Prepared for

Atlantic Richfield Company
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FINAL REMEDIAL ACTION PLAN

GARDENA SUMPS
GARDENA, CALIFORNIA

Prepared by

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Project Number: SC0467A

FINAL: 30 June 2022

FINAL Remedial Action Plan
Gardena Sumps
Gardena, California

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ACRONYMS AND ABBREVIATIONS

%	percent
AMP	Air Monitoring Plan
amsl	above mean sea level
AOC	Area of Concern
APA	Air Pathway Analysis
ARAR	Applicable or Relevant and Appropriate Requirement
ARC	Atlantic Richfield Company
BaP-eq	benzo(a)pyrene toxicity equivalent
bgs	below ground surface
$CaCO_3$	calcium carbonate
CalDWR	California Department of Water Resources
CalEPA	California Environmental Protection Agency
$Ca(OH)_2$	calcium hydroxide
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CGP	Construction General Permit
CHHSL	California Human Health Screening Levels
COC	constituent of concern
COPC	constituent of potential concern
CQA	Construction Quality Assurance
CSM	Conceptual Site Model
CY	cubic yard
DTSC	Department of Toxic Substances Control
EECAR	Engineering Evaluation/Cost Analysis Report
EEI	Ecology and Environmental, Inc.

°F	degrees Fahrenheit
FS	Feasibility Study
ft	feet
GAC	granular activated carbon
GCL	geosynthetic clay liner
Geosyntec	Geosyntec Consultants, Inc.
GRO	gasoline range organics
H&SC	Health and Safety Code
HASP	Health and Safety Plan
HHRA	Human Health Risk Assessment
LACDPW	Los Angeles County Department of Public Works
LARWQCB	Los Angeles Regional Water Quality Control Board
MCL	Maximum Contaminant Level
mg/kg	milligrams per kilogram
µg/L	micrograms per liter
mph	miles per hour
°N	degrees north
NCP	National Contingency Plan
NPDES	National Pollutant Discharge Elimination System
OHM	OHM Corporation
O&M	operation & maintenance
OMM	operation, maintenance, and monitoring
PAH	polynuclear aromatic hydrocarbons
PCB	polychlorinated biphenyls
PEL	permissible exposure level
PID	photoionization detector
PPE	personal protective equipment
ppm	parts per million

PPP	Public Participation Plan
RAO	Remedial Action Objective
RAP	Remedial Action Plan
RAW	Removal Action Workplan
RBC	risk-based concentration
RI	Remedial Investigation
RMP	Risk Management Plan
ROD	Record of Decision
RPP	reinforced polypropylene
SCAQMD	South Coast Air Quality Management District
SDS	Safety Data Sheets
sf	square feet
SSAL	Site-Specific Action Levels
SVOC	semi-volatile organic compounds
SWRCB	State Water Resources Control Board
TEH	total extractable hydrocarbons
TPC	The Planning Center
USEPA	United States Environmental Protection Agency
VFH	volatile fuel hydrocarbons
VOC	volatile organic compounds
°W	degrees west

EXECUTIVE SUMMARY

Pursuant to California Health and Safety Code Section 25356.1, this document presents the Remedial Action Plan (RAP) for the Gardena Sumps Site (Site) located at the southwest corner of Artesia Boulevard and Normandie Avenue in Gardena, California. The RAP was prepared by Geosyntec Consultants, Inc. (Geosyntec) on behalf of Atlantic Richfield Company (ARC) for submittal to the California Environmental Protection Agency (CalEPA), Department of Toxic Substances Control (DTSC). The Administrative Record for this Site is included in Appendix A of this RAP.

This RAP addresses the Cooper North sump, Cooper South sump, Haack sump, and Haack Rework Area on the Site. The three sumps and the Haack Rework Area are referred to as the areas of concern (AOCs) in this RAP.

The Cooper sumps currently are capped by a geosynthetic material that was installed by OHM Corporation (OHM) in July 1993 as part of the DTSC's environmental program at the Site. An additional geosynthetic liner was placed over the 1993 liner in August 2013. The Haack property contains the Haack sump and the Haack Rework Area. The Haack Rework Area is a reworked and mixed sludge-soil area south of the Haack sump. Most of the Haack Rework Area is currently vegetated with various trees, shrubs, and grass. The eastern portion of the Haack Rework Area is incorporated under the existing Cooper South sump geosynthetics cap. The southern portion of the Haack Rework Area extends onto the extreme northern portions of the two easternmost residential lots. The Haack Sump has been covered by asphalt and a concrete slab. Currently the Haack property is leased to various tenants who operate small businesses, including a U-Haul rental agency, a metal fabricating, sand blasting and painting company, and an auto body repair shop. Three buildings and numerous small trailer-type storage structures are present on the Haack property.

