additional section should be analyzed based on the updated grading plans specifically, where significant fills are proposed. The cross section should extend down to the Watsonville Slough to verify adequate slope stability with the planned fill over native soils.
2. It appears the soil strength data of the native soils is based on two triaxial compression tests located at Boring 4, approximately 200-feet south and west of the Watsonville Slough. Additional strength data appears to be generated from Pocket Penetrometer tests performed during the exploration. We recommend performing additional subsurface exploration and laboratory strength testing in the lower portions of the property along the Watsonville Slough to identify the soil conditions and determine engineering properties for analyses. Shear strength based on the CPT data should be utilized to evaluate the shear strength of the underlying soils.

3. The “Bishop Method” only analyzes circular failures by moment equilibrium when determining the slope stability factor of safety, ignoring the horizontal force equilibrium. We utilized a method that analyzes both the moment and horizontal force equilibrium (i.e., Spencer and Morgenstern & Price methods) and checked for non-circular failure surfaces.

Removal of Existing Fills – The previous report recommends that all the existing fill, 0 to 10-feet thick, should be removed and replaced with compacted fill prior to placing new fill. Although we agree that the existing fill should be removed prior to placing fill if the proposed structures are highly sensitive to settlements, it is our opinion this conclusion is reasonable from a geotechnical standpoint if typical shallow foundations are utilized to support the structures. Removal of the existing fill soils may not be necessary if the foundation systems for the structures are designed to accommodate the geologic and geotechnical site conditions. Additional discussion and foundation design criteria is presented in Section 6.3.

Seismic Design Criteria – The report includes 2016 California Building Code (CBC) seismic design criteria. The 2016 CBC was the governing code at the time the report was published; however, the 2019 CBC was officially adopted in January 2020. 2019 CBC seismic design criteria are presented in Section 6.2.

Foundation Recommendations – The previous geotechnical investigation report recommends the proposed structures to be supported on deepened shallow foundations or post tensioned concrete mat slabs-on-grade. We agree that these two options are feasible. However, if at least the upper three feet of expansive soil is replaced, lime treated, or replaced with compacted non-expansive imported fill, the shallow foundations would not require deepening.

Deep foundations may be utilized to support the structures; however, deep foundations (i.e., drilled piers, auger-cast piles, helical anchors, torque down piles, etc.) may be difficult to construct if debris is encountered during construction. A site plan could be prepared based on historic stereo paired aerial photos and compared to current topographic maps to aid in determining the location of potential fill and debris.

If used, deep foundations should be interconnected with grade-beams formed on top of void boxes to prevent uplift pressures from expansive soils impacting the structure. If the existing fill and debris has been removed, the deep foundation system may consist of a helical anchor and grade-beam system.

Retaining Walls – The older plans indicate tiered retaining walls up to 13-feet in height will be constructed and backfilled on the north and eastern sides of the property to create level building pads. It is our opinion a mechanically stabilized earth retaining wall system (i.e., Versa-Lok, Keystone, etc.) would be the most cost-effective retaining wall type to support fills. Additionally, wall heights may be reduced by sloping the fills between the tiered walls to 2:1 (horizontal:vertical). Alternatively, retaining walls may be further reduced or eliminated if the residences are constructed partially on sloping ground or bi-level lots, provided they are supported on a deep foundation system.

Pavement Design – The report provides multiple pavement sections for Traffic Indices (T.I.) and assuming an R-Value of 5 for existing subgrade soils. We agree an R-Value of 5 for the existing highly expansive clayey soil condition is appropriate. However, it is our opinion the subgrade R-Value may be increased by either lime treating or removing the existing soils and replacing with imported non-expansive soils. Both options were recommended in the geotechnical investigation report. Additionally, the R-Value may be increased by installing a geotextile on the subgrade level prior to placing baserock. Pavement recommendations are presented in Section 6.8 of this report.

3.2 Civil Plan Review

Based on our review of the preliminary site and grading plans, significant site grading would be necessary to develop the site with anticipated cuts up to 10-feet and fills up to 25-feet. Retaining walls up to 13-feet were proposed to support fills along the northern and eastern sides of the property. The previously planned finished grades of the subdivision are fairly level with elevations between 65- and 52-feet above sea-level. A small extension of Loma Vista Drive is planned for access to the future subdivision at the western end of the property.

It is our opinion there could be significant cost savings if the grading plan is modified to allow the site to retain its overall general slope inclination downward from the southwest to the northeast. Moderate site grading would still be required to remove existing fill, if necessary, create roads, and prepare building pads. If this option is pursued the lots would “step-down” with the overall grade. The thick fills and tall retaining walls would not be necessary along the northern and eastern property lines. The residences located on the northern and eastern property lines may consist of split-level homes constructed on grade with some minor site grading required and possibly shorter retaining walls to create level backyard space. These residences may need to be supported on a drilled pier foundation system. Additionally, a sanitary sewer pump may be required to due to grade differences.

4.0 SITE CONDITIONS

We performed a site reconnaissance on December 18, 2020 and December 2, 2021 to observe existing conditions at the site. The project site is located on a relatively level knoll. The area has recently been cleared with a majority of the surface now covered in exposed soil, low grasses, and large shrubs. Mature trees line the northern and eastern perimeter of property along the bank of the Watsonville Slough. Existing residential subdivisions are located along the western and southern property lines.

In the proposed building area surface elevations range between 50 to 70-feet above sea-level. The northern and eastern ends of the development area are set atop, up to an existing approximate 10- to 15-feet tall 2:1 (horizontal:vertical). A relatively level “bench”, approximately 20 to 50-feet wide, is located below this slope. An additional 10- to 20-foot tall 5:1 to 2:1 slope is located below this intermediate slope and terminates at the Watsonville Slough.

4.1 Regional Geology

The project site lies within the Coast Ranges geomorphic province of California. Regional topography within the Coast Ranges province is characterized by northwest-southeast trending mountain ridges and intervening valleys that parallel the major geologic structures, including the San Andreas Fault System. The province is also generally characterized by abundant landsliding and erosion, owing in part to its typically high levels of precipitation and seismic activity.

As shown on Figure 3, geologic mapping (USGS, 1997), indicates the site is underlain by Quaternary Watsonville Fluvial (map symbol Q_{wf}) and Basin (map symbol Q_b) deposits. Typically, fluvial deposits consist of poorly sorted, semi-consolidated, sand, silt, and gravels deposited by river or stream action. Basin deposits typically consist of highly plastic silty clay with interbedded layers of sands and gravels deposited at base of estuaries, lagoons, lakes, etc.

4.2 Seismicity

The project site is located within a seismically active region that includes the Central and Northern Coast Mountain Ranges. An "active" fault is defined as one that shows displacement within the last 11,000 years and, therefore, is considered more likely to generate a future earthquake than a fault that shows no evidence of recent rupture.

4.2.1 Active Faults in the Region

The California Department of Conservation, Division of Mines and Geology has mapped various active and inactive faults in the region (CDMG, 1972 and 2000). These faults are shown in relation to the project site on the Active Fault Map, Figure 4. The Zayante Vergeles Fault is the nearest known active fault and is located approximately 4.3-kilometers (2.7-miles) northeast of the site (Google Earth, 2020).

4.2.2 Historic Fault Activity

Numerous earthquakes have occurred in the region within historic times. A map showing the epicentral locations of significant earthquakes in the Bay Area between 1985 and 2016 is shown on Figure 5, including the 1989 Loma Prieta Earthquake with the epicenter located in the Santa Cruz Mountains.

4.2.3 Probability of Future Earthquakes

The site will likely experience moderate to strong ground shaking from future earthquakes originating on any of several active faults in the San Francisco Bay region. The historical records do not directly indicate either the maximum credible earthquake or the probability of such a future event. To evaluate earthquake probabilities in California, the USGS has assembled a group of researchers into the "Working Group on California Earthquake Probabilities" (USGS 2003, 2008; Field et al 2015) to estimate the probabilities of earthquakes on active faults. These studies have been published cooperatively by the USGS, CGS, and Southern California Earthquake Center (SCEC) as the Uniform California Earthquake Rupture Forecast, Versions 1, 2, and 3 (aka UCERF, UCERF2, and UCERF3, respectively). In these studies, potential seismic sources were analyzed considering fault geometry, geologic slip rates, geodetic strain rates, historic activity, micro-seismicity, and other factors to arrive at estimates of earthquakes of various magnitudes on a variety of faults in California.

Conclusions from the most recent UCERF3 and USGS (Aagaard, et. al., 2016) indicate the highest probability of a M>6.7 earthquake on any of the active faults in the San Francisco Bay region by 2043 is assigned to the Hayward/Rodgers Creek Fault system, located approximately 67.0-kilometers (41.5-miles) northeast of the site, at 33%. The San Andreas Fault located approximately 8.1-km (5.0-miles) northeast of the site is assigned a 22% probability of rupture resulting in a M>6.7 or greater earthquake. Additional studies by the USGS regarding the probability of large earthquakes in the Bay Area are ongoing. These current evaluations include data from additional active faults and updated geological data.

4.3 Site History

Based on our review of readily available historic aerial photographs (EDR, 2016 and Google Earth, 2021) the site was vacant in until 1968 when the site had been developed as an automobile salvage yard. The aerial photographs reviewed are presented in Appendix A and are described briefly below:

1937: The site appears to be an undeveloped knoll surrounded by farmland. The Watsonville Slough appears as a channel that flows east of the project site.

1948: The western portion of the site appears to be developed as farmland. The Watsonville Slough remains contained within a channel.

1956: The western portion of the site, previously developed as farmland, appears to be abandoned. The Watsonville Slough remains contained within a channel.

1968: The site has been developed as an automobile salvage yard and is covered with multiple dilapidated automobiles. The Watsonville Slough remains contained within a channel. The lower lying areas to the north and northeast of the project site appear to be flood plains. The adjacent property south of the property has been developed with industrial warehouses.

1971: No significant changes observed to the property from the previous aerial photograph. The Watsonville Slough remains contained within a channel; however, it appears an earth embankment was constructed the low lying area north of the property creating a small reservoir.

1974: No significant changes observed to the property from the previous aerial photograph. The Watsonville Slough remains contained within a channel. The reservoir located to the north of the property appears to have drained.

1981: No significant changes observed to the property from the previous aerial photograph. The Watsonville Slough remains contained within a channel.

1987: No significant changes observed to the property from the previous aerial photograph. The Watsonville Slough remains contained within a channel. There appears to be some water collected within the reservoir to the north.

1993: No significant changes observed to the property from the previous aerial photograph. The reservoir to the north of the property appears to have been intentionally breached and the low lying areas to the east of the property appear to be filling with water. However, it still appears the Watsonville Slough remains contained within a channel.

2005: No significant changes observed to the property from the previous aerial photograph. The low lying areas to the north and east of the property appears to contain significant amounts of water. The southern and western portion of the Watsonville Slough remains contained within a channel; however, the eastern portion of the slough is overgrown and most likely intentionally breached. Significant residential development is located to the north and west of the project site. Residential development in underway to the south of the property.

2006: No significant changes observed to the property from the previous aerial photograph other than a reduction in the number of dilapidated automobiles stored on the project site. The southern portion of the Watsonville Slough remains contained within a channel.

2009: No significant changes observed to the property from the previous aerial photograph. The portion of the Watsonville Slough south of the property is now contained within a wider channel and appears as it does currently.

2010: No significant changes observed to the property from the previous aerial photograph.

2012: No significant changes observed to the property from the previous aerial photograph.

2016: No significant changes observed to the property from the previous aerial photograph other than an increase in the number of dilapidated automobiles stored on the project site. Additional residential development is evident on the surrounding southern properties.

2017: The automobile salvage yard has been removed from the project site.

2021: No significant changes observed to the property from the previous aerial photograph.

The automobile salvage yard remained until 2017 when the automobiles and associated structures were removed from the site, leaving the area denuded of vegetation. Currently vegetation has begun to establish on the project site.

4.4 Supplemental Subsurface Exploration & Laboratory Testing

We performed a subsurface exploration to supplement the existing subsurface data, previously discussed. Our exploration consisted of four soil borings, performed on December 2nd and 3rd, 2021 and 4 cone penetration tests (CPT) performed on December 6th, 2021. The borings were performed with track mounted drilling equipment with hallow stem augers that extended between 36.5 and 51.5-feet below the ground surface. The CPTs were pushed with truck mounted equipment to refusal at depths between 60.0 and 68.0-feet below the ground surface. The approximate CPT and boring locations are shown on Figure 2. Our Geologist logged the borings in the field and collected soil samples at select intervals for laboratory testing. Our subsurface exploration program is discussed in more detail in Appendices C and D. A Soil Classification Chart and the boring logs are presented on Figures C-1 through C-10. A description of the CPT and CPT logs are described on Figures D-1 through D-5. Additionally, to aid in determining the site classification, we performed shear wave velocity profiles in CPTs 2, 3, and 4 which are presented on Figure D-8.

Laboratory testing of select soil samples included determination of moisture content, dry density, unconfined compressive strength, triaxial compressive strength, direct shear, percent passing the #200 sieve, 1-D consolidation, and plasticity index. The results of the moisture content, dry density, unconfined compressive strength, triaxial strength, direct shear strength, and percent passing the #200 sieve are presented on the boring logs. The graphical results of the unconfined compression, direct shear, triaxial shear strength, and 1-D consolidation tests are presented in Appendix C.

4.4 Subsurface Conditions and Groundwater

Based our supplemental geotechnical investigation and review of the existing geotechnical data, the site is underlain by 0 to 10-feet of highly expansive fill intermixed with minor to significant amounts of debris consisting of tires, automobile parts, trash, concrete, wood, etc. Very stiff, high plasticity clay underly the fill, with intermixed layers of very stiff to hard silts with variable amounts of sand, and medium dense to dense silty sands and poorly graded sands to the maximum depth explored.

A majority of the borings and CPTs performed by others were located at the higher elevations of the project site. However, most of the borings and CPTs performed during our supplemental subsurface exploration occurred at the lower elevations closer to the Watsonville Slough. These borings and CPTs did not encounter a significant amount of fill, as observed at the higher elevations. The supplemental subsurface exploration encountered up to 4-feet of gravelly fill overlying 15- to 25-feet of medium plasticity, medium stiff to stiff alluvial clay soils. Medium dense to very dense sand and silt underlie the clays to the maximum depth explored.

Laboratory testing to determine soil permeability is not within our current scope of work; however, the surficial soils consist of highly plastic clays. Typically, highly plastic clay soils exhibit very low infiltration rates and tend to hold and pond surface and subsurface water. These soils are expected to have a low permeable with regarding to water infiltration in bio-swales or detention basins.

Groundwater was observed during the previous subsurface exploration at a depth of about 30-feet, which corresponds to an elevation of about +0 feet. We observed groundwater at 30 and 35-feet below the ground surface during our supplemental subsurface exploration. Groundwater levels typically fluctuate with the seasons with higher levels anticipated during the winter months. Additionally, Cornerstone Earth Group's asserts groundwater levels will be dependent on the water level of the adjacent Watsonville Slough, with a historic high groundwater level at an elevation of +11 feet above sea level.

5.0 GEOLOGIC HAZARDS EVALUATION

The principal geologic hazards which could potentially affect the project site include strong seismic shaking, lurching, slope instability and erosion. Other hazards, such as fault surface rupture, and liquefaction are not considered highly significant at the site. More detailed discussion of each geologic hazard considered, their anticipated impacts, and recommended mitigation measures are discussed below.

5.1 Fault Surface Rupture

Under the Alquist-Priolo Earthquake Fault Zoning Act, the California Geological Survey (CDMG)/California Geologic Survey (CGS) (1972, 2000) produced 1:24,000 scale maps showing all known active faults and defining zones within which special fault studies are required. The project site is not located with an Alquist-Priolo Earthquake Fault Zone, and the nearest known active fault to the site, the Zayante-Vergales, lies approximately 3.8-kilometers (2.4-miles) to the northeast. Therefore, we judge the risk of fault surface rupture at the site is low.

Evaluation: *No significant impact.*
Recommendations: *No mitigation measures are anticipated.*

5.2 Seismic Shaking

The site will likely experience seismic ground shaking from future earthquakes in the San Francisco Bay Area. Earthquakes along several active faults in the region, as shown on Figure 4, could cause moderate to strong ground shaking at the site.

5.2.1 Deterministic Seismic Hazard Analysis

Deterministic Seismic Hazard Analysis (DSHA) predicts the intensity of earthquake ground motions by analyzing the characteristics of nearby faults, distance to the faults and rupture zones, earthquake magnitudes, earthquake durations, and site-specific geologic conditions. Empirical relations (Abrahamson, Silva & Kamai, Boore, Stewart, Seyhan & Atkinson, Campbell & Borzognia, and Chiou & Youngs, (2014)), for a weathered rock subsurface condition, were utilized to provide approximate estimates of median peak site accelerations. A summary of the principal active faults affecting the site, their closest distance, moment magnitude of characteristic earthquake, probable median accelerations and plus one standard deviation (+1σ), peak ground accelerations (PGA) for earthquakes on faults near the site are shown in Table A.

TABLE A
DETERMINISTIC PEAK GROUND ACCELERATION
Hillcrest Residential Subdivision
Watsonville, California

Fault	Fault Distance[1]	Moment Magnitude[1]	Median PGA[1,2,3,4]	+1σ PGA[4]
Zayante-Vergales	3.8 km	6.9	0.44 g	0.76 g
San Andreas	8.1 km	8.0	0.42 g	0.71 g
Calaveras	8.5 km	6.9	0.33 g	0.57 g
Sargent	14.2 km	6.7	0.23 g	0.40 g
San Gregorio	22.7 km	7.4	0.21 g	0.37 g
Monterey Bay	23.7 km	7.2	0.19 g	0.33 g

Reference:
1. Google Earth (2020)
2. Abrahamson, Silva and Kamai (2014)
3. Boore, Stewart, Seyhan and Atkinson (2014)
4. Campbell and Borzognia (2014)
5. Chiou and Youngs (2014)
6. Values determined using Vs_{30} = 300 m/s for Site Class "D"

5.2.2 Probabilistic Seismic Hazard Analysis

Probabilistic Seismic Hazard Analysis (PSHA) analyzes all possible earthquake scenarios while incorporating the probability of each individual event to occur. The probability is determined in the form of the recurrence interval, which is the average time for a specific earthquake acceleration to be exceeded. The design earthquake is not solely dependent on the fault with the closest distance to the site and/or the largest magnitude, but rather the probability of given seismic events occurring on both known and unknown faults.

We calculated the PGA for two separate probabilistic conditions, the 2% chance of exceedance in 50 years (2,475-year statistical return period) and the 10% chance of exceedance in 50 years (475-year statistical return period), utilizing the online USGS Unified Hazard Tool (USGS, 2019). The results of the probabilistic analyses are presented below in Table B.

TABLE B
PROBABILISTIC SEISMIC HAZARD ANALYSES
Hillcrest Residential Subdivision
Watsonville, California

	Statistical Return Period	Magnitude	PGA
2% in 50 years	2,475 years	7.2	1.01 g
10% in 50 years	475 years	7.0	0.58 g

Reference: USGS Unified Hazard Tool, accessed 2021

The potential for strong seismic shaking at the project site is high. Due to its close proximity, the San Andreas Fault (approximately 8.1-kilometers northeast) presents the highest potential for strong ground shaking. The most significant adverse impact associated with strong seismic shaking is potential damage to structures and improvements.

Evaluation: *Less than significant with mitigation.*
Recommendations: *Minimum mitigation measures should include designing the structures and foundations in accordance with the most recent version of the California Building Code. Recommended seismic coefficients are provided in Section 6.2 of this report.*

5.3 Liquefaction Potential and Related Impacts

Liquefaction refers to the sudden, temporary loss of soil shear strength during strong ground shaking. Liquefaction-related phenomena include liquefaction-induced settlement, flow failure, and lateral spreading. These phenomena can occur where there are saturated, loose, granular deposits. Recent advances in liquefaction studies indicate that liquefaction can occur in granular materials with a high, 35 to 50%, fines content (soil particles that pass the #200 sieve), provided the fines exhibit a plasticity less than 7. The previous subsurface explorations did not encounter loose, granular soils below the groundwater level that would be prone to liquefaction or other liquefaction related phenomena. However, the previous analysis was based on a PGA of 0.695 g. Per the current California Building Code, Liquefaction analysis should be based on the PGA_M value, 1.13 g, determined per ASCE 7-16. Therefore, we re-analyzed the liquefaction potential of site utilizing the CPT data from Cornerstone's subsurface exploration and our supplemental subsurface exploration.

4.3.1 Liquefaction Evaluation

To evaluate soil liquefaction, the seismic energy from an earthquake is compared with the ability of the soil to resist pore pressure generation, known as the Cyclic Resistance Ratio (CRR). The earthquake energy is termed the cyclic stress ratio (CSR) and is a function of the maximum considered earthquake peak ground acceleration (PGA) and depth. Soil resistance to liquefaction is based on its relative density, and the amount and plasticity of the fines (silts and clays). The relative density of cohesionless soil is correlated with the Standard Penetration Test (SPT) blow count data measured in the field and corrected for hammer efficiency, overburden and percent fines to determine the $(N_1)_{60,CS}$ value. Cone Penetration Test data, corrected for overburden, can also be utilized to determine the relative density of a soils and subsequently its resistance to liquefaction.

We analyzed the potential for liquefaction utilizing the data from our borings and the procedures outlined by Idriss and Boulanger (2008 & 2010), considering a magnitude 8.0 earthquake producing a PGA of 1.13 g, which corresponds to the PGA_M value as defined in ASCE 7-16. The liquefaction analysis software Cliq (ver 3), developed by Geologismiki (2006), uses CPT data to evaluate liquefaction potential.

The liquefaction analysis performed based on the data obtained from the borings are broad as they rely on projecting the soil properties between samples. The analysis performed from the CPT data is more precise as continuous soil properties are measured throughout the depth explored. Therefore, more weight should be given to the liquefaction analysis based on CPT data.

The results of our liquefaction analyses, presented on Figures 6 through 26, indicate several localized soil layers, ranging from a few inches to a few feet thick, may liquefy under a strong seismic event. The areas where liquefaction is predicted appear to be at lower elevations where groundwater levels are higher within the soil column. Additionally, the liquefiable layers do not appear to be continuous through the subsurface profile and are at least 15-feet below the finished grade.

4.3.2 Post Liquefaction Settlement

We predicted the amount of post liquefaction settlement utilizing the procedures outlined by Idriss and Boulanger (2008, 2010 & 2014), which indicate post liquefaction settlement can occur in soils that exhibit a factor of safety against liquefaction of 2.0 or less. Based on our analyses utilizing the data obtained from our borings, we predict up to 3.0-inches of total settlement and 1.5-inches of differential settlement over 30-feet. However, based on our analysis utilizing the data obtained from the CPTs, we predict up to 0.5-inches of total settlement and 0.25-inch of differential settlement, over 30-feet, may occur during the design seismic event.

As previously discussed, the data obtained from CPTs are significantly more precise than that of a boring. This is evident when comparing the liquefaction analyses between CPT 2 and Boring 2 performed during our supplemental subsurface exploration which were performed adjacent to each other. The results of the liquefaction analyses from

Boring 2 was 3.0-inches while the results from CPT 2 was 0.5-inches. Therefore, we weight the settlement results from the CPTs over the results for the borings and predict up to 1.0-inches of total settlement and 0.5-inches of differential settlement, over 30-feet, may occur during a strong seismic event.

Additionally, we utilized the procedures outlined by Ozocak and Sert (2010) to calculate the Liquefaction Potential Index (LPI), which is a gauge to determine if liquefiable layers will impact the ground surface. LPI is a function of the thickness, depth, and factor of safety against liquefaction in the individual layers within a soil column. The resulting LPI value corresponds to a relative potential for surface deformation impacting the ground surface. Typically, an LPI value of zero indicates the liquefiable layer will not impact the ground surface; while a value less than 5 has a low probability, value between 5 and 15 have a moderate probability and an LPI value greater than 15 have a high probability of surface impact. The results of our liquefaction analyses indicate LPI values up to 5.5, suggesting a low probability of liquefaction effects impacting the ground surface.

4.3.3 Lateral Spreading

Lateral spreading is the finite, lateral movement of gently to steeply sloping ground caused by a flow failure of underlying liquefying soil deposits. This phenomenon can also occur near bodies of water where a “free-face” exists along banks. As previously discussed, the Watsonville Slough borders the northern and eastern property lines of the proposed residential development. The general topography of project site consists of gentle sloping ground and 2:1 (H:V) slopes that incline towards the slough. We performed a lateral spreading analysis based on the proposed topography utilizing CLiq and are presented on Figures 12 through 26. The results of our analysis indicate up to 7.0-inches of lateral displacement may occur at the project site, predominately in the northwestern corner of the property. However, as previously discussed, the liquefiable layers we observed are not continuous, therefore we do not anticipate lateral spreading will be significant throughout the site.

Based on our calculations, as described above, it is our opinion that thin layers within the sand deposits may liquefy. Therefore, liquefaction and related settlement presents a low risk of damage to the planned improvements.

Evaluation: *Less than significant with mitigation.*
Recommendations: *Foundation systems should be designed to withstand up to 1.0-inches of total and 0.5-inches of differential settlement, over 30-feet. Additionally, foundations should be designed to be rigid enough to span unsupported at least 7-inches. Foundation design criteria to mitigate the effects of liquefaction are provided in Section 6.3 should be followed.*

5.4 Seismically-Induced Ground Settlement

Seismic ground shaking can induce settlement of unsaturated, loose, granular soils. Settlement occurs as the loose soil particles rearrange into a denser configuration when subjected to seismic ground shaking. Varying degrees of settlement can occur throughout a deposit, resulting in differential settlement of structures founded on such deposits. Loose granular soils were not observed in the near-surface soils; therefore, we judge the risk of seismically-induced settlement at the site is low.

Evaluation: *Less than significant.*
Recommendations: *No mitigation measures are anticipated.*

5.5 Lurching and Ground Cracking

Lurching and associated ground cracking can occur during strong ground shaking generally along the tops of slopes where stiff soils are underlain by soft deposits or along steep slopes or channel banks. As previously discussed, slopes inclined up to 3:1 are proposed as part of the grading plan. As with all slopes located in seismically active areas, there is some risk of ground cracks forming along the crest during a strong seismic event. Therefore, we judge lurching and ground cracking is a low moderate geologic hazard at the project site.

Evaluation: *Less than significant with mitigation.*
Recommendations: *Mitigation measures include following the setback guidelines outlined in the California Building Code. Per the CBC the bottom elevation of the proposed structural foundations structures should be setback at least 7-feet from any slope face.*

5.6 Erosion

Sandy soils on moderate slopes or clayey soils on steep slopes are susceptible to erosion when exposed to concentrated water runoff. While the building sites are located on relatively level ground, the northern and eastern slopes are prone to erosion due to excess surface runoff and concentrated flow. Therefore, the risk of damage due to erosion is generally moderate to high.

Evaluation: *Less than significant with mitigation.*
Recommendations: *Special engineering measures include designing a site drainage system to collect surface water and discharging it into an established storm drainage system. The project Civil Engineer is responsible for designing the site drainage system and, an erosion control plan could be developed prior to construction per the current guidelines of the California Stormwater Quality Association's Best Management Practice Handbook.*

5.7 Seiche and Tsunami

Seiche and tsunami are short duration earthquake-generated water waves in large, enclosed bodies of water and the open ocean, respectively. The extent and severity of a seiche or tsunami would be dependent upon ground motions and fault offset from nearby active faults. The project site is located within 250-feet of the Watsonville Slough; however, the proposed residential subdivision will be constructed on top of a knoll at elevations between 50- to 70-feet above sea level, well above tsunami and seiche inundation elevations. Therefore, the risk of inundation by seiche or tsunami is low.

Evaluation: *Less than significant.*
Recommendations: *No mitigation measures are anticipated.*

5.8 Flooding

The residential subdivision is positioned at a relatively high elevation, approximately 50 to 70-feet above sea level. FEMA Flood Maps indicate the lower elevations of the property, immediately adjacent to the Watsonville Slough, are prone to flooding. However, these flood areas are more than 100-feet away from proposed improvements. Therefore, we judge widespread flooding is not a significant hazard at the project site. However, whenever new development is performed, localized changes to the existing grades may result in localized flooding.

Evaluation:	*Less than significant with mitigation.*
Recommendations:	*Careful attention should be paid to site grading and drainage design to minimize the effects of potential flooding. The Project Civil Engineer should consider the potential for localized ponding of water and small-scale flooding during the maximum credible rainfall event to design site grades and drainage systems.*

5.9 Expansive Soil

Expansive soils will shrink and swell with fluctuations in moisture content and are capable of exerting significant expansion pressures on building foundations, interior floor slabs and exterior flatwork. Distress from expansive soil movement can include cracking of brittle wall coverings (stucco, plaster, drywall, etc.), racked door and/or window frames, and uneven floors and cracked slabs. Flatwork, pavements, and concrete slabs-on-grade are particularly vulnerable to distress due to their low bearing pressures.

Based on the subsurface exploration performed by Cornerstone Earth Group, highly plastic and expansive soils were observed on the property near the ground surface. Additionally, swell pressure tests were performed during the previous geotechnical investigation. The results of the swell testing indicate the expansive soils may exert 1,200 to 3,500 psf on the proposed improvements. Therefore, the risk of expansive soils impacting the project site is high.

Evaluation:	*Less than significant with mitigation.*
Recommendations:	*Foundations should be designed to withstand uplift pressure and seasonal movement from soil swelling and shrinkage. Foundations may consist of shallow foundations, rigid mat slabs, or deeper drilled pier foundations. If drilled piers are used, include void boxes to prevent uplift pressures on grade beams, and extend piers well below the zone of significant moisture fluctuation.* *At least 3-feet of expansive soils should be removed from the structural areas and replaced with select fill (sandy, low plasticity or lime treated clayey on-site soils) and for all shallow foundation options. The site grading and foundation design recommendations are outlined in Sections 6.1 and 6.3, respectively.*

5.10 Settlement/Subsidence

Significant settlement can occur when new loads are placed at sites due to consolidation of soft compressible clays (i.e., Bay Mud) or compression of loose granular soils. Differential settlement may occur where structures span cut/fill transitions or other variable support conditions. Soft clayey soils were not observed during the previous subsurface exploration performed by Cornerstone Group. However, significant fills, up to 20-feet are planned as part of the residential subdivision which will exert significant stress on the underlying medium stiff to stiff clayey soils. These loads can cause the underlying clay layers to consolidate resulting in settlements at the ground surface. We utilized the available laboratory consolidation data performed by Cornerstone and the computer software Settle3D produced by Rocscience to predict the amount of settlement that may occur over time. A graph indicating the predicted settlement, based on various fill heights, versus time is presented on Figure 27.

As with all project sites, the existing soil subsurface soil layers are variable and rarely uniform. Variability within a soil layer may include layer thicknesses, grain size distribution, porosity, moisture content, stress history, among others. Therefore, as a general rule-of-thumb, predicted settlements for any project should be considered approximate to a degree of accuracy of 25%.

In addition to the fill placement causing the underlying soils to consolidate under the large fill loads, the fills over 5-feet in height will consolidate, resulting in surface settlements. A general range of fill settlement is approximately 0.5% to 1% of the fill height. As an example, a 15-foot-tall fill should settle 0.08- to 0.15-feet or 1.0- to 1.8-inches. This settlement typically occurs within 5- to 10-years after the fill has been placed.

Based on our settlement analysis and the anticipated fill heights we judge the risk of site settlement to the site is moderate; however, provided the foundation recommendations given in this report are followed, the risk of structural damage to the residential structures is low. Hardscaped site improvements overlying the deeper fills, i.e. asphalt streets and parking areas, will experience some additional cracking and additional maintenance should be anticipated.

Evaluation: *Less than significant with mitigation.*
Recommendations: *Fills should be prepared and compacted as outlined in the Site Grading section of this report. Additional maintenance may also be required to repair cracks that may appear in the proposed overlying hardscape. The recommendations provided in the foundation section of this report should be followed and designed to withstand the predicted settlements.*

5.11 Slope Instability/Landsliding

Slope instability generally occurs on relatively steep slopes and/or on slopes underlain by weak materials. The project site has experienced previous landslides. As previously discussed, an approximate 10- to 15-foot tall 2:1 slope is located along the northern and eastern ends of the proposed subdivision. We understand this slope will be reduced in height to no greater than 5-feet in height with the addition of level pedestrian areas, rain gardens and tiered site retaining walls. Additionally, a new retaining wall up to 16-feet in height is proposed to bury on-site contaminated soils and create additional level space for recreational and parking space. The weight of this new fill may reduce the stability of the lower areas. Slope stability analysis was performed by Cornerstone Earth Group identified placing additional fill would reduce the overall slope stability.

We performed an updated slope stability analysis on five geologic cross sections generated from the current grading plan and utilizing the stability software SLIDE developed by Rocscience. The location of the location of the geologic cross sections are shown on the Site Plan, Figure 2 and are presented on Figures 28 through 32. The “Spencer” slope stability analysis method was utilized to analyze the cross sections.

Both short term (total stress) and long term (effective stress) static conditions were analyzed. The short term condition models the site immediately after construction with excess pore pressures being generated within the soil mass and reducing soil strength. The long term condition models the site after the pore pressures have dissipated and the soil strength increases. For static slope stability analyses, a factor of safety against soil movement above 1.3

and 1.5 is considered appropriate for short term and long term conditions, respectively. The results of our slope stability and yield coefficient analyses are presented on Figures 33 through 47. The failure planes shown represent the lowest factor of safety. The factors of safety of larger planes that encompass more of eth hillside were on the order of 2.0 or greater.

During a strong seismic event lateral displacement is anticipated for most slopes. Displacement may range from minor, less than an inch, to significant, several feet. Slope displacement is predicted based on the yield coefficient, ky, and the fundamental period of the slope. The yield coefficient is the seismic acceleration that produces a factor of safety of 1.0. We determined the yield coefficient for the five cross sections by inputting various seismic accelerations in our slope stability models and plotting the results. The procedures outlined by Bray and Macedo, 2019 were then used to predict the amount of deformation during a strong seismic event. Two deformation result values are determined in the analysis. The smaller value refers to a higher probability of occurrence during a strong seismic event while the larger of the numbers has a lower probability of occurrence. Additionally, the predicted deformations are more likely to occur in smaller amounts throughout the mass that add up to the predicted values rather than the predicted deformation occurring in one location within the mass. The results of the seismic slope displacement analysis are summarized below on Table C.

TABLE C
Slope Stability Results
Hillcrest Residential Subdivision
Watsonville, California

	Static Conditions		Seismic Conditions	
	Short Term F.S.	Long Term F.S.	ky	Deformation [1]
Section A-A	1.50	1.74	0.25 g	~3.5 to 7.5-in
Section B-B	2.12	2.39	0.36 g	~1.5 to 4.0-in
Section C-C	1.60	2.04	0.26 g	~3.5 to 7.5-in
Section D-D	2.12	2.50	0.29 g	~2.5 to 6.0-in
Section E-E	2.35	2.89	0.31 g	~3.5 to 7.5-in

Notes:
1. Predicted deformations are distributed throughout the landslide mass.

Evaluation: *Less than significant with mitigation.*

Recommendations: *Structures should be setback from the slope crests as outlined in the California Building Code. Structures may be constructed within the setback zone provided they are supported on a deep foundation system as described in the Foundation section of this report.*

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on our review of reference material and our supplemental subsurface exploration, we conclude that the proposed subdivision is feasible from a geotechnical perspective. The primary geotechnical issues to address in design of the project are providing adequate seismic design, expansive soils, liquefaction, protecting the residential subdivision from potential slope instability and providing uniform foundation support. Specific recommendations and criteria to address these and other geotechnical project facets are presented in the following sections.

6.1 Site Preparation and Grading

Preliminary plans indicate significant site grading will be performed to develop the project site. Site grading is expected to include excavating "cuts" up to roughly 15-feet and placing fills up to 20-feet to create building pads, new streets to allow site access, and constructing new pedestrian paths. The grading recommendations presented below are appropriate for construction in the late spring through fall months. From winter through the early spring months, on-site soils may be saturated due to rainfall and may be difficult to compact without drying by aeration or the addition of lime and/or cement (or a similar product) to dry the soils. Site preparation and grading should conform to the recommendations and criteria outlined below. General recommendations for wintertime construction are provided later in this report.

6.1.1 Surface Preparation

Clear all trees, brush, roots, over-sized debris, and organic material from areas to be graded. Trees and large shrubs that will be removed (in structural areas) must also include removal of stumps, root balls and roots larger than two inches in diameter. Excavated areas (i.e., old fills and stump removal) should be restored with properly moisture conditioned and compacted fill as described in the following sections. Any loose soil or rock at subgrade will need to be excavated to expose firm natural soils or bedrock. Debris, rocks larger than six inches and vegetation are not suitable for structural fill and should be removed from the site. Alternatively, vegetation strippings may be used in landscape areas. Surface preparation should extend at least 5-feet beyond proposed structures and 3-feet beyond pavement areas.

6.1.2 Materials

Based on the previous subsurface explorations and our supplemental subsurface exploration, onsite granular soils and the clayey soils located at lower elevations which exhibit low to medium plasticity are suitable for use as fill, provided they meet the criteria for onsite and imported fill material. As previously discussed, highly plastic and expansive soils were also observed on the project site. These plastic and expansive soils are not suitable for fill in structural areas, unless they have been lime/cement treated. Alternatively, highly expansive soils may be buried and encased with at least 3-feet of non-expansive and/or lime treated soils.

Onsite and import soils shall consist of soil and rock mixtures that: (1) are free of organic material, (2) have a Liquid Limit less than 40 and a Plasticity Index of less than 20, (3) have a maximum particle size of 6 inches, and (4) have more than 50% retained on the No. 200 sieve. Any imported fill material shall be tested and inspected by the project geotechnical engineer to determine its suitability for use as fill material.

6.1.3 Lime Treatment

As previously discussed, expansive soils were encountered on the project site. Lime treatment chemically alters the clay soils resulting in a reduction in their inherent plasticity, a significant reduction in their shrink/swell potential, an improvement to its workability (i.e., compaction), and an increase of its shear strength. If soil treatment is utilized during site grading, in structural areas we recommend at least 5% high calcium lime should be thoroughly mixed to the surficial soils (utilizing a 115 pcf soil density) resulting in a soil pH of at least 12.4 to promote the chemical reaction, to be confirmed with laboratory testing. The depth of treatment in building areas should extend at least 36-inches below the building pad subgrade. The depth of treatment may be reduced to 18-inches in areas where flatwork is proposed. Soil treatment should extend at least 5-feet beyond the area of work where possible. Treated soils should then be compacted to at least 90% relative compaction in structural areas and 95% relative compaction in areas subject to vehicular loads.

6.1.4 Compacted Fill

On-site fill, backfill, and scarified subgrades (8-inches deep) should be conditioned to within 3% of the optimum moisture content. Properly moisture conditioned and cured on-site materials should subsequently be placed in loose horizontal lifts of 8 inches thick or less, and uniformly compacted to a minimum of 90% R.C. Expansive soils should be further moisture conditioned to at least 3% over the optimum moisture content and compacted to between 88 and 92% R.C. To reduce the settlement potential, the compaction of fills taller than 5-feet should be increased to 95% R.C.

Relative compaction, maximum dry density, and optimum moisture content of fill materials should be determined in accordance with ASTM Test Method D 1557, "Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using a 10-lb. Rammer and 18-in. Drop". Relative compaction should increase to 95% in the upper foot where asphalt pavement is planned.

6.1.5 Slopes

Based on our slope stability analyses and the relatively short fill slopes proposed, roughly 5-feet, we judge a maximum cut and fill slope inclination of 2:1 is appropriate. Although not currently planned, intermediate terraces and surface drainage should be constructed on fill slopes greater than 20-feet in height.

6.1.6 Excavations

The subsurface conditions generally consist of medium stiff to stiff, highly plastic clay. As previously discussed, the site was previously used as an auto salvage yard for over 50-years. Test pits performed by others encountered significant automobile parts including tires, sheet metal and other debris. Although we anticipate the soil will be easily excavated with standard equipment (i.e., excavators, dozers, scrapers, etc.), the contractor should anticipate encountering some large debris that may impact the excavation conditions.

Soils in excavations appear to be Cal-OSHA “Type C” and excavations having a depth of five feet or more, and will be entered by workers must be sloped, braced, or shored in accordance with current Cal-OSHA regulations. All excavations can result in collapse of sidewalls, slopes and/or bottom that could result in injury or death of workers. Therefore, excavations should be evaluated by the Contractor’s safety officer and designated competent person prior to workers entering in accordance with current Cal-OSHA regulations.

6.2 Seismic Design

The project site is located in a seismically active area. Therefore, structures should be designed in conformance to the seismic provisions of the most recent (2019) California Building Code (CBC). However, since the goal of the building code is protection of life safety, some structural damage may still occur during strong ground shaking. Based our supplemental subsurface exploration it is our opinion the site may be classified as a “Stiff Soil Site Class D” site.

Per ASCE 7-16 Section. 11.4.8, a Site-Specific Ground Motion Hazard Analysis shall be performed in accordance with ASCE 7-16 Section 21.2 on sites classified as a “Site Class D” if the S_1 value is greater than or equal to 0.2 g. The S_1 value for the site conditions and location is 0.94 g; therefore, we performed a Site-Specific Ground Motion Hazard Analysis as presented in Appendix E and the results are presented below on Table D.

TABLE D
ASCE 7-16 SEISMIC PARAMETERS
Hillcrest Residential Subdivision
Watsonville, California

Factor Name	Coefficient	ASCE 7-16 Site Specific Value
Site Class[1]	$S_{A,B,C,D,E,\text{ or }F}$	S_D
Spectral Response (short)	SM_S	1.98 g
Spectral Response (1-sec)	SM_1	1.89 g
Design Spectral Response (short)	SD_S	1.32 g
Design Spectral Response (1-sec)	SD_1	1.26 g
MCE_G[2] PGA adjusted for Site Class	PGA_M	1.13 g

Notes:
1. Site Class D Description: Stiff soil profile with shear wave velocities between 600 and 1,200 ft/sec, standard blow counts between 15 and 50 blows per foot, and undrained shear strength between 1,000 and 2,000 psf.
2. Maximum Considered Earthquake Geometric Mean.

6.3 Foundation Design

As previously discussed, the upper elevations of the project site are blanketed in approximately 10-feet of highly plastic and expansive clay. These soils are problematic to traditional shallow foundation systems. These foundations are typically lightly loaded and prone to uplift pressures which can result in cracks in the foundation and structure. Therefore, traditional shallow foundations are not recommended without other soil improvements. Alternative foundation options may be considered that typically exhibit improved performance in expansive soils. Various acceptable foundation options are presented below along with design criteria.

6.3.1 Shallow Foundations

Based on the subsurface soil conditions, it is our opinion the planned residences may be supported on a shallow foundation system. However, due to the presence of surficial expansive soils, shallow foundations should be designed to withstand seasonal movement. For structures with raised floors, shallow foundation excavations should be designed to be at least 36-inches deep to extend at least 3-feet below the ground surface. The over-excavation may then be backfilled with non-expansive soil, as described above, or with cement slurry/control density fill (CDF).

Alternatively, shallow foundations may be constructed on at least 36 inches of select fill or lime treated soils as described above without the need for over-excavated or deepened foundation excavations. Shallow foundations located adjacent to slopes should be deepened as necessary to allow at least 7-feet of horizontal confinement between the bottom of the footing and slope face.

Reinforced concrete mat slabs-on-grade may be utilized to support the proposed residential structures. However, mat slab foundations must bear on at least 3-feet of lime treated soils or imported non expansive fill soil. Shallow and mat slab foundation design criteria are presented on Table E below.

TABLE E
SHALLOW FOUNDATION & MAT SLAB DEIGN CRITERIA
Hillcrest Residential Subdivision
Watsonville, California

Shallow Foundation

Minimum embedment below existing grade:	24-inches
Minimum width[1]:	
One-story:	12 inches
Two-story:	15-inches
Allowable bearing pressure[2]:	
Deepened foundations:	1,000 psf
Imported fill:	2,500 psf
Lime treated soil"	3,500 psf
Base friction coefficient:	
Deepened foundations:	0.30
Lime treated or imported fill:	0.35
Lateral passive resistance[2,3]:	
Deepened foundations:	300 pcf
Lime treated or imported fill:	400 pcf

Reinforced Concrete Mat Slab-on-Grade

Minimum thickness:	6 inches
Turndown edge depth:	18-inches
Modulus of subgrade reaction, k_s:	
Lime treated or imported fill:	125 pci
Maximum unsupported interior span[4]:	20 feet
Maximum unsupported edge/corner span[4]:	10 feet
Base friction:	0.35

Notes:
1. Design shallow foundations to similar bearing pressures, i.e., size footing widths to maintain uniform bearing loads. Maintain above optimum moisture contents until concrete slabs are completed.
2. May increase design values by 1/3 for total design loads including wind and seismic.
3. Neglect upper 6-inches unless confined by concrete. Equivalent Fluid Pressure, not to exceed 3,500 psf.
4. Assumes rigid slab behavior with idealized fixed conditions.

6.3.2 Post Tensioned Reinforced Concrete Slab-on-Grade

The proposed residential structures may be supported on post tensioned reinforced concrete slabs-on-grade (PT-slabs) bearing on either native soils, prepared as described previously; lime treated soils; or imported fill soil. PT-slabs should be designed and constructed per the most recent Post-Tension Concrete Institute specifications and the design criteria presented below on Table F. It should be noted that post-tensioned slabs on the existing soils will likely have seasonal building heave and settlement as the underlying soil react to seasonal changes in the moisture content of the soils. Maintenance of cracks in the exterior walkways and cosmetic cracks with the structures should be expected.

TABLE F
PT-SLAB DEIGN CRITERIA
Hillcrest Residential Subdivision
Watsonville, California

Modulus of subgrade reaction, k_s:	
Untreated soil:	75 pci
Lime treated or imported soil:	125 pci
Minimum thickness at edge of slab:[1,2]	12 inches
Edge moisture variation (e_m) – Center Lift	12 feet
Edge moisture variation (e_m) – Edge Lift	6 feet
Differential soil movement (y_m) – Center Lift	1.0 inches
Differential soil movement (y_m) – Edge Lift	2.0 inches

Notes:
1. Actual thickness, load distribution, and unsupported spans must be determined by Structural Engineer to reduce deformations to acceptable levels.
2. Assumes rigid slab behavior with idealized fixed end conditions.

6.4.3 Deep Foundation Design

A drilled pier foundation system extending through the surficial expansive soils and embedding into the underlying stiff soils may also be utilized to support the proposed residential structures. Deep foundations should be spaced more than three pier/pile diameters apart from each other and interconnected with gradebeams. Gradebeams should be constructed on 4-inch-thick cardboard void boxes to prevent uplift pressure from underlying expansive soils. To avoid the use of void boxes the grade beams should be constructed on at least 3-feet of lime treated soil or imported non-expansive fill. Alternatively, gradebeams and drilled piers may be designed to withstand at least 4,500 psf of uplift pressure. Additionally, “mushrooming” of the top of the drilled piers should be prevented to reduce additional uplift pressure. Sonotubes should be utilized in the upper 3-feet if “mushrooming” of the pier tops occurs. Drilled piers may be designed utilizing the parameters outlined on Table G below.

TABLE G
DRILLED PIER FOUNDATION DESIGN CRITERIA
Hillcrest Residential Subdivision
Watsonville, California

Minimum diameter:	16-inches
Skin friction[1]:	
0 to 3-feet	Neglect
3 to 10-feet	300 psf
10 to 20-feet	750 psf
20 to 30-feet	1,000 psf
Lateral resistance[2,3]:	
0 to 3-feet	Neglect
3 to 10-feet	300 pcf
10 to 20-feet	400 psf
20 to 30-feet	500 psf

Notes:

1.) Uplift capacity is equal to 80% of the downward skin resistance.

2.) Apply passive resistance over two pier diameters.

3.) Lateral pile reduction factors, "P-multipliers" should be included in design when foundations are within groups. P-multipliers are dependent on pier/pile spacing (s) and diameter (d). The following equations should be utilized to calculate the p-multiplier:
    a. First (Lead) Row Piles: $P_m = 0.26*\ln(s/d) + 0.50 \leq 1.0$
    b. Second Row Piles: $P_m = 0.52*\ln(s/d) \leq 1.0$
    c. Third Row or Higher Piles: $P_m = 0.60*\ln(s/d) - 0.25 \leq 1.0$

Alternate deep foundation options are available including helical piles. Helical piles are slender (4-inches or less in diameter) steel pipes or shafts that have two or more steel circular plates welded near the tip. The piles are screwed into the ground and extend to a design depth and capacity that is determined in the field during installation. Based on the subsurface conditions we anticipate helical piles should be able to obtain 15 to 20-kips at depths around of 15-feet below the ground surface. Helical piles are typically interconnected with gradebeams and spaced 5 to 10-feet on center. Helical piles provide negligible lateral passive resistance due to the slender nature of the steel rods. Therefore, lateral passive resistance may be obtained from the grade beams. If helical piles are determined to be an economic option, we should be contacted to assist with the design of the foundation system.

6.5 Retaining Wall Design

We anticipate retaining walls up to 16-feet in height will be required to retain cuts and fills needed to create level pedestrian paths, soil remediation areas, and rain gardens to the north and east of the proposed residences. The 16-foot-tall retaining wall will be located on the northern end of the property and will support the soil remediation soil, while 5-foot tall, tiered retaining walls will be constructed on the northern and eastern ends of the property. The tiered walls will be separated by a level pedestrian path with the upper wall supporting a roughly 5-foot tall 2:1 slope. We anticipate these walls will be free to rotate at the top, therefore may be designed with “unrestrained” soil lateral earth pressures.

The current plan is to construct the level pedestrian pathway by filling to raise grades. While typical reinforced concrete or concrete masonry unit (CMU) retaining walls may be utilized to retain the fill, it is our opinion mechanically stabilized earth (MSE) retaining walls with a stacked block face will be more cost effective. MSE walls are constructed by placing layers of compacted fill with interbedded geogrids every 18- to 24-inches. The geogrids are connected to concrete blocks located at the wall face. These walls do not require concrete or steel reinforcement and are built in conjunction with fill placement. Retaining wall design criteria is shown on Table H below.

TABLE H
RETAINING WALL DESIGN CRITERIA
Hillcrest Residential Subdivision
Watsonville, California

Foundations			
See Table E or G			
Unrestrained Earth Pressure[1,2]			
Level Ground:			40 pcf
2:1 Slope:			60 pcf
MSE Wall Design			
	Unit Weight, γ	Cohesion, c	Friction, ϕ
Reinforced Soil:	120 pcf	N/A	30º
Retained Soil:	110 pcf	N/A	30º
Foundation Soil:	110 pcf	500 psf	30º
Seismic Surcharge[3]			10 x H psf

Notes:

1. Interpolate earth pressures for intermediate slopes.
2. Equivalent fluid pressure.
3. Rectangular distribution. The factor of safety for short-term seismic conditions can be reduced to 1.1 or greater. “H” = wall height.

Drainage shall be provided for all retaining walls taller than 3-feet consisting of either ¾-inch crushed rock, wrapped within filter fabric, or Caltrans Class 2 permeable material. The seepage should be collected in a 4-inch perforated PVC drain line at the base of the wall. The permeable material shall extend at least 12 inches from the back of the wall and be continuous from the bottom of the wall to within 12 inches of the ground surface. Drainage panels, such as Mirifi 100N, may be utilized. If drainage panels are utilized, the perforated pipe locate at the base of the retaining wall should be surrounded in ¾-inch drain rock and wrapped in filter fabric. A schematic retaining wall drainage detail is presented on Figure 48. All retaining wall backfill shall be with non-expansive soil.

Seepage collected in the drain line should be conveyed off-site by gravity in closed pipe to the storm drainage system. The pipe shall have a minimum slope of 1 percent to drain. To maintain the wall drainage system, clean outs shall be installed at the upstream end and at all major changes in direction. Water proofing of any below grade residential walls should be designed by the Architect to prevent moisture infiltration through the wall into living spaces.

6.6 Site Drainage Considerations

Careful consideration should be given to design of new finished grades at the site to ensure positive drainage. We recommend that the building areas be raised slightly and that the adjoining landscaped areas be sloped downward at 5 percent for a distance of at least 5-feet from the perimeter of building foundations. Where hard surfaces, such as concrete or asphalt adjoin foundations, slope these surfaces at least 0.10-feet in the first 5-feet (2 percent). Roof gutter downspouts may discharge onto the pavements but should not discharge onto any landscaped areas. Provide area drains for landscape planters adjacent to buildings and parking areas and collect downspout discharges into a tight pipe collection system. The tight pipe system should discharge at an appropriate location unlikely to result in adverse erosion, preferably into an established municipal storm drain system. If it is not possible to discharge into the City's storm drain system, collected water should be discharged near the base of the slope and spread laterally via dissipators.

6.7 Concrete Slabs-On-Grade

Where concrete slabs are needed, we recommend they be at least 5-inches thick and reinforced with steel bars (not wire mesh). Additionally, contraction joints should be incorporated in the concrete slab in both directions, no greater than 10 feet on center and the reinforcing bars should extend through these control joints. Some seasonal movement should be expected due to the expansive nature of the soils.

We generally recommend that interior concrete slabs should be placed on a moist subgrade as previously described above. To reduce (i.e., improve) interior moisture conditions, a minimum of four inches of clean, free draining, ¾-inch angular gravel should be placed beneath interior concrete slabs to form a capillary moisture break. The drain rock must be placed on a properly moisture conditioned and compacted subgrade that has been approved by the Geotechnical Engineer. A 15-mil, or thicker, vapor barrier should be placed over the compacted drain rock. The vapor barrier shall meet the ASTM E 1745 Class A requirements and be installed per ASTM E 1643. Eliminating the capillary moisture break and/or plastic visqueen may result in excess moisture intrusion through the floor slabs resulting in poor performance of floor coverings, mold growth, or other adverse conditions.

The industry standard approach to floor slab moisture control, as discussed above, does not assure that floor slab moisture transmission rates will meet the building use requirements or that indoor humidity levels will be low enough to inhibit mold growth. Building design, construction, and intended use have a significant role in moisture problems and should be carefully evaluated by the owner, designer, and builder in order to meet the project requirements.

6.8 Underground Utilities

Based on previous subsurface explorations performed by others, onsite soils are "Type C" per Cal-OSHA guidelines and will be prone to caving and raveling in open excavations. The Contractor is responsible for site safety and should provide adequate shoring as needed.

Bedding materials for utility pipes should be non-corrosive sand with 90 to 100 percent of particles passing the No. 4 sieve and no more than 15 percent finer than the No. 200 sieve. Provide the minimum bedding beneath the pipe in accordance with the manufacturer's recommendation, typically 3 to 6-inches. Utility excavations should be backfilled with select fill per criteria discussed previously and compacted to a minimum of 90 percent relative compaction. In pavement areas, relative compaction should be increased to a minimum of 95 percent in the upper 12-inches.

6.9 Asphalt Concrete Pavements

We have calculated preliminary pavement sections in accordance with Caltrans procedures for flexible pavement design using an assumed R-value of 5. The R-value of the subgrade soils may be increased to 40 provided they are lime treated. We have provided a range of Traffic Indices (TI) from 4 to 7 depending on the expected traffic loads for a twenty-year design life. In general, areas expected to experience loading from heavy vehicles (such as fire lanes, loading dock access roads, trash enclosures, etc.) should be designed using the higher Traffic Index, while parking areas and other lightly-loaded areas can utilize a thinner pavement section based on the lower Traffic Index. Preliminary recommended pavement sections are shown in Table H; these should be verified on the basis of supplemental laboratory testing.

TABLE I
PAVEMENT DESIGN CRITERIA
Hillcrest Residential Subdivision
Watsonville, California

			Untreated Subgrade	**Lime Treated Subgrade**
	T.I.	Asphalt Concrete	Aggregate Baserock	Aggregate Baserock
Driveways & parking stalls	4.0	2.5-inches	8.0-inches	6.0-inches
Light truck traffic	5.0	3.0-inches	10.0-inches	6.0-inches
Moderate truck traffic	6.0	3.5-inches	13.0-inches	6.0-inches
Heavy truck traffic	7.0	4.0-inches	16.0-inches	8.0-inches

Subgrade preparation for asphalt-paved areas should be performed in accordance with the grading recommendations of this report. The base rock should consist of compacted Class 2 Aggregate Base (Caltrans, 2018), be conditioned to near optimum moisture content, placed in lifts no more than six inches thick, and compacted to achieve at least 95 percent relative compaction and a non-yielding surface when proof-rolled with heavy construction equipment. The subgrade should also be maintained at near-optimum moisture content prior to placement of aggregate base rock. Areas of soft or saturated soils encountered during construction should be excavated and replaced with properly moisture conditioned fill or aggregate base.

7.0 SUPPLEMENTAL GEOTECHNICAL SERVICES

We must review the plans and specifications for the project when they are nearing completion to confirm that the intent of our geotechnical recommendations has been incorporated and provide supplemental recommendations, if needed. During construction, we must observe and test site grading, foundation excavations for the structures and associated improvements to confirm that the soils encountered during construction are consistent with the design criteria.

8.0 LIMITATIONS

We believe this report has been prepared in accordance with generally accepted geotechnical engineering practices in the greater Santa Cruz area at the time the report was prepared. This report has been prepared for the exclusive use of California Sunshine Subdivision, LLC and/or their assignees specifically for this project. No other warranty, expressed or implied, is made. Our evaluations and recommendations are based on the data performed by others and reviewed by us and our experience with soils in this geographic area.

Our approved scope of work did not include an environmental assessment of the site. Consequently, this report does not contain information regarding the presence or absence of toxic or hazardous wastes.

The evaluations and recommendations do not reflect variations in subsurface conditions that may exist between boring locations or in unexplored portions of the site. Should such variations become apparent during construction, the general recommendations contained within this report will not be considered valid unless MPEG is given the opportunity to review such variations and revise or modify our recommendations accordingly. No changes may be made to the general recommendations contained herein without the written consent of MPEG.

We recommend that this report, in its entirety, be made available to project team members, contractors, and subcontractors for informational purposes and discussion. We intend that the information presented within this report be interpreted only within the context of the report as a whole. No portion of this report should be separated from the rest of the information presented herein. No single portion of this report shall be considered valid unless it is presented with and as an integral part of the entire report.

9.0 LIST OF REFERENCES

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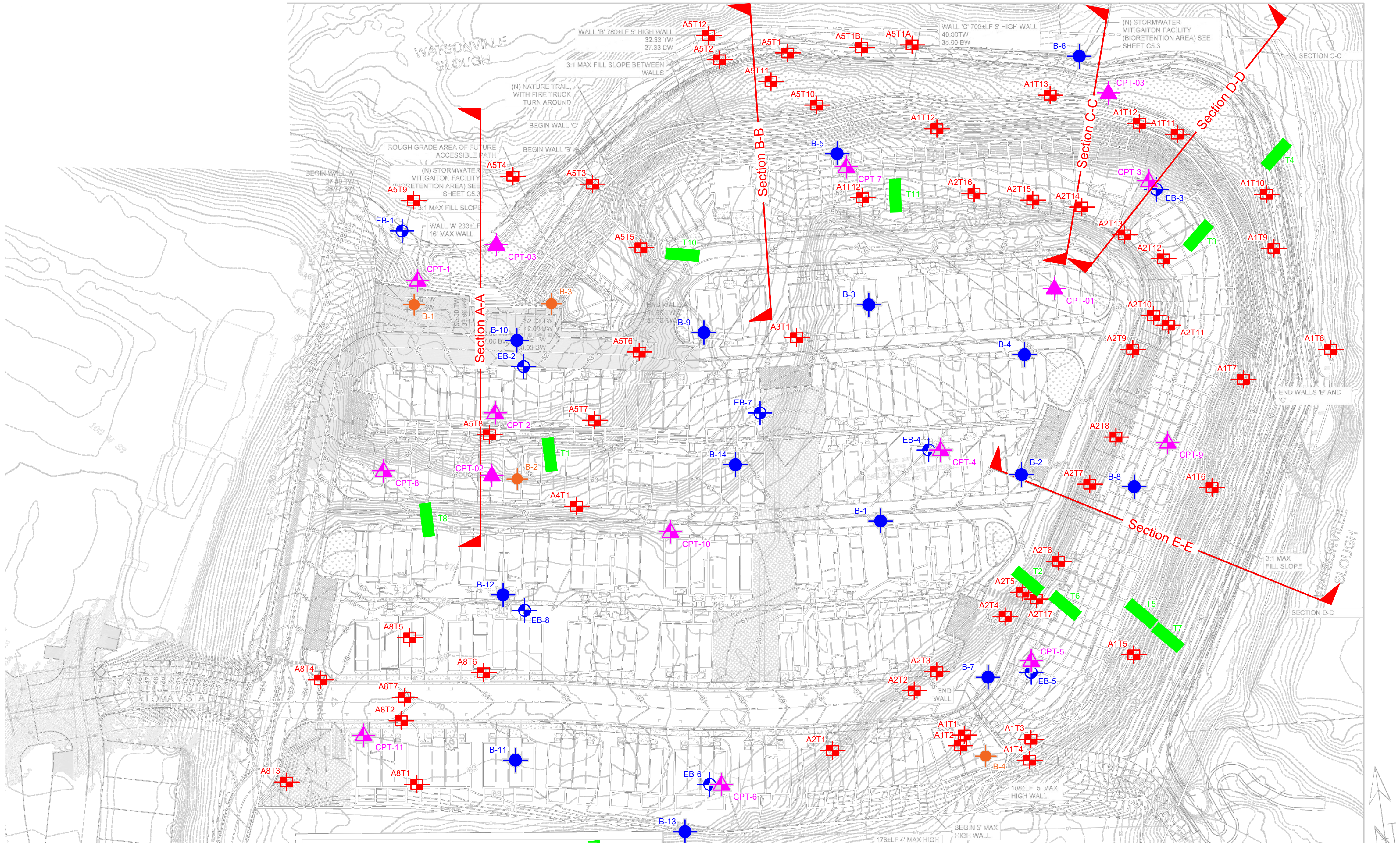

LEGEND:

- Boring completed by MPEG, 2021
- CPT completed by MPEG, 2021
- Boring completed by Cornerstone, 2016
- CPT completed by Cornerstone, 2016
- Test pit completed by Cornerstone, 2016
- Boring completed by Butano, 2016
- Trench completed by Butano, 2016

NORTH

SCALE

0 50 100 200 FEET

REFERENCE: Ramsey Civil Engineering Inc. "Hillcrest Subdivision, Rough Grading and Site Drainage Plan," December 14, 2020

MPEG MILLER PACIFIC ENGINEERING GROUP

FILE: 3317.001 SPlan.dwg

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www.millerpac.com

SITE PLAN

Hillcrest Residential Subdivsion
Watsonville, California

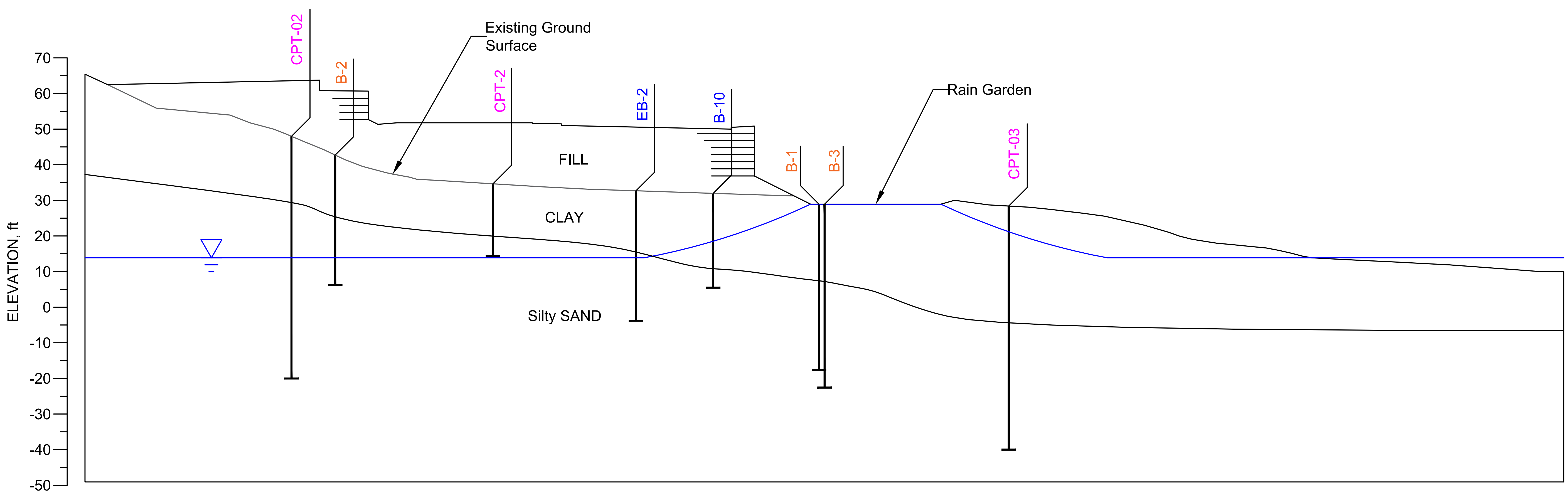
Project No. 3317.001 Date: 1/12/2022

Drawn BSP

Checked

2

FIGURE



Section A-A

1"=30'

SCALE
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MPEG MILLER PACIFIC ENGINEERING GROUP

FILE: 3317.001 SPlan.dwg

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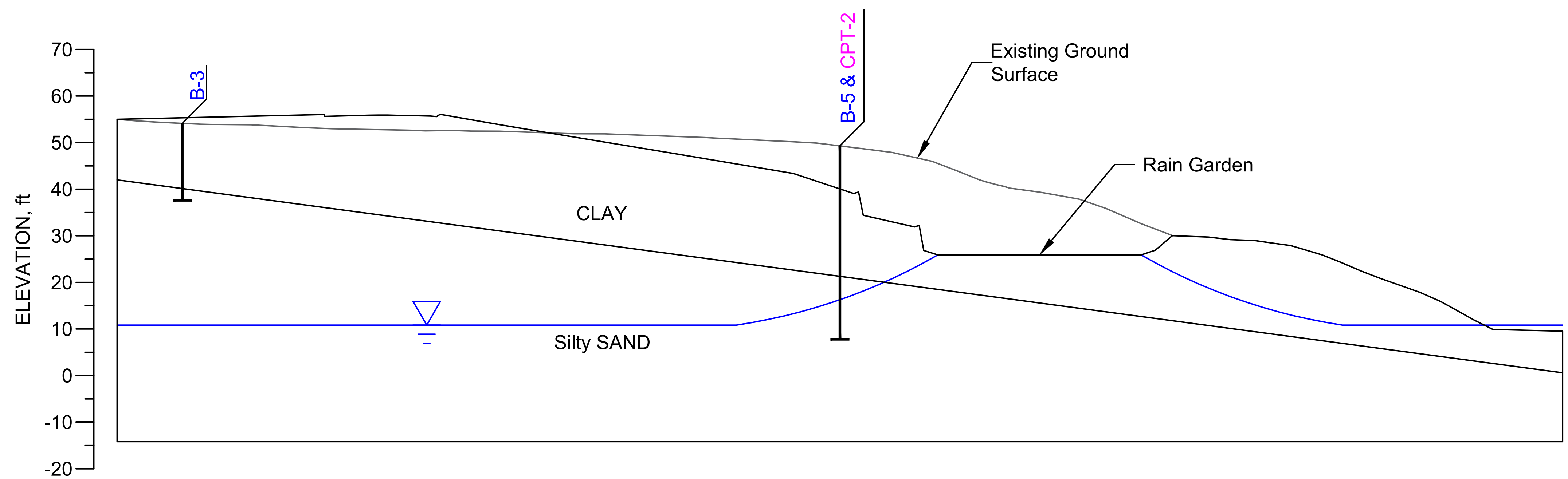
SECTION A-A

Hillcrest Residential Subdivsion
Watsonville, California

Project No. 3317.001 Date: 1/12/2022

Drawn BSP
Checked

28
FIGURE



Section B-B

1"=30'

SCALE

0 15 30 60 FEET

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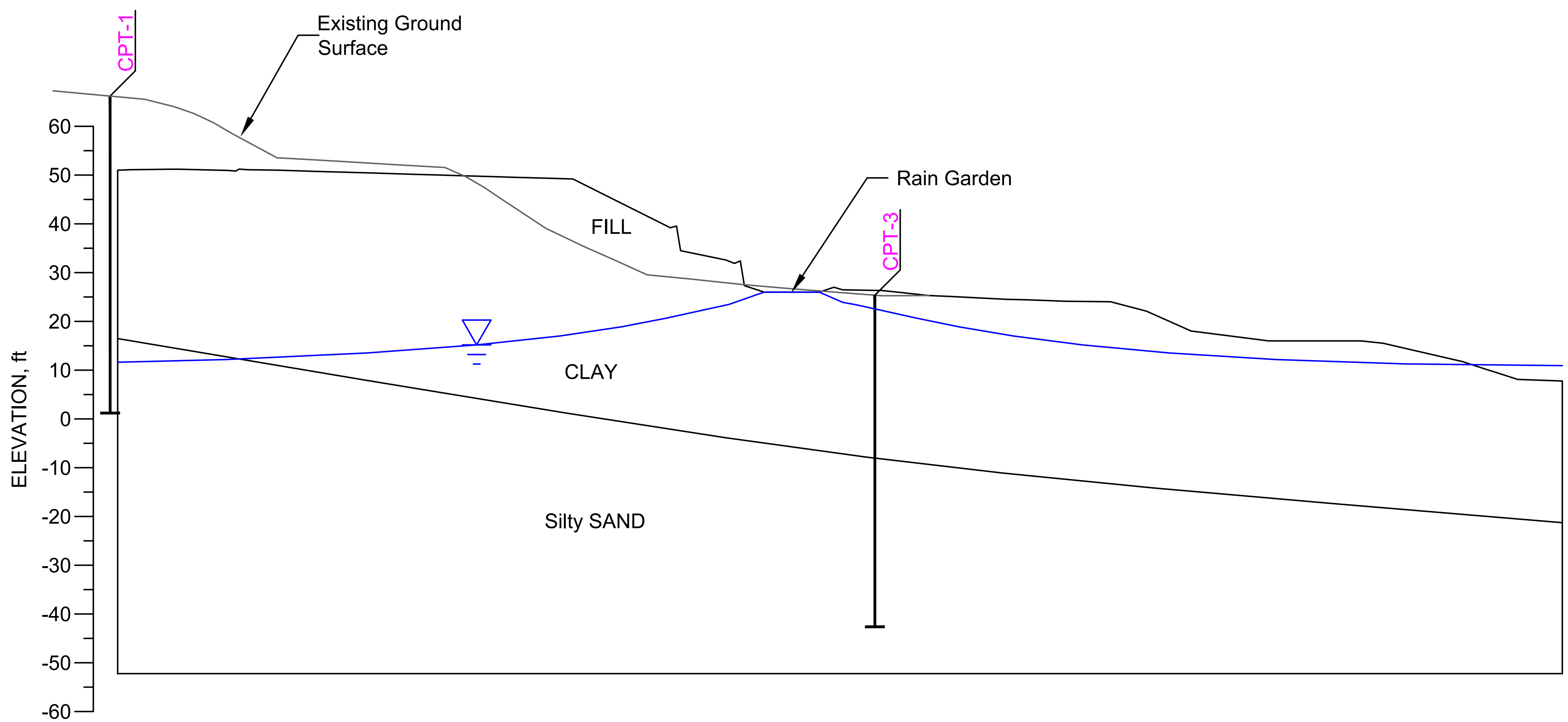
SECTION B-B

Hillcrest Residential Subdivsion
Watsonville, California

Drawn BSP
Checked

Project No. 3317.01 Date: 1/12/22

29
FIGURE



Section C-C

1"=30'

SCALE

0 15 30 60 FEET

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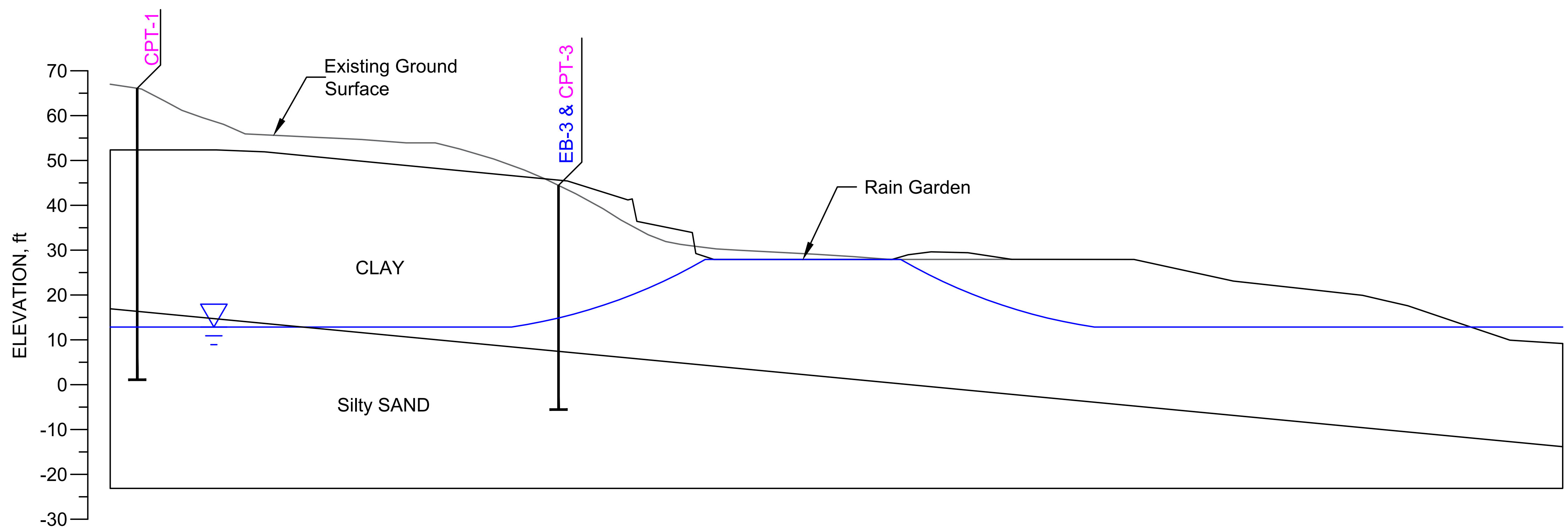
SECTION C-C

Hillcrest Residential Subdivsion
Watsonville, California

Project No. 3317.01 Date: 1/12/22

Drawn BSP
Checked

30
FIGURE



Section D-D

1"=30'

SCALE

0 15 30 60 FEET

MPEG MILLER PACIFIC ENGINEERING GROUP

FILE: 3317.001 SPlan.dwg

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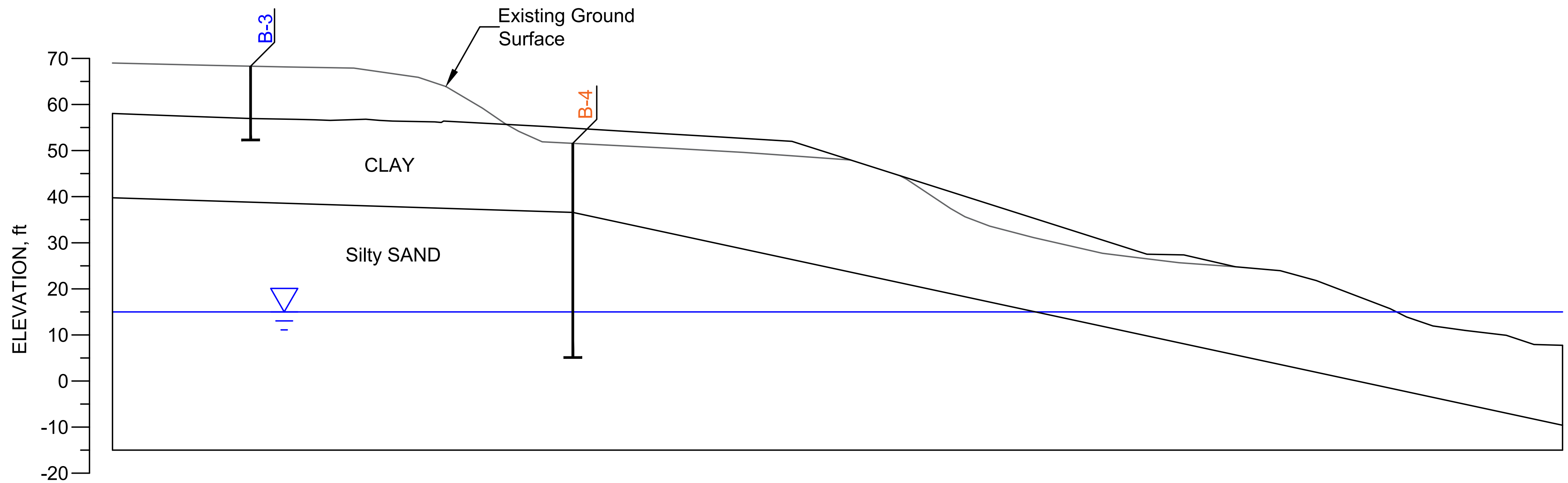
SECTION D-D

Hillcrest Residential Subdivsion
Watsonville, California

Project No. 3317.01 Date: 1/12/22

Drawn BSP
Checked

31
FIGURE



Section E-E

1"=30'

SCALE

0 15 30 60 FEET

MPEG MILLER PACIFIC ENGINEERING GROUP

FILE: 3317.001 SPlan.dwg

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SECTION E-E

Hillcrest Residential Subdivsion
Watsonville, California

Project No. 3317.01 Date: 1/12/22

Drawn BSP

Checked

32

FIGURE

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RETAINING WALL, STABILITY & SETTLEMENT CALCULATIONS

Sunshine Vista Residential Development
Watsonville, California

Proj. No. 1680.023

June 4, 2021

Prepared for: CDM/Real Estate Company, Inc.
444 Airport Blvd., Suite 203
Watsonville, California 95076
Attn: Mr. John Fry

Prepared by:
MILLER PACIFIC ENGINEERING GROUP

Benjamin S. Pappas
Geotechnical Engineer No. 2786
(Expires 9/30/22)

REVIEWED BY

Scott A. Stephens
Geotechnical Engineer No. 2398
(Expires 6/30/21)

MILLER PACIFIC
ENGINEERING GROUP

Table of Contents

MILLER PACIFIC
ENGINEERING GROUP

June 4, 2021
File: 1680.021Calcs.doc

CDM/Real Estate Company, Inc.
444 Airport Blvd., Suite 203
Watsonville, California 95076

Attn: Mr. John Fry

Introduction & Project Description

This letter summarizes our geotechnical calculations for the planned residential subdivision located on an approximate 12-acre vacant lot at 511 Ohlone Parkway in southwestern Watsonville, California. The proposed plan is to construct between 150 to 160 single-family residences, duplex and townhomes. Significant site grading will be required to develop the multiple building pads and streets to allow access to the subdivision. Our work was performed in accordance with our Agreement dated April 22, 2020.

Existing Geotechnical Data

We utilized the previous geotechnical investigation report to determine the existing soil strength and consolidation parameters. The previous investigation report was prepared by Cornerstone Earth Group "Geotechnical Investigation Sunshine Vista Residential Development," February 10, 2017. We reviewed the report and provided our opinions and recommendations in a Geotechnical Evaluation Report, dated March 4, 2021.

Geotechnical Design and Evaluation

As discussed previously, significant site grading will be required to construct the project. Site grading will include constructing new stacked block mechanically stabilized earth (MSE) retaining walls up to 14-feet in exposed height. Additionally, fill slopes inclined up to 2:1 (horizontal:vertical) will be constructed. We provide geotechnical engineering design and evaluation for these design elements included MSE Wall Design; Site Settlement Analyses; and Slope Stability Analyses. The results of our evaluation and analyses are presented in this calculation package.

We hope this provides you with the information you require at this time. Please do not hesitate to contact us with any questions or concerns.

Sincerely,
MILLER PACIFIC ENGINEERING GROUP

REGISTERED PROFESSIONAL ENGINEER
BENJAMIN S. PAPPAS
No. 2786
Exp. 9/30/22
GEOTECHNICAL
STATE OF CALIFORNIA

Benjamin S. Pappas
Geotechnical Engineer No 2786
(Expires 9/30/22)

Soil Properties

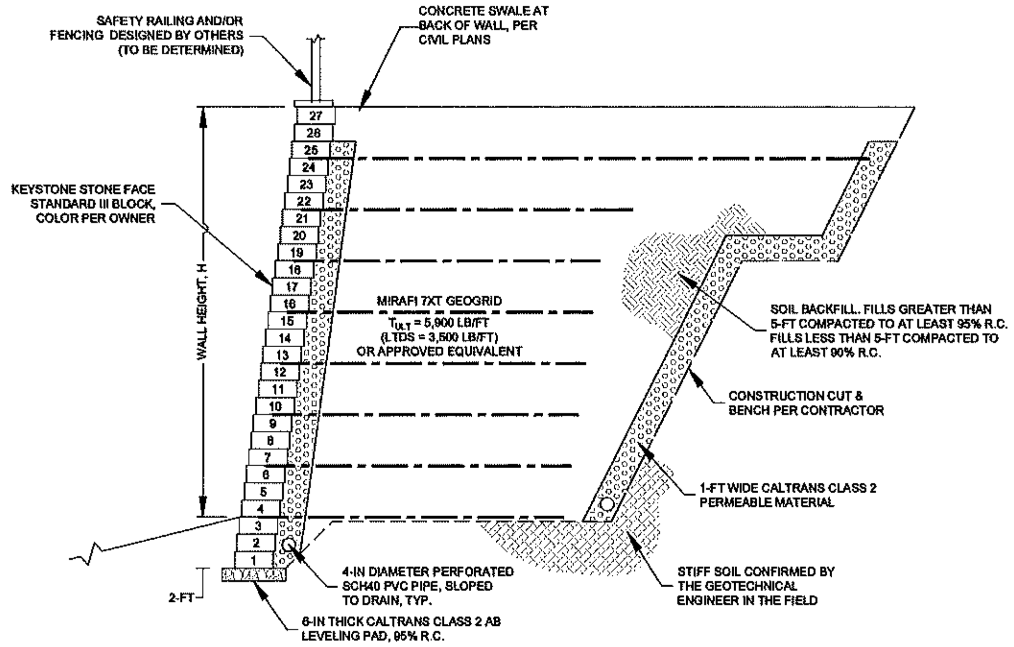
The soil properties utilized in our design and analyses were developed utilizing the existing subsurface and laboratory testing data obtained from the Cornerstone Geotechnical Investigation Report. The pertinent data is presented in the following pages and summarized below:

Native Clay Soils:

Saturated Unit Weight = 120 pcf
Total Unit Weight = 105 pcf
Undrained Shear Strength = 3000 psf
Compression Ratio = 0.13
Recompression Ratio = 0.04
Preconsolidation Pressure = 5,300 psf

Dense Sand Soils:

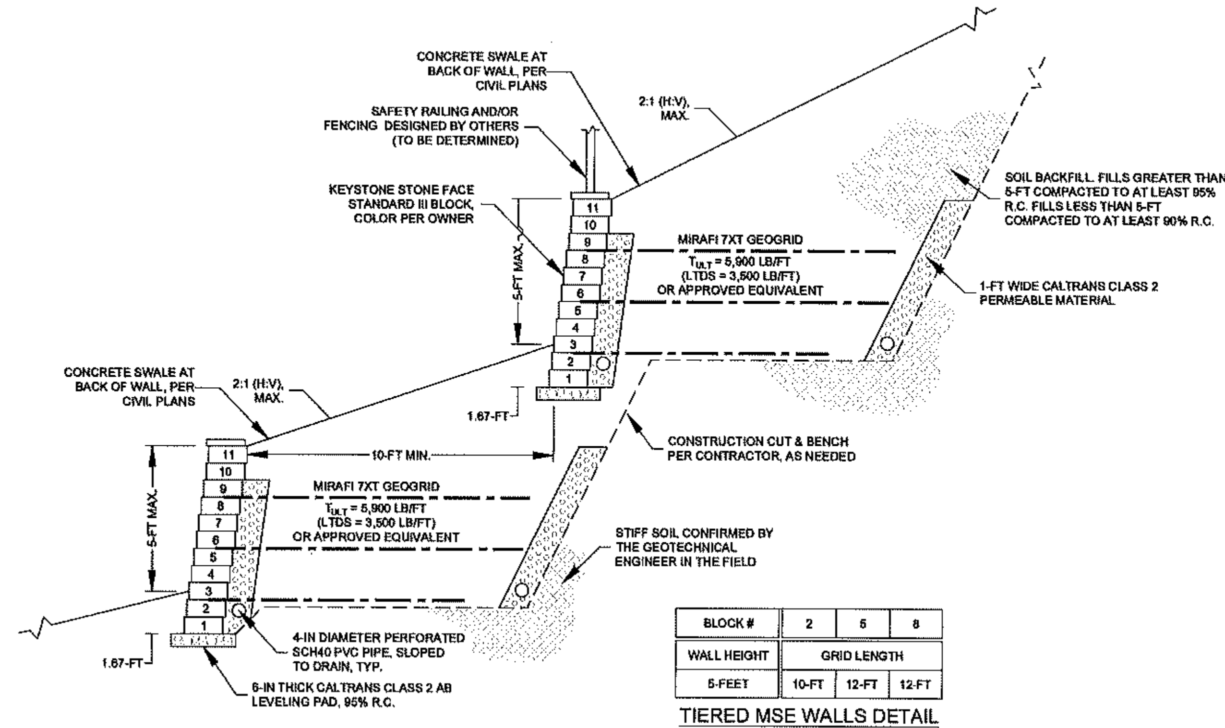
Saturated Unit Weight = 110 pcf
Total Unit Weight = 95 pcf
Total Cohesion = 200 psf
Effective Cohesion = 200 psf
Total Friction Angle = 22°
Effective Friction Angle = 33°



BLOCK #	3	6	9	12	15	18	21	24
WALL HEIGHT	GRID LENGTH							
16-FEET	12-FT	12-FT	12-FT	12-FT	12-FT	12-FT	14-FT	16-FT
14-FEET	12-FT	12-FT	12-FT	12-FT	12-FT	14-FT	16-FT	N/A
12-FEET	10-FT	10-FT	10-FT	10-FT	10-FT	14-FT	N/A	N/A
10-FEET	8-FT	8-FT	8-FT	10-FT	12-FT	N/A	N/A	N/A
8-FEET	6-FT	6-FT	8-FT	10-FT	N/A	N/A	N/A	N/A
6-FEET	6-FT	6-FT	10-FT	N/A	N/A	N/A	N/A	N/A
4-FEET	4-FT	6-FT	N/A	N/A	N/A	N/A	N/A	N/A

REMEDIATION PIT MSE WALL DETAIL

(NOT TO SCALE)



BLOCK #	2	5	8
WALL HEIGHT	GRID LENGTH		
5-FEET	10-FT	12-FT	12-FT

TIERED MSE WALLS DETAIL

TO BE USED FOR FUTURE GRADING PLAN - NOT PART OF REMEDIATION SCOPE

(NOT TO SCALE)

GENERAL NOTES:

1. THE CONTRACTOR SHALL NOTIFY THE ENGINEER A MINIMUM OF 48 HOURS PRIOR TO COMMENCING ANY ASPECT OF THE WORK.

   ENGINEER: MILLER PACIFIC ENGINEERING GROUP
   504 REDWOOD BOULEVARD, SUITE 220
   NOVATO, CALIFORNIA 94947
   415-382-3444

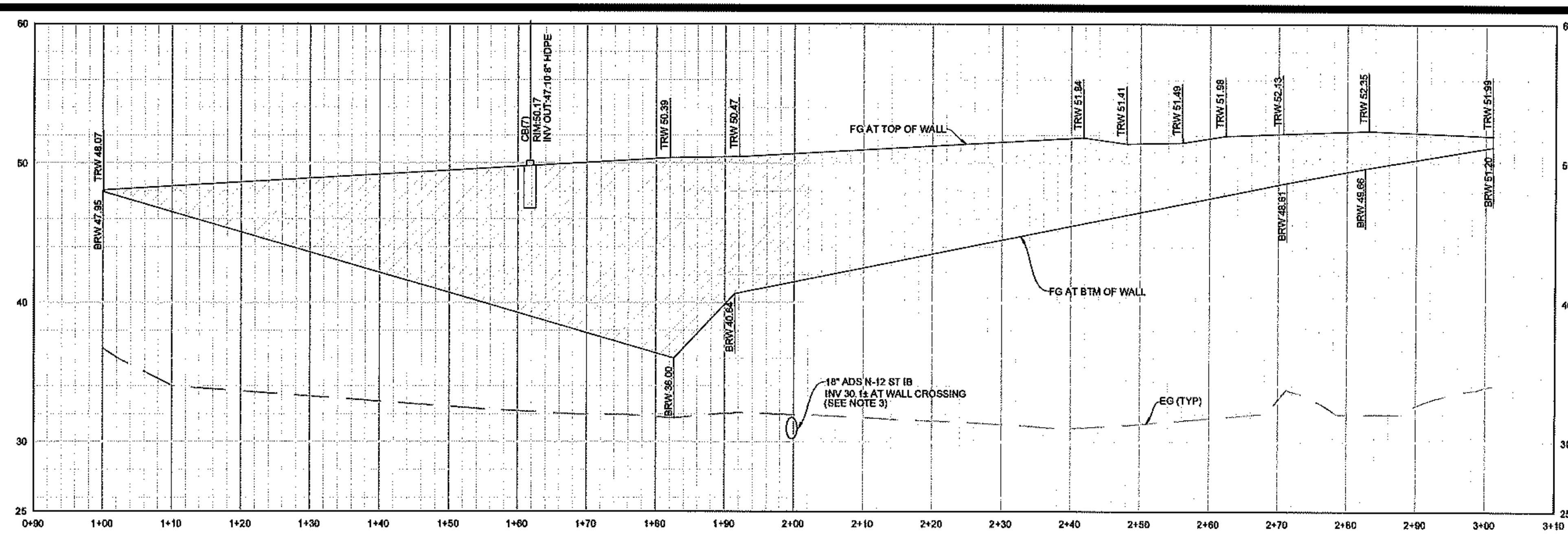
2. THE ENGINEER SHOULD OBSERVE FOUNDATION EXCAVATIONS TO CONFIRM SUBSURFACE CONDITIONS ARE CONSISTENT WITH THE DESIGN CRITERIA AND TO MODIFY FOUNDATION (IF REQUIRED).
3. THE CONTRACTOR IS RESPONSIBLE FOR LAYOUT OF THE WALL. LOCATION TO BE CONFIRMED BY THE ENGINEER PRIOR TO COMMENCING EXCAVATION.
4. CONTRACTOR SHALL NOTIFY U.S.A. AND OWNER TO LOCATE UTILITIES.
5. ALL EXCAVATED DEBRIS MATERIAL, NOT USED AS FILL, SHALL BE HAULED FROM THE SITE AND LEGALLY DISPOSED OF BY THE CONTRACTOR.
6. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE ACI CODE, ASTM AND STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION (CALTRANS) STANDARD PLANS AND SPECIFICATIONS.
7. THE CONTRACTOR SHALL RESTORE ACCESS ROUTES TO THEIR ORIGINAL CONDITIONS. DAMAGE TO EXISTING IMPROVEMENTS, SUCH AS STRUCTURES OR PAVEMENTS SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR SITE SAFETY, INCLUDING PROVIDING TEMPORARY SHORING IF NECESSARY TO STABILIZE CUTS IN EXCESS OF 5 FEET IN HEIGHT.
9. MPEG SHALL NOT SUPERVISE, DIRECT OR HAVE ANY CONTROL OVER THE CONTRACTOR'S WORK NOR HAVE ANY RESPONSIBILITY FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES SELECTED BY THE CONTRACTOR NOR FOR THE CONTRACTOR'S SAFETY PRECAUTIONS OR PROGRAMS IN CONNECTION WITH THE WORK. THESE RIGHTS AND RESPONSIBILITIES ARE SOLELY THOSE OF THE CONTRACTOR.

DRAINAGE

1. WALL DRAINAGE SHOULD CONSIST OF CLEAN, FREE DRAINING 3/4 INCH CRUSHED ROCK (CLASS 1B PERMEABLE MATERIAL) WRAPPED IN FILTER FABRIC (MIRAFI 140N OR EQUIVALENT) OR CALTRANS CLASS 2 PERMEABLE MATERIAL.
2. PERFORATED PIPE SHALL BE SCH 40 OR SDR 35 FOR DEPTHS LESS THAN 20 FEET. USE SCH 80 OR SDR 23.5 PERFORATED PIPE FOR DEPTHS GREATER THAN 20 FEET. PLACE PIPE PERFORATIONS DOWN AND SLOPE AT 1% TO A GRAVITY OUTLET.
3. CLEAN OUTS SHOULD BE INSTALLED AT THE UPSLOPE END AND AT SIGNIFICANT DIRECTION CHANGES OF THE PERFORATED PIPE. ADDITIONALLY, ALL ANGLED CONNECTORS SHALL BE LONG BEND SWEEP CONNECTIONS.
4. ALL WORK AND MATERIALS SHALL CONFORM WITH SECTION 68, OF THE LATEST EDITION OF THE CALTRANS STANDARD SPECIFICATIONS.

MSE WALL CONSTRUCTION

1. RETAINING WALL CONSTRUCTION SHOULD BEGIN AT THE "LOW-POINT".
2. ALL EARTHWORK SHALL FOLLOW THE PROJECT SPECIFICATIONS AND GEOTECHNICAL INVESTIGATION REPORT.
3. MSE FACING SHALL CONSIST OF PINNED KEYSTONE STANDARD III STONE FACE BLOCKS. COLOR TO BE DETERMINED BY OWNER.



WALL - A PROFILE

H: 1"=10'

V: 1"=5'

NOTES:

1. TRW ELEVATIONS ARE SHOWN BASED ON THE FINISHED GRADE ELEVATIONS ADJACENT TO THE TOP OF THE WALL (NOT TOP OF WALL CAP).
2. BRW ELEVATIONS ARE SHOWN BASED ON THE FINISHED GRADE ELEVATIONS ADJACENT TO THE BOTTOM OF THE WALL (NOT THE WALL FOUNDATION).
3. ADS N-12 PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS. PROVIDE CLASS 2 95% COMPACTED FILL FOR FILL HEIGHTS 11'-16', PROVIDE CLASS 1 COMPACTED FILL MATERIAL FOR FILL HEIGHTS GREATER THAN 16'.
5. COORDINATE WALL GEO-GRID INSTALLATION WITH CATCH BASIN AND PIPE INSTALLATION.
6. CONTRACTOR TO COORDINATE ALLOWABLE CONSTRUCTION VEHICLE SETBACKS TO WALL 'A' FOR SAFE PASSAGE WITH STRUCTURAL ENGINEER.

GRAPHIC SCALE: 1 INCH = 10 FEET

811 Know what's below. Call before you dig.

RAMSEY CIVIL ENGINEERING INC.
CIVIL ENGINEERING
LAND PLANNING
PROJECT MANAGEMENT
CONSTRUCTION SUPPORT
QSD AND QSP SERVICES
2905 KRISTIE COURT
SANTA CRUZ, CA 95065
TEL (831) 462-2905
www.ramseycivilengineering.com

DAVID RAMSEY RCE# 73735 DATE

APN# 018-372-14

PLAN TYPE

RESIDENTIAL SUBDIVISION

WALL A (PIT WALL) PROFILE & DETAILS

HILLCREST SUBDIVISION

510 OHLONE PARKWAY, WATSONVILLE, CA, 95076

NUMBER	BY	DESCRIPTION	DATE

REVISION BLOCK

DRAWN BY:	GS
DESIGNED BY:	DMR
DATE:	05/12/2021
SCALE:	AS NOTED
PROJECT NO.	20-021
SHEET:	C5.6