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January 11, 2019

Ms. Jessica Pao
California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, California 90013

Subject: Revised Soil Reuse Plan
Former Chemoil Refinery
2020 Walnut Avenue, Signal Hill, California

Dear Ms. Pao,

This Revised Soil Reuse Plan has been prepared by Apex Companies, LLC (Apex) in response to the Los Angeles Regional Water Quality Control Board's (LARWQCB's) letter dated October 24, 2018, and subsequent discussions between LARWQCB and Mr. Peter Weiner (representative of the property owner). This document replaces Apex's Soil Reuse Plan dated April 13, 2018 and supersedes Apex's Soil Reuse Plan Response letter dated January 7, 2019. In summary, the following changes have been made, as further detailed in the sections that follow:

1. A soil characterization plan is included for any excavated soil being considered for reuse at the subject site.
2. Laboratory analysis of the excavated soil must meet the Soil Screening Levels (SLs) for a commercial/industrial scenario prior to reuse as backfill at the Site.
3. Ex-situ treatment of soil, or offsite disposal, is required for all excavated soil that exceeds SLs.

A Site Redevelopment Soil Management Plan (RSMP), which provides guidance for handling potentially contaminated soil during property redevelopment, is provided in Appendix G of the Response Plan (Apex, 2017). This letter is required pursuant to the RSMP and documents the intended reuse of soil that is encountered during property grading and redevelopment.

1.0 Property Grading Plan and Anticipated Soil Volumes

The cut-and-fill grading strategy for property redevelopment was designed to minimize excavation of soil in areas where the highest soil contamination is expected. Figure 1 provides a conceptual grading plan. Areas in red indicate cut portions of the site where excavation will be conducted; areas in green indicate where the fill material will be placed on top of the current grade to raise the final elevation of the property. Based on available information, Apex expects that the majority of the soil from the excavated areas meets

regulatory screening levels based on commercial/industrial land use (refer to historical soil sampling data provided in the Response Plan). In addition, relatively small volumes of soil not indicated on Figure 1 will be excavated as part of property redevelopment during geotechnical site preparation and trenching for underground utilities and building footings. Apex acknowledges that impacted soil volumes treated and reused on Site over an amount specified by the LARWQCB will be subject to Waste Discharge Requirements (WDRs).

2.0 Soil Screening and Contaminated Soil Planned for Reuse

As required by the RSMP, during any soil disturbance activities, the Environmental Consultant (EC) will be onsite to screen the soil and oversee proper handling and storage of any potentially impacted soils that are encountered. The EC will observe and document the following information:

- Presence of odorous soil;
- Presence of stained or discolored soil;
- Presence of free-phase petroleum product;
- Any encountered subsurface features; and
- Photoionization detector (PID) field screening readings measured in compliance with South Coast Air Quality Management District (SCAQMD) 1166 protocols.

Handing of the soil, as defined in the RSMP, is based on the following trigger levels:

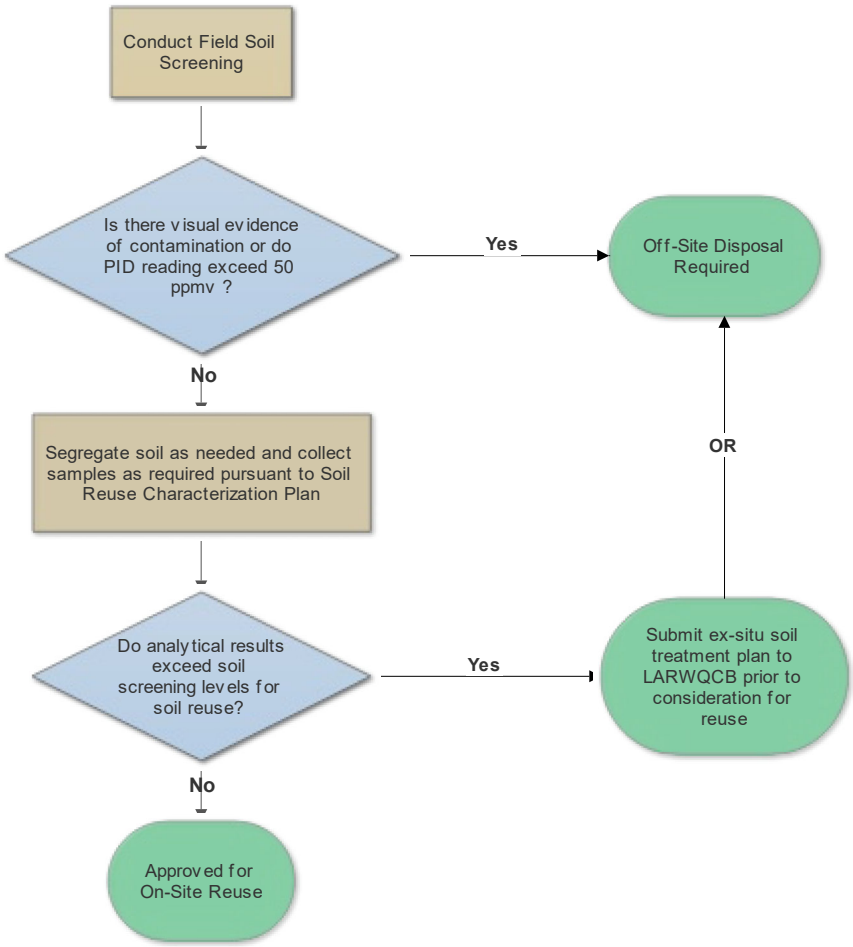
Soil Management Trigger Levels During Site Redevelopment Activities as Defined in Existing RMSP (Appendix G of Response Plan)