Based on the Draft Human Health Risk Assessment (HHRA) (Geosyntec, 2010), primary risk driving chemicals were identified as constituents of concern (COCs) from the list of constituents of potential concern (COPC). The primary COCs identified in the Cooper and Haack Sumps as well as in the Haack Rework Area are: (i) Soil: arsenic, hexavalent chromium, naphthalene, and the benzo(a)pyrene toxicity equivalent (BaP-eq); (ii) Air: benzene, hydrogen sulfide; and (iii) Groundwater: dibenz(a,h)anthracene.

The most suitable remedial alternative for the AOCs at the Site was evaluated based on the selection criteria described in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) guidance document (United States Environmental Protection Agency [USEPA], 1988). In a letter dated 14 July 2020, DTSC approved ARC's Feasibility Study (FS) (Geosyntec, 2014). Based on the comparative analysis of the remedial alternatives, Alternative 2A - Capping with selective excavation was identified as the alternative that meets the Remedial Action Objectives (RAOs) and ranks the highest. This alternative consists of excavating the Haack Rework area and a portion of sludge overflow along the eastern limits of the Cooper Sumps and consolidating the materials above the Cooper North and South Sumps. A cap consisting of a stabilization layer, foundation layer, low-hydraulic conductivity layer, and erosion resistance layer would be constructed above the sumps. A vapor control and monitoring system would be installed beneath the cap and around the sumps, and groundwater monitoring would continue.

This remedial alternative effectively mitigates the risk from ingestion, inhalation, and dermal contact with soils from the AOCs for both future non-residential and residential occupants of buildings on Site, and future landscape and utility workers. This alternative also effectively mitigates the risk from dermal contact with Site groundwater through construction of the cap and institutional controls.

Alternative 2A readily meets the criteria of overall protection of human health and the environment and satisfies Applicable or Relevant and Appropriate Requirements (ARARs). When evaluated against the balancing criteria, Alternative 2A provides short-term effectiveness as well as long-term effectiveness and permanence. It is readily implementable and presents an effective balance of cost against the other criteria. Alternative 2A also would best accommodate future potential redevelopment of the Site.

Additional remedial alternatives considered included:

1. Alternative 1 – No action.
2. Alternative 3 – Capping with selective excavation and stabilization/neutralization, which included mixing the top 3 feet (ft) of sludge in the Cooper North and South Sumps with reagent to stabilize/neutralize the sludge. The Haack Rework area and a portion of sludge overflow along the eastern Cooper Sumps would be mixed with the stabilized/neutralized material. A cap consisting of a foundation layer, low-hydraulic conductivity layer, and erosion resistance layer would be

constructed above the Cooper North and South and Haack Sumps. A vapor control and monitoring system would be installed beneath the cap and around the sumps, groundwater monitoring would continue, and institutional controls would be implemented.

3. Alternative 4 – Excavation of sludge with off-Site disposal. The sludge would be mixed with the neutralizing agent and loaded into trucks for disposal off-Site. Major components of this alternative include concrete and asphalt removal, odor and air emissions control, excavation and mixing of sludge, transportation to the disposal facility, confirmation sampling, sump backfill, and ongoing groundwater monitoring.

Redevelopment plans for the Site have been proposed by a developer but have not yet been approved nor has the developer purchased the property at this point. ARC has provided a copy of the RAP to the developer and has engaged them in conversation regarding the nature of their development and how it would fit with the selected remedy. The redevelopment plans are generally consistent with the remedy presented in this RAP. To the extent that the redevelopment plans are approved in such a manner so as to be consistent with the remedy, ARC will coordinate with the developer, as necessary, to carry out redevelopment at the Site to the extent practical and appropriate.

Consistent with the Public Participation requirements for the RAP process, the public participation process will include:

- Development of a mailing list, including at a minimum, all commercial, industrial, and residential occupants within at least a ¼-mile radius;
- Fact sheet preparation and mailing;
- Public notice and public hearing;
- 45-day comment period; and
- A response to comments document sent to all individuals who submitted formal public comments.

Public access for review of the project documents, including previously distributed documents, is available at the following locations:

Gardena Mayme Dear Library
1731 W. Gardena Avenue
Gardena, California 90247
(310) 323-6363
www.colpublib.org/libs/gardena

Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, California 90630
Contact Mr. Nick Ta for an appointment at (714) 484-5381

Other information on the Site may be accessed at:

DTSC EnviroStor Website:
http://www.envirostor.dtsc.ca.gov/public/

1. INTRODUCTION

Pursuant to California Health and Safety Code Section 25356.1, this document presents the Remedial Action Plan (RAP) for the Gardena Sumps Site (Site) located at the southwest corner of Artesia Boulevard and Normandie Avenue in Gardena, California. The RAP was prepared by Geosyntec Consultants, Inc. (Geosyntec) on behalf of Atlantic Richfield Company (ARC) for submittal to the California Environmental Protection Agency (CalEPA), Department of Toxic Substances Control (DTSC).

1.1 Purpose

This RAP summarizes the Remedial Investigation (RI) performed by Stantec and documented in the Revised Draft 2006 Remedial Investigation Report (Revised Draft RIR) (Stantec, 2008) and the Addendum to the 22 August 2008 Revised Draft 2006 Remedial Investigation Report (Addendum to the Revised Draft RIR) (Stantec, 2010b), which was approved by the Department of Substances Control (DTSC) in a letter dated 8 March 2011 (DTSC, 2011). This RAP also summarizes the evaluation and selection of the preferred remedial alternative, outlines the design objectives and criteria, and summarizes the design components, implementation plan, monitoring, schedule, and other regulatory requirements for the remedy approved in the Feasibility Study (FS) for the Cooper North sump, Cooper South sump, Haack sump, and the Haack Rework Area, constituting the areas of concern (AOCs).

1.2 Public Participation

Consistent with the Public Participation requirements for the RAP process, the public participation process will include:

- Development of a mailing list, including at a minimum, all commercial, industrial, and residential occupants within at least a ¼-mile radius;
- Fact sheet preparation and mailing;
- Public notice and public hearing;
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Other information on the Site may be accessed at:

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http://www.envirostor.dtsc.ca.gov/public/

1.3 Terms of Reference

On 2 November 2004, the United States (US) District Court for the Central District of California entered a Consent Decree in the case of California Dept. of Toxic Substances Control, et al. v. Atlantic Richfield Company (Consent Decree) (DTSC, 2004). The Consent Decree dictates the remedial responsibilities assumed by ARC and governs the preparation of a RAP. The Consent Decree requires the final draft RAP to be consistent with the National Contingency Plan (NCP) and Health and Safety Code (H&SC) Section 25356.1, et seq.

1.4 RAP Organization

The remainder of the RAP is organized as follows:

- Section 2, Site Background, presents physical characteristics of the Site, owner/operator information, permits, regulatory status, and facility history.
- Section 3, Summary of Remedial Investigations, summarizes the RI activities, results of testing, and provides the conceptual site model (CSM) abstracted from the Revised Draft Remedial Investigation (Stantec, 2008).

- Section 4, Summary of Removal Actions, summarizes removal actions completed at the Site.
- Section 5, Summary of Risk Assessment, Remedial Action Objectives and Site Cleanup Levels, presents the constituents of concern (COCs) and Site risks abstracted from the Draft Human Health Risk Assessment (HHRA) (Geosyntec, 2010). The remedial action objectives (RAOs) and applicable or relevant and appropriate requirements (ARARs) are also discussed in this section.
- Section 6, Summary and Evaluation of Alternatives, describes the screening of potential remedial action technologies against evaluation criteria and presents a comparative analysis of the alternatives.
- Section 7, Remediation in Areas of Concern, summarizes the design components, implementation plan, monitoring, schedule, and other regulatory requirements for the remedy proposed in Section 6.
- Section 8, References, presents the references used in the preparation of this report.

2. SITE BACKGROUND

2.1 General

This section includes information on Site location and description, Site history, geology, and hydrogeology. The information presented in this section generally has been excerpted from the Revised Draft RIR (Stantec, 2008).

2.2 Site Location and Description

The Site is located at 1440 West Artesia Boulevard, in the southwest corner of the Artesia Boulevard and Normandie Avenue intersection, in the City of Gardena, Los Angeles County, California (Figure 1-1). Generally, the area surrounding the Site is bordered to the south by the Los Angeles County Department of Public Works (LACDPW) Dominguez Flood Channel, to the east by the Southern Pacific Railroad right-of-way and Normandie Avenue, to the west by commercial properties, and to the north by Artesia Boulevard, although a small portion of Artesia Boulevard is included within the Site.

The Site, shown on Figure 1-2, is approximately 6.48 acres of mixed-use development (i.e., residential and commercial) and primarily consists of two properties, the Cooper property and the Haack property. The Cooper property is comprised of two large sumps (referred to as the "Cooper North" and "Cooper South" sumps). The Haack property contains one modified sump (referred to as the "Haack sump") and the "Haack Rework Area," which is a reworked and mixed sludge-soil area south of the Haack sump. Most of the Haack Rework Area is currently vegetated with various trees, shrubs, and grass. The eastern portion of the Haack Rework Area is incorporated under the existing Cooper South sump geosynthetics cap. The southern portion of the Haack Rework Area extends onto the extreme northern portions of the two easternmost residential lots. Commercial property is located west of the Haack sump, and four residential properties are located south of the commercial property and the Haack sump.

This RAP addresses the three sumps and the Haack Rework Area, which are referred to in this RAP as the AOCs.

2.3 Site History, Operation, and Ownership

The Revised Draft RIR documents the Site history and presents historic aerial photographs. Please refer to the Revised Draft RIR (Stantec, 2008) for details.

2.4 Agency Involvement

DTSC oversight began in 1988 when it determined that the presence of hazardous substances in the soil at the Site posed an imminent and substantial endangerment to public health and the environment. In 1992, the DTSC issued an Imminent and Substantial Endangerment Order and Remedial Action Order requiring respondents to undertake certain cleanup measures at the Site. OHM Corporation installed a geosynthetic cap over the sumps in 1993 as part of the DTSC's environmental program at the Site. On 2 November 2004, the DTSC entered into a Consent Decree with ARC which directed ARC to:

- Complete removal actions;
- Prepare a Public Participation Plan (PPP);
- Perform and prepare an RI;
- Perform interim screening and evaluation of remedial technologies;
- Perform Treatability Studies;
- Prepare a Baseline Risk Assessment;
- Prepare an FS;
- Evaluate the California Environmental Quality Act (CEQA); and
- Prepare a RAP.

2.5 Climatology

The climate in Gardena is controlled by the strength and position of a semi-permanent high-pressure cell over the eastern Pacific Ocean. The high-pressure cell generally creates a pattern of early morning cloudiness, afternoon sunshine, and minor temperature fluctuations throughout the year.

Complete-year historic climate data is available for 30 years between 1961 and 1990 for the nearby Torrance Municipal Airport, located approximately 5 miles southwest of the Site at approximately 33.80 degrees north (°N) and 118.33 degrees west (°W) and 108 feet (ft) above mean sea level (amsl) (WorldClimate.com, 2013). According to the data, the annual average temperature for the area is 62.8 degrees Fahrenheit (°F) with an average monthly high temperature of 79.9°F occurring in August, and an average monthly

low temperature of 45.1°F occurring in January. Rainfall occurs mostly from November through April as generally mid-latitude storms move through the area. An average of approximately 13.6 inches of rain falls each year. Summers are often dry, with the exception of occasional rainfall from thundershowers of tropical origin. The average wind is from the west at a speed of 7.8 miles per hour (mph).

2.6 Topography

The Site is located in a generally low-lying coastal plain that is relatively flat. Artesia Boulevard to the north ranges in elevation from approximately 20 ft amsl to 22 ft amsl in the vicinity of the Site and slopes slightly to the west. Normandie Avenue to the east ranges in elevation from approximately 24 ft amsl to 22 ft amsl and slopes slightly to the north. The top of the slopes of concrete-lined Dominguez Channel to the south of the Site are at an approximate elevation of 25 ft amsl and the channel flows to the west. The residential properties to the south of the Site generally range from 25 ft amsl to 35 ft amsl and slope to the west. The commercial property to the west slopes to the northeast with a maximum elevation of approximately 29 ft msl in the southwest corner to a minimum elevation of approximately 21 ft msl in the northeast corner adjacent to Artesia Boulevard.

The surface elevation of the Cooper North, Cooper South, and Haack Sumps is approximately 20 ft amsl. The Haack Rework Area ranges in elevation from approximately 20 ft amsl to 35 ft amsl.

2.7 Geology

The following discussion is based on California Department of Water Resources (CalDWR) Bulletin No. 104, Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County, Appendix A — Ground Water Geology, dated June 1961, reprinted April 1988 (CalDWR, 1961) and discussions contained in reports from previous investigations (CalEPA, 1994; URS, 1994; and Stantec, 2008).

The Site is located in the Los Angeles Coastal Plain and is underlain by a thick sequence of marine and continental sediments that were deposited in a broad synclinal depression. This depression is generally referred to as the Los Angeles Basin. The Los Angeles Basin is bisected by the northwest trending Newport-Inglewood uplift, which divides the Coastal Plain into two smaller synclinal troughs. The Site is located in the West Coast Basin, which constitutes the southwest portion of the Los Angeles Basin.

The Site is located near the junction of the Torrance Plain and the Dominguez Erosion Gap. The Torrance Plain runs west of and parallel to the hills of the Newport-Inglewood uplift from the Ballona Gap southeast to the Dominguez Gap. The Plain is a broad featureless area only slightly dissected locally by the Dominguez Creek (Dominguez Channel).

According to boring logs in the Ecology and Environmental, Inc. (EEI) (1986), Metcalf and Eddy (1992), CalEPA (1994) and URS (1994) reports, sediments underlying the Site, to the maximum explored depth of 92 ft below ground surface (bgs), consist primarily of a mixture of clays and silts with interbeds of sand. Copies of the available boring logs from these previous studies are provided in Appendix F and summarized in Table 13 of the Revised Draft RIR (Stantec, 2008). This stratigraphy correlates in general with the observed conditions in borings completed in conjunction with the Revised Draft RIR (Stantec, 2008) and the Addendum to the Revised Draft RIR (Stantec, 2010b), which reached a maximum depth of 100 ft bgs.

2.8 Hydrogeology

The following discussion is based on CalDWR Bulletin No. 104, Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County, Appendix A - Ground Water Geology, dated June 1961, reprinted April 1988 (CalDWR, 1961) and discussions contained in reports from previous investigations (CalEPA, 1994; URS, 1994; Stantec, 2008).

The Site is located in what is known as the West Coast Groundwater Basin. The West Coast Groundwater Basin has existing beneficial uses for municipal and domestic supply wells, agricultural supply, industrial process supply, industrial service supply, and aquaculture (Los Angeles Regional Water Quality Control Board [LARWQCB], 1994). This basin is hydraulically isolated from other, larger groundwater basins in the Coastal Plain by the regional Newport-Inglewood Fault. The Site is underlain by Holocene and late-Pleistocene Age alluvial and marine deposits, which include the Bellflower Aquiclude at the ground surface, and the Gardena and/or Gage Aquifers of the Lakewood Formation beneath the aquiclude. Major underlying aquifers (beneath the Lakewood Formation) are the Lynwood and the Silverado Aquifers of the San Pedro Formation.

The uppermost defined unit within the basin, and the unit the Site is located within, is the Bellflower Aquiclude. Regionally, the Bellflower Aquiclude contains interfingered zones

of permeable and less permeable sediments. The zones with modest to relatively high hydraulic conductivity consist of fine to coarse sand with gravel and silty sand. These coarser grained sediments vary in thickness from 10 to 60 ft and are not laterally continuous. However, in some areas, these permeable zones can contain significant amounts of water. Little beneficial use is made of water in these shallow, discontinuous hydraulic zones because well yields tend to be low and water quality generally poor (CalDWR, 1961).

The Gardena/Gage, Silverado, and Lynwood Aquifers are all capable of storing or conveying groundwater in significant quantities and constitute major sources of groundwater in the West Coast Groundwater Basin. The Lynwood and Silverado Aquifers are primary sources for domestic water supply, while the Gardena and Gage Aquifers are a secondary domestic water supply source. Neither the Gardena nor Gage Aquifers are currently pumped for domestic use. The intervening finer-grained aquitards have not been named. These aquitards, including those that separate the Gardena and Gage Aquifers from the Lynwood Aquifer and the Lynwood Aquifer from the Silverado Aquifer, are discontinuous in nature and absent in some areas.

Immediately beneath the Site, there are two hydraulic groundwater zones within the Bellflower Aