
Los Angeles Regional Water Quality Control Board

September 15, 2017

Ms. Mary Hashem
RE Solutions, LLC
2880 Bryant Street
Denver, Colorado

Ms. Pam Vila
Signal Hill Enterprises, LLC
1900 South Norfolk Street, Suite 350
San Mateo, CA 94403

SUBJECT: REVIEW OF RESPONSE PLAN AND REMEDIAL TECHNOLOGY EVALUATION – PURSUANT TO CALIFORNIA LAND REUSE AND REVITALIZATION ACT, AND HEALTH AND SAFETY CODE SECTION 25395.94

SITE: FORMER CHEMOIL REFINERY AT 2020 WALNUT AVENUE, SIGNAL HILL, CALIFORNIA 90755 (SCP NO. 1391, SITE ID NO. 2040510)

Dear Ms. Hashem and Ms. Vila:

On July 13, 2017, the California Regional Water Quality Control Board, Los Angeles Region (Regional Board) received the technical document titled *Response Plan and Remedial Technology Evaluation* (“Response Plan”) for the subject facility (Site).

The Site consists of three parcels: Northwest, Southwest, and East. Between December 2016 and January 2017, a site investigation was performed at the Site to identify data gaps and a Conceptual Site Model (CSM) was developed and submitted to the Regional Board on March 29, 2017. Based on the results of soil, soil vapor, and groundwater documented in the CSM, the Response Plan presented a cleanup strategy for total petroleum hydrocarbons (TPHs) and volatile organic compounds (VOCs).

SUMMARY OF RESPONSE PLAN

Proposed remediation for soil and soil vapor:

- Soil Vapor Extraction (SVE) system, Phase I (See Figure 1)
 - Installation of 13 SVE wells; 10 wells on Northwest parcel and 3 wells on the Southwest parcel.
 - Influent and post-treatment effluent vapors will be collected monthly and sampled for TPHs and VOCs.

Proposed remediation for groundwater:

- Air Sparging System (See Figure 2) to replace the current in-situ subsurface metabolic enhancement (SME) system
 - Installation of 92 nutrient and air injection points at approximately 6 to 8 feet below groundwater level.
 - Installation of 46 extraction wells with five-foot screen intervals at approximately 5 feet above the groundwater level.
 - A pilot study will be performed to determine the radius of influence of the air sparge points.
 - Vapors extracted from the exaction wells will be routed to the SVE system.
- Liquid Non-Aqueous Phase Liquid (LNAPL) Removal
 - Two LNAPL plumes have been detected in the Northwest and Southwest parcels (See Figure 3).
 - Installation of LNAPL recovery wells and a subsurface aqua-phobic belt skimmer system within each of the LNAPL plumes.

Offsite Monitoring Natural Attenuation (MNA) Plan for groundwater:

- The current off-site groundwater monitoring well network consists of eight (8) monitoring wells (MW-1A, MW-12, and MW-14 through MW-19) to monitor off-site migration of TPHs and VOCs.
- Installation of three additional groundwater monitoring wells west of the Air Sparge system (See Figure 4). Two wells will be screened from 55 to 65 feet below ground surface (ft bgs) and one will be screened from 75 to 85 ft bgs.
 - Results from the three new wells will be analyzed and determined if they will be added to the semi-annual groundwater monitoring program.
- All wells will be analyzed for VOCs, TPHs, and semi-VOCs to ensure there is no risk to downgradient receptors.

Institutional and Engineering Controls

- Vapor barriers with passive sub-slab depressurization will be installed beneath all future buildings. The sub-slab depressurization system consists of horizontal perforated pipes placed in a gravel layer beneath the concrete slab, and will be routed to the building rooftop.
- Implementation of an environmental Land Use Covenant (LUC) that limits the current and future use of the Site to commercial and/or industrial use only.
- The LUC will be addressed approximately within four months after RE Solutions, LLC acquires the property from Signal Hill Enterprises, LLC.

REGIONAL BOARD COMMENTS

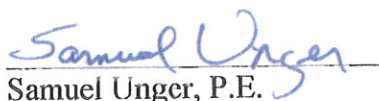
The Regional Board considers the Response Plan complete and hereby approves the Response Plan. The following are due to the Regional Board:

1. A well installation report for the three MNA groundwater monitoring wells is due on **January 15, 2018**.
2. Continued submission of semi-annual groundwater monitoring reports. The next groundwater monitoring report for Second Half of 2017 is due on **January 15, 2018**. The three new MNA groundwater monitoring wells should be incorporated into the semi-annual groundwater monitoring program.
3. The LNAPL recovery progress report, and documentation of the LNAPL recovery wells installed within the LNAPL plume used for extraction. This report is due **February 15, 2018**.
4. The reports documenting the pilot tests of the SVE system and Air Sparging system. These reports are due on or before **February 15, 2018**. Based on the performance of the pilot tests, implementation of the full-scale remedial systems may be required, including submission of quarterly remedial progress reports.
5. Sub-slab vapor mitigation system engineering design plan. This plan is due within 60 days prior to the construction of future buildings.
6. The LUC is due to the Regional Board for review within four months after the transfer of ownership of the Site.

Please notify Regional Board staff of the planned field activities at least one week before starting the field work, so that we can plan a site visit to oversee the activities.

If you have any questions, please contact Ms. Jessica Pao, Case Manager, at (213) 576-6729 (Jessica.Pao@waterboards.ca.gov).

Sincerely,



Samuel Unger, P.E.
Executive Officer

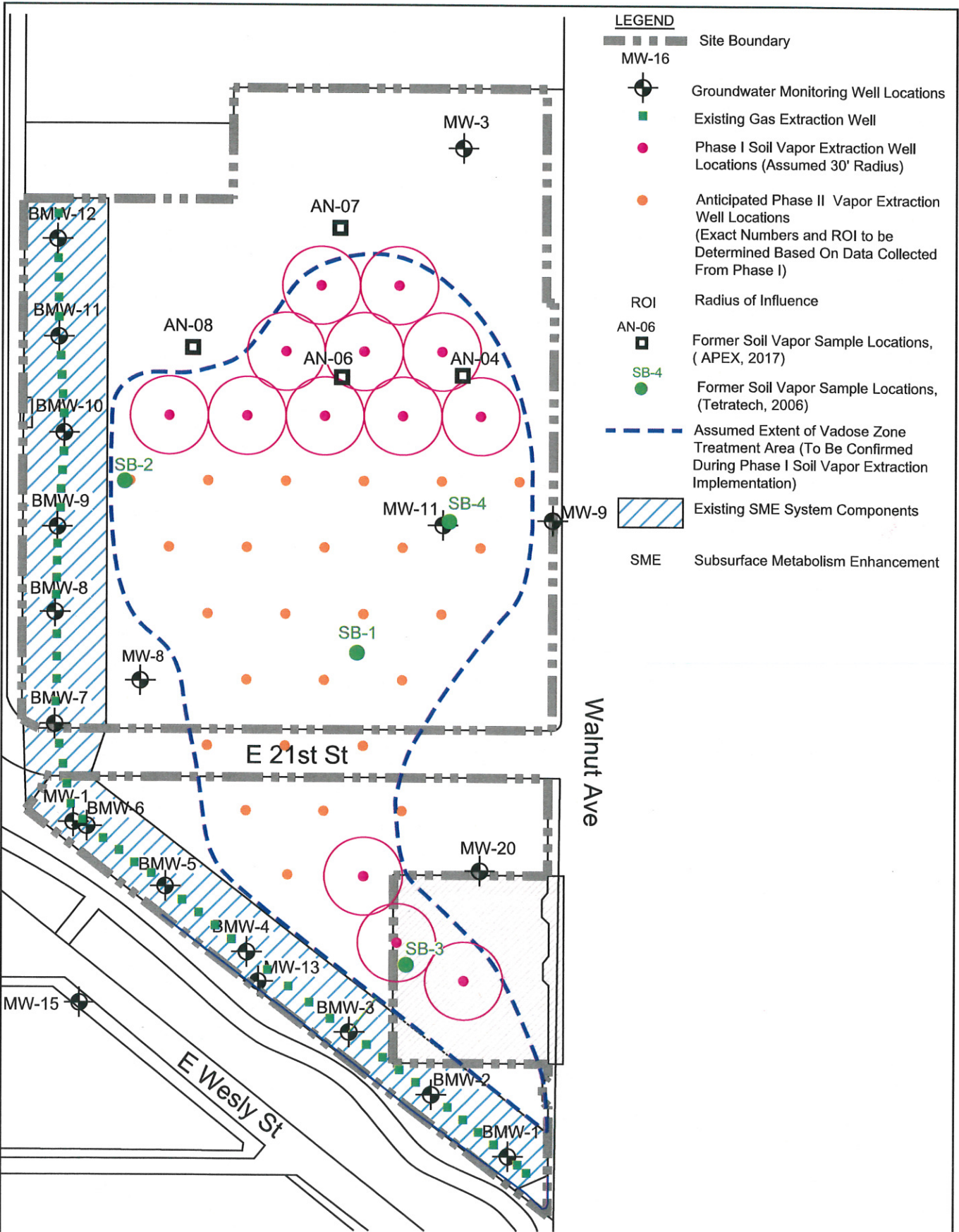
Attachments:

- Figure 1 – Proposed SVE Well Layout
- Figure 2 – Proposed Air Sparge System Layout
- Figure 3 – Map of LNAPL Plume
- Figure 4 – MNA Area and Proposed Well Installation

cc (via email):

Kirsten Duey, Apex Solutions (Kirsten.Duey@apexc.com)
Mark Labrenz, Apex Solutions (Mark.Labrenz@apexc.com)
Tom Graf, CraftCon (Tom@grafcon.com)
Chris Miller, RE Solutions, LLC (Chris@resolutionsdev.com)
Jack Spring, Xebec (JakeS@xebecrealty.com)

S:\Clients A - F\ChemOil Refinery\Reports\Response Plan\Figures\Fig.8-1-Proposed SVE Well Layout.dwg, 7/14/2017 3:31:25 PM



FORMER CHEMOIL REFINERY
2020 WALNUT AVENUE
SIGNAL HILL, CA

PROPOSED SVE WELL LAYOUT



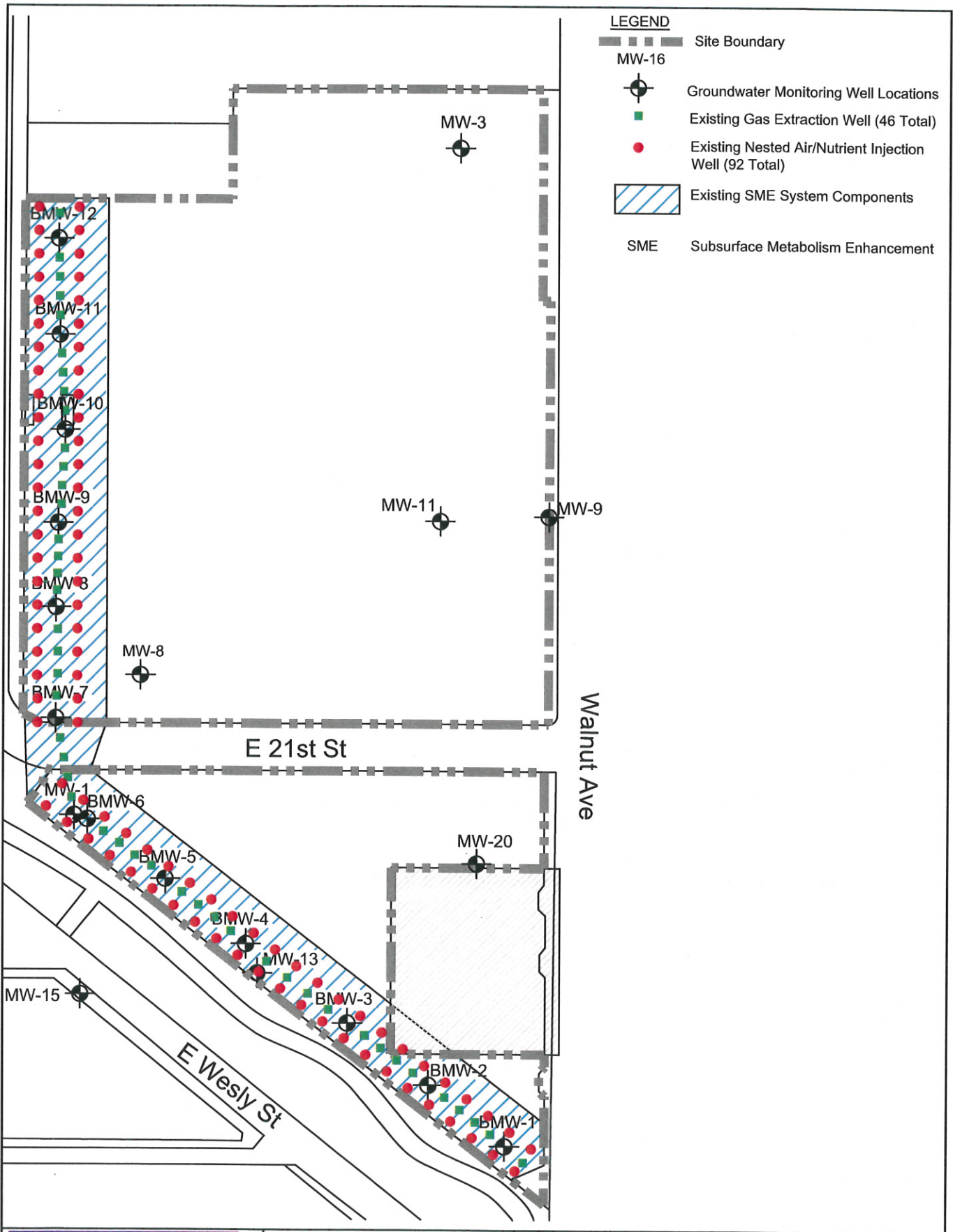
299 WEST HILLCREST DR., SUITE 220
THOUSAND OAKS, CA 91360

PROJECT NO. 01-CHEMOIL-001	DATE 05/08/17	DR. BY. ZA	APP. BY. KD
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FIGURE 1

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SGI environmental

APEX

299 WEST HILLCREST DR., SUITE 220
THOUSAND OAKS, CA 91360

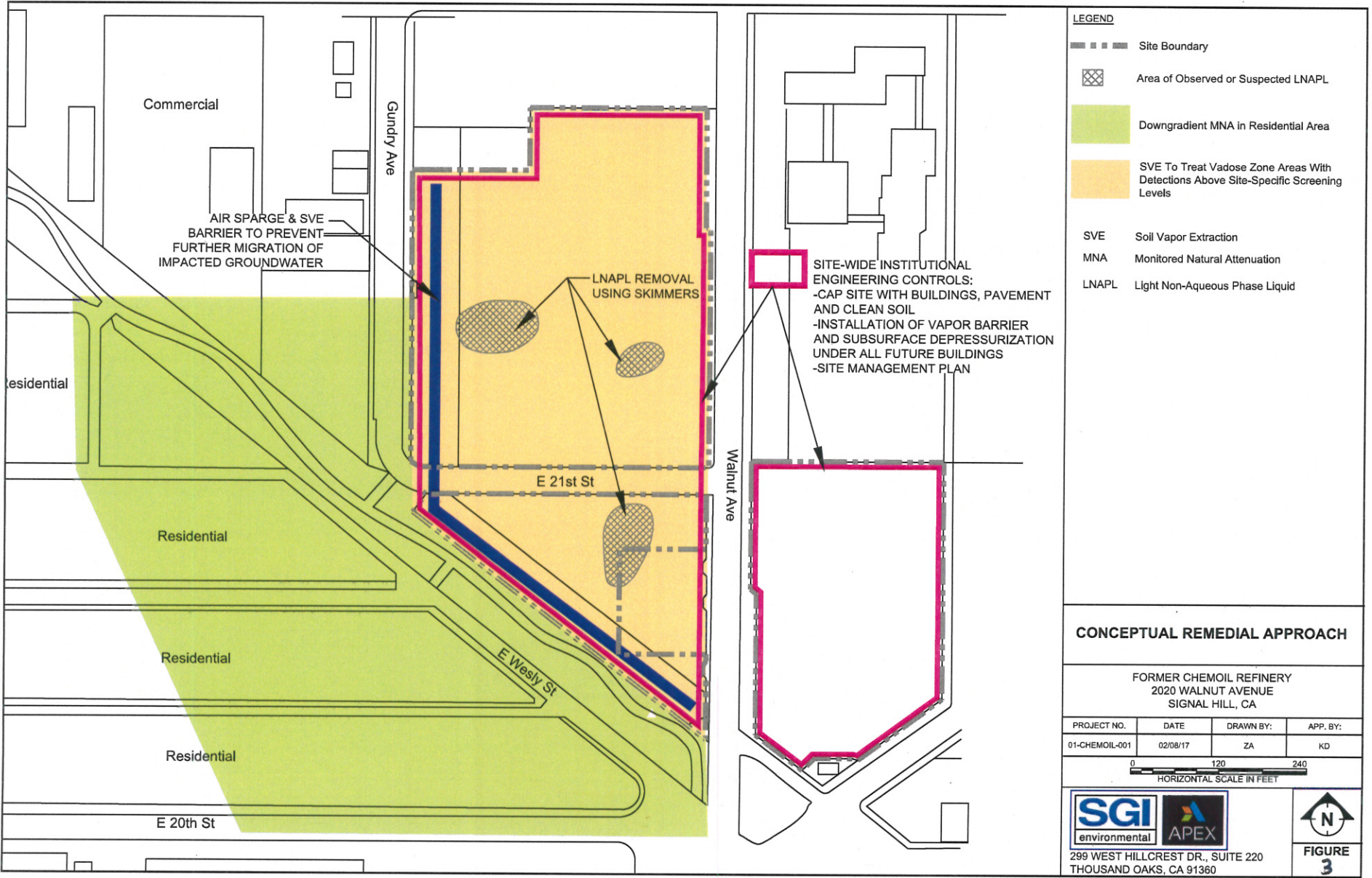
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EXISTING SVE SYSTEM LAYOUT

0 100 200
HORIZONTAL SCALE IN FEET

FIGURE 2



- LEGEND**
- Site Boundary
 - ▨ Area of Observed or Suspected LNAPL
 - Downgradient MNA in Residential Area
 - SVE To Treat Vadose Zone Areas With Detections Above Site-Specific Screening Levels
 - SVE Soil Vapor Extraction
 - MNA Monitored Natural Attenuation
 - LNAPL Light Non-Aqueous Phase Liquid

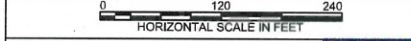
SITE-WIDE INSTITUTIONAL ENGINEERING CONTROLS:

- CAP SITE WITH BUILDINGS, PAVEMENT AND CLEAN SOIL
- INSTALLATION OF VAPOR BARRIER AND SUBSURFACE DEPRESSURIZATION UNDER ALL FUTURE BUILDINGS
- SITE MANAGEMENT PLAN

CONCEPTUAL REMEDIAL APPROACH

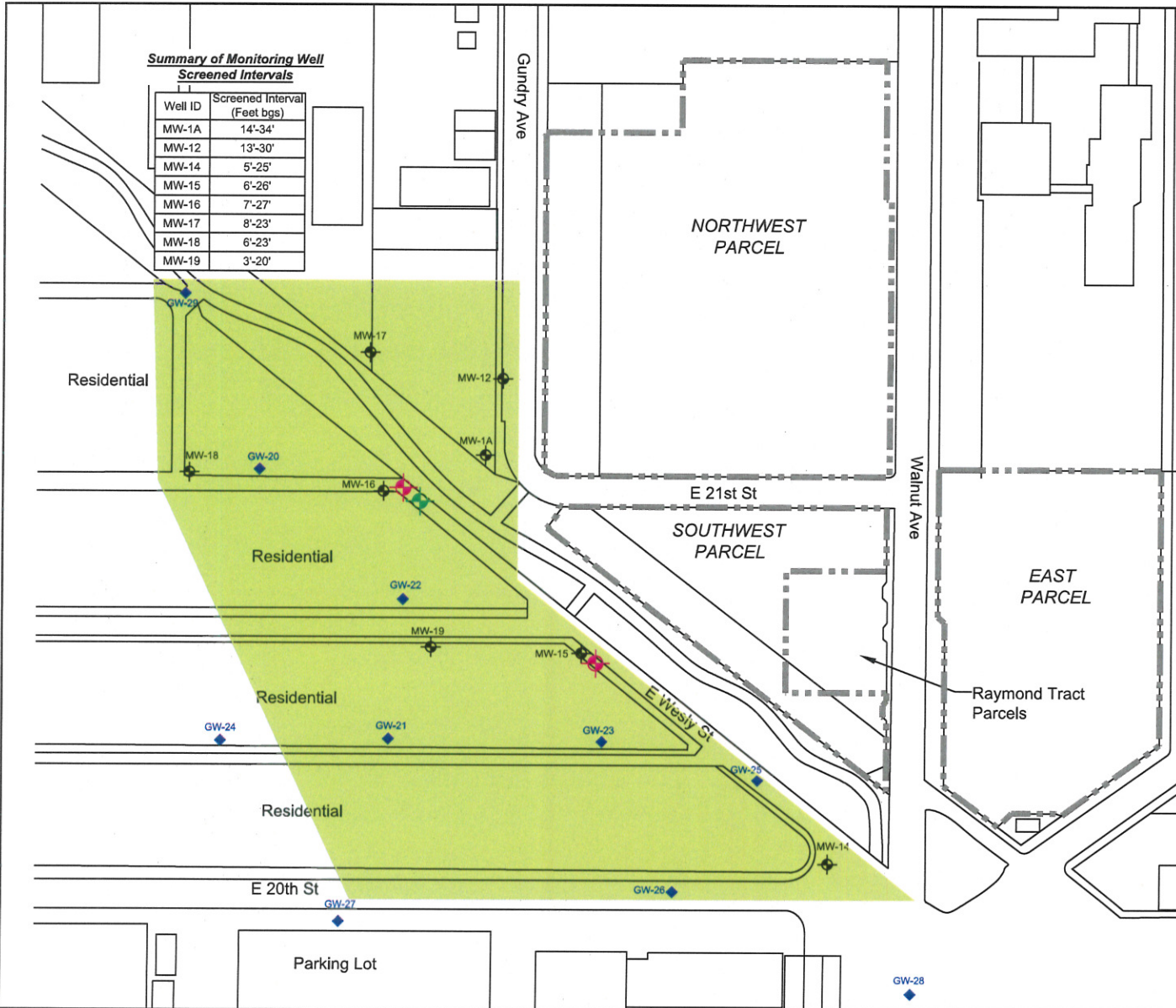
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 THOUSAND OAKS, CA 91360

FIGURE 3



LEGEND

- Site Boundary
- MW-16 Off-Site Groundwater Monitoring Well Locations
- GW-29 Grab Groundwater Sample Locations, Geosyntec, 2012
- Proposed New Monitoring Well, 55-65 Feet BGS Screen
- Proposed New Monitoring Well, 75-85 Feet BGS Screen
- BGS Below Ground Surface
- Monitored Natural Attenuation Area

SITE MAP

FORMER CHEMOIL REFINERY
2020 WALNUT AVENUE
SIGNAL HILL, CA

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093-CHEMOIL-001	05/30/17	ZA	KD

0 120 240
HORIZONTAL SCALE IN FEET

3478 BUSKIRK AVENUE, SUITE 100
PLEASANT HILL, CA 94523

FIGURE 4