PID Measurement or Visual Condition	Soil Management Measures
Less than 50 parts per million by volume (ppmv) with no visual or odor indicators	• Stockpiled as Site soils for reuse consideration and further characterization.
Greater than 50 ppmv but less than 1,000 ppmv or less than 50 ppmv but with visual or odor indicators	• Affected work area and soil load sprayed with water and/or vapor suppressant; • Placed in segregated stockpiles, bins or drums for additional laboratory analysis; • Stockpiles covered with plastic sheeting and are secured so that no portion of the potentially contaminated soil is exposed to the atmosphere. During handling the stockpile, only the working face of the stockpile may be uncovered; • May not be used as backfill for the Site without prior approval from SCAQMD and LARWQCB; and

	• Managed according to Section 6.1 of the Site Redevelopment Soil Management Plan.
Greater than 1,000 ppmv	• SCAQMD notification within one hour of detection; • Affected work area and soil load sprayed with water and/or vapor suppressant; and • Soil immediately loaded into SCAQMD approved sealed containers or loaded in trucks for immediate offsite disposal, unless alternate handling procedures have prior written approval from SCAQMD.

Soil that falls into the first criterion, highlighted in red font above (i.e., less than 50 ppmv and without visual or odor indicators) will be considered for reuse as backfill for the Site. Prior to reuse, this soil will be characterized, and data will be compared to allowable soil reuse trigger levels as detailed in the following sections. The following flowchart provides an overview of the steps and decision criteria for soil reuse consideration:

SOIL REUSE DECISION FLOWCHART



APEX

3.0 Soil Reuse Characterization Plan

Any soil being considered for reuse at the Site will be characterized as specified in this section. The total volume of soil will be estimated to determine the number of samples required from each area. Soil stockpiles do not have to be physically combined or separated into the volume specifications indicated in the table below. The proposed sample frequency is based on the Department of Toxic Substances Control (DTSC) Information Advisory for Clean Imported Fill Material (Imported Fill Advisory; 2001)

TABLE 1
Sample Frequency Requirements

Estimated Volume of Stockpile	Minimum Sampling Frequency
Up to 1,000 cubic yards	1 sample per 250 cubic yards (all samples to be 3-point composites)
1,000 to 5,000 cubic yards	4 samples for first 1,000 cubic yards + 1 additional sample per each additional 500 cubic yards (all samples to be 3-point composites)
Greater than 5,000 cubic yards	12 samples for first 5,000 cubic yards plus 1 additional sample per each additional 1,000 cubic yards (all samples to be 3-point composites)

For each volume of soil being considered for reuse, the location and depth of each sample shall be randomly selected. However, sampling the upper two feet of the stockpile shall be avoided, if possible. Laboratory data from in-situ samples collected from the planned excavation areas may be used, provided that: 1) samples are representative of the soil present in the stockpile(s) being considered for soil reuse; and 2) the frequency meets the criteria provided in Table 1.

Samples may be collected using a hand-auger from the stockpile or in-situ, or directly from the excavator bucket. Samples will be collected in capped brass or stainless-steel sleeves or glass jars. Samples may be composited in the field or by the laboratory and shall be submitted under chain-of-custody protocols to a state-certified laboratory for the following analyses:

- VOCs using EPA Method 8260.
- TPHg, TPHd, and TPHmo using modified EPA Method 8015.
- PAHs using EPA Method 8270.

4.0 Soil Reuse Screening Levels

Laboratory analytical data for samples collected will be compared to commercial/industrial screening levels (SLs) to determine whether the soil can be reused, or whether ex-situ treatment or offsite disposal

is required. Table 2 summarizes soil SLs for the Site; SLs for commercial/industrial land use are highlighted in yellow. This table was provided as Table 4-1 in the LARWQCB-approved Response Plan (Apex, July 13, 2017). Current regulatory screening levels have been reviewed by Apex and the table has been updated to reflect revised, published SLs for the constituents listed. If soil does not meet the SLs for commercial/industrial land use, the soil shall be managed as follows:

1. The soil must be disposed of offsite at a facility that possesses a current permit to accept the soil, or
2. The soil may be treated ex-situ on Site to levels that meet the SLs for commercial/industrial land use. In the event that this option is being considered, a separate Soil Treatment Workplan will be submitted to LARWQCB for approval prior to soil re-use.

Soil that meets the criteria for commercial/industrial soil may be reused anywhere within the Former Chemoil Refinery property boundary.

5.0 Reporting

As described in the RSMP, a report will be prepared by Apex that summarizes the findings of the field observations, laboratory results, and final disposition of any excavated soil that is treated and reused on site or transported off-site for disposal. A map will be provided that will document the placement locations of soil that has been reused on the site.

We look forward to receiving your approval to proceed with this Revised Soil Reuse Plan. If you have any questions, please contact Kirsten Duey by phone at (925) 683-8177 or by e-mail at (kduey@rmdes.net).

Sincerely,

Apex Companies, LLC

Steve Hickey, P.E.
Senior Engineer

Kirsten Duey.
Project Manager
RMD Environmental Solutions, Inc.

Attachments:

Figure 1 – Conceptual Grading Plan
Table 1 – Summary of Soil Screening Levels

References:

Apex Companies, LLC, 2017. *Response Plan and Remedial Technology Remediation*. July 13.

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

cc: Ms. Jillian Ly – Los Angeles Regional Water Quality Control Board
Mr. Arthur Heath – Los Angeles Regional Water Quality Control Board

ATTACHMENTS

Table 1
Summary of Soil Screening Levels
Former ChemOil Refinery
Signal Hill, California

Chemical	Direct Contact with Soil					Protection of Groundwater, Aquifer is Not a Source of Drinking Water				Final Screening Levels [7]		
	Residential		Construction	Commercial/Industrial				Groundwater at 20 feet bgs [5]		Residential	Construction	Commercial/ Industrial
								100X LARWQCB Soil SLs [6] (0 to 10 ft bgs)	100X LARWQCB Soil SLs [6] (10 to 20 ft bgs)			
	SFBRWQCB ESL [1] (mg/kg)	USEPA RSL/DTSC SL [2] (mg/kg)	SFBRWQCB ESL [1] (mg/kg)	SFBRWQCB ESL [1] (mg/kg)	USEPA RSL/DTSC SL [2] (mg/kg)	SFBRWQCB ESL [3] (mg/kg)	USEPA RSL [4] (mg/kg)	LARWQCB Soil SL [5] (mg/kg)	LARWQCB Soil SL [5] (mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Total Petroleum Hydrocarbons (TPH)												
TPHg (C4-C12)	7.4E+02	8.2E+01	2.8E+03	3.9E+03	4.2E+02	- -	- -	1.0E+03	1.0E+03	8.2E+01	1.0E+03	4.2E+02
TPH (C5-C12)	7.4E+02	8.2E+01	2.8E+03	3.9E+03	4.2E+02	- -	- -	1.0E+03	1.0E+03	8.2E+01	1.0E+03	4.2E+02
TPH (C13-C22)	2.3E+02	9.6E+01	8.8E+02	1.1E+03	4.4E+02	- -	- -	1.0E+04	1.0E+04	9.6E+01	8.8E+02	4.4E+02
TPH (C23-C44)	1.1E+04	2.5E+03	3.2E+04	1.4E+05	3.3E+04	- -	- -	5.0E+04	5.0E+04	2.5E+03	3.2E+04	3.3E+04
Volatile Organic Compounds (VOCs)												
Acetone	5.9E+04	6.1E+04	2.6E+05	6.3E+05	6.7E+05	- -	- -	1.6E+02	1.5E+02	1.5E+02	1.5E+02	1.5E+02
Benzene	2.3E-01	3.3E-01	2.4E+01	1.0E+00	1.4E+00	- -	- -	6.2E-01	1.5E-01	1.5E-01	1.5E-01	1.5E-01
(8) TBA	NV	1.3E+05	NV	NV	1.5E+06	- -	- -	1.3E+00	1.2E+00	1.2E+00	1.2E+00	1.2E+00
tert-Butylbenzene	NV	2.2E+03	NV	NV	1.2E+04	- -	- -	2.8E+01	2.6E+01	2.6E+01	2.6E+01	2.6E+01
sec-Butylbenzene	NV	2.2E+03	NV	NV	1.2E+04	- -	- -	2.8E+01	2.6E+01	2.6E+01	2.6E+01	2.6E+01
n-Butylbenzene	NV	3.9E+03	NV	NV	1.8E+04	- -	- -	2.8E+01	2.6E+01	2.6E+01	2.6E+01	2.6E+01
Ethylbenzene	5.1E+00	5.8E+00	4.8E+02	2.2E+01	2.5E+01	- -	- -	6.8E+01	3.2E+01	5.1E+00	3.2E+01	2.2E+01
Isopropylbenzene	NV	NV	NV	NV	NV	- -	- -	8.4E+01	7.7E+01	7.7E+01	7.7E+01	7.7E+01
(9) 4-Isopropyltoluene	NV	NV	NV	NV	NV	- -	- -	8.4E+01	7.7E+01	7.7E+01	7.7E+01	7.7E+01
MTBE	4.2E+01	4.7E+01	3.7E+03	1.8E+02	2.1E+02	- -	- -	1.3E+00	1.3E+00	1.3E+00	1.3E+00	1.3E+00
n-Propylbenzene	NV	3.8E+03	NV	NV	2.4E+04	- -	- -	2.8E+01	2.6E+01	2.6E+01	2.6E+01	2.6E+01
Toluene	9.7E+02	1.1E+03	4.1E+03	4.6E+03	5.3E+03	- -	- -	2.5E+01	1.6E+01	1.6E+01	1.6E+01	1.6E+01
1,3,5-TMB	NV	2.7E+02	NV	NV	1.5E+03	- -	- -	3.6E+01	3.3E+01	3.3E+01	3.3E+01	3.3E+01
1,2,4-TMB	NV	3.0E+02	NV	NV	1.8E+03	- -	- -	3.6E+01	3.3E+01	3.3E+01	3.3E+01	3.3E+01
o-Xylene	NV	6.5E+02	NV	NV	2.8E+03	- -	- -	NV	NV	6.5E+02	0.0E+00	2.8E+03
(10) m,p-Xylenes	NV	5.5E+02	NV	NV	2.4E+03	- -	- -	NV	NV	5.5E+02	0.0E+00	2.4E+03
Total Xylenes	5.6E+02	5.8E+02	2.4E+03	2.4E+03	2.5E+03	- -	- -	2.3E+02	1.8E+02	1.8E+02	1.8E+02	1.8E+02
Polycyclic Aromatic Hydrocarbons (PAHs)												
Acenaphthene	3.6E+03	3.6E+03	1.0E+04	4.5E+04	4.5E+04	1.9E+01	5.5E+00	NV	NV	5.5E+00	5.5E+00	5.5E+00
(11) Acenaphthylene	3.6E+03	3.6E+03	1.0E+04	4.5E+04	4.5E+04	1.3E+01	5.5E+00	NV	NV	5.5E+00	5.5E+00	5.5E+00
Anthracene	1.8E+04	1.8E+04	5.0E+04	2.3E+05	2.3E+05	2.8E+00	5.8E+01	NV	NV	2.8E+00	2.8E+00	2.8E+00
Benz(a)anthracene	1.6E-01	1.1E+00	1.6E+01	2.9E+00	2.1E+01	1.2E+01	4.2E-03	NV	NV	4.2E-03	4.2E-03	4.2E-03
Benzo(a)pyrene	1.6E-02	1.1E-01	1.6E+00	2.9E-01	2.1E+00	1.3E+02	4.0E-03	NV	NV	4.0E-03	4.0E-03	4.0E-03
Benzo(b)fluoranthene	1.6E-01	1.1E+00	1.6E+01	2.9E+00	2.1E+01	6.4E+02	4.1E-02	NV	NV	4.1E-02	4.1E-02	4.1E-02
Benzo(g,h,i)perylene	NV	NV	NV	NV	NV	2.7E+01	NV	NV	NV	2.7E+01	2.7E+01	2.7E+01
Benzo(k)fluoranthene	1.6E+00	1.1E+01	1.5E+02	2.9E+01	2.1E+02	3.7E+01	4.0E-01	NV	NV	4.0E-01	4.0E-01	4.0E-01
Chrysene	1.5E+01	1.1E+02	1.5E+03	2.6E+02	2.1E+03	2.3E+01	1.2E+00	NV	NV	1.2E+00	1.2E+00	1.2E+00
Dibenzo(a,h)anthracene	1.6E-02	1.1E-01	1.6E+00	2.9E-01	2.1E+00	1.4E+02	1.3E-02	NV	NV	1.3E-02	1.3E-02	1.3E-02
Fluoranthene	2.4E+03	2.4E+03	6.7E+03	3.0E+04	3.0E+04	6.0E+01	8.9E+01	NV	NV	6.0E+01	6.0E+01	6.0E+01
Fluorene	2.4E+03	2.4E+03	6.7E+03	3.0E+04	3.0E+04	8.9E+00	5.4E+00	NV	NV	5.4E+00	5.4E+00	5.4E+00
Indeno(1,2,3-cd)pyrene	1.6E-01	1.1E+00	1.6E+01	2.9E+00	2.1E+01	7.0E+01	1.3E-01	NV	NV	1.3E-01	1.3E-01	1.3E-01
Naphthalene	3.3E+00	3.8E+00	3.5E+02	1.4E+01	1.7E+01	- -	- -	1.8E+00	1.7E+00	1.7E+00	1.7E+00	1.7E+00
(12) Phenanthrene	1.8E+04	1.8E+04	5.0E+04	2.3E+05	2.3E+05	1.1E+01	5.8E+01	NV	NV	1.1E+01	1.1E+01	1.1E+01
Pyrene	1.8E+03	1.8E+03	5.0E+03	2.3E+04	2.3E+04	8.5E+01	1.3E+01	NV	NV	1.3E+01	1.3E+01	1.3E+01
Metals												
Lead	8.0E+01	8.0E+01	1.6E+02	3.2E+02	3.2E+02	NV	NV	NV	NV	8.0E+01	1.6E+02	3.2E+02

Notes:

C4-C12 = Carbon range.
ft bgs = feet below ground surface.
mg/kg = milligram per kilogram.
NV = No published value.
100X = One hundred times.
TBA = tert-Butyl alcohol.
MTBE = Methyl-tert-butyl ether.
TMB = Trimethylbenzene.
TPHg = TPH as gasoline.
USEPA RSL = U.S. Environmental Protection Agency Regional Screening Level (USEPA, 2018).
LARWQCB Soil SL = Los Angeles Regional Water Quality Control Board Soil Screening Level (LARWQCB, 1996).
DTSC SL = Department of Toxic Substances Control Screening Level (DTSC, 2018).
SFBRWQCB ESL = San Francisco Bay Regional Water Quality Control Board Environmental Screening Level (SFBRWQCB, 2016)

[1] SFBRWQCB ESLs for soil for direct contact exposure pathways. Screening levels for TPH (C5-C12), TPH (C13-C22), and TPH (C23-C44) represent ESLs for TPH gasoline (C5-C12), TPH diesel (C10-C24), and TPH motor oil (C24-C36), respectively.

[2] USEPA RSLs/DTSC SLs for soil for direct contact exposure pathways represents the lowest of the available DTSC SL or USEPA RSL. Screening levels for TPH (C5-C12), TPH (C13-C22), and TPH (C23-C44) represent lowest of aliphatic and aromatic USEPA RSLs for TPH Low (C5-C8), TPH Middle (C9-C18), and TPH High (C17-C32), respectively.

[3] SFBRWQCB ESL respresents soil SL for protection of groundwater, assuming groundwater aquifer is not a source of drinking water. Screening levels for TPH (C5-C12), TPH (C13-C22), and TPH (C23-C44) represent ESLs for TPH gasoline (C5-C12), TPH diesel (C10-C24), and TPH motor oil (C24-C36), respectively.

[4] USEPA RSL respresents soil SL for protection of groundwater, assuming groundwater aquifer is not a source of drinking water. Screening levels for TPH (C5-C12), TPH (C13-C22), and TPH (C23-C44) represent lowest of aliphatic and aromatic USEPA RSLs for TPH Low (C5-C8), TPH Middle (C9-C18), and TPH High (C17-C32), respectively.

[5] LARWQCB SL respresents soil SL for protection of groundwater at 20 ft bgs, assuming groundwater aquifer is not a source of drinking water. As recommended by LARWQCB (1996), for non-drinking water aquifers, screening level for TPH carbon ranges represent the LARWQCB SLs for TPH where distance above groundwater is greater than 150 feet (>150 feet). Values from LARWQCB (1996) for PAHs were not available.

[6] As recommended by LARWQCB (1996), for non-drinking water aquifers, benzene, toluene, ethylbenzene, and xylene (BTEX) screening levels are set at 100 times (100X) respective maximum contaminant levels (MCLs) as preliminary levels to be protection of human health and the environment. This method was applied to all VOCs.

[7] Final screening level represents the lowest available screening level for each exposure scenario/receptor.

[8] If screening level for tert-butyl alcohol was not available; therefore, the value for sec-butyl alcohol was used.

[9] If screening level for 4-Isopropyltoluene was not available; therefore, the value for Isopropylbenzene was used.

Table 1
Summary of Soil Screening Levels
Former ChemOil Refinery
Signal Hill, California

Chemical	Direct Contact with Soil					Protection of Groundwater, Aquifer is Not a Source of Drinking Water				Final Screening Levels [7]		
	Residential		Construction	Commercial/Industrial				Groundwater at 20 feet bgs [5]		Residential	Construction	Commercial/ Industrial
	SFBRWQCB ESL [1] (mg/kg)	USEPA RSL/DTSC SL [2] (mg/kg)	SFBRWQCB ESL [1] (mg/kg)	SFBRWQCB ESL [1] (mg/kg)	USEPA RSL/DTSC SL [2] (mg/kg)	SFBRWQCB ESL [3] (mg/kg)	USEPA RSL [4] (mg/kg)	100X LARWQCB Soil SLs [6] (0 to 10 ft bgs) LARWQCB Soil SL [5] (mg/kg)	100X LARWQCB Soil SLs [6] (10 to 20 ft bgs) LARWQCB Soil SL [5] (mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)

[10] Screening level for m,p-xylenes represents the value for m-xylene.
[11] If screening level for acenaphthylene was not available; therefore, the value for acenaphthene was used.
[12] If screening level for phenanthrene was not available; therefore, the value for anthracene was used.

References:

DTSC. 2018. Human Health Risk Assessment (HHRA) Note Number 3, DTSC-modified Screening Levels (DTSC SLs). Human and Ecological Risk Office (HERO). June.
LARWQCB. 1996. Interim Site Assessment & Cleanup Guidebook. California Regional Water Quality Control Board, Los Angeles and Ventura Counties, Region 4. May 1996.
SFBRWQCB. 2016. Environmental Screening Levels (ESLS). San Francisco Bay Regional Water Quality Control Board. Revision 3. February.
USEPA. 2018. Regional Screening Levels (TR=1E-06, HQ=1). November.

CONCEPTUAL GRADING AND UTILITY PLAN #16
WALNUT AVE.
SIGNAL HILL, CA

LEGEND

- SD — PROPOSED STORM DRAIN
- SS — PROPOSED SEWER
- SS — EXISTING SEWER
- WT — PROPOSED WATER
- WT — EXISTING WATER
- SW — STEM WALL
- RW — RETAINING WALL

EARTHWORK ESTIMATE	QUANTITIES CUT	FILL
ROUGH GRADING	14,330 CY	39,545 CY
SUBSIDENCE (0.15')	(2,179) CY	
SHRINKAGE (12.5%)	(1,791) CY	
SUBTOTAL PROJECT EARTHWORK QUANTITIES	10,360 CY	39,545 CY
NET	29,185 CY (SHORT)	

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

FRED CORNWELL R.C.E. 45591 DATE

REGISTERED PROFESSIONAL ENGINEER FRED CORNWELL No. 45591 Exp. 12/31/18 CIVIL STATE OF CALIFORNIA

PREPARED BY:
CA ENGINEERING, INC.
Planning • Engineering • Surveying
13821 NEWPORT AVE., STE 110
TUSTIN, CA 92780
949-724-9480 949-724-9484 FAX

DATE	BY	REVISION

XEBEC REALTY PARTNERS
3010 OLD RANCH PARKWAY, STE 470
SEAL BEACH, CA 90740
562-546-0252
CONTACT: MR. STEVEN CHRISTIE

APEX
3478 BUSKIRK AVENUE, SUITE 100
PLEASANT HILL, CA 94523

CONCEPTUAL GRADING PLAN

FIGURE 1

LAST REV. Dec 07 2018

JOB NO. 215-37

Sht. 1 of 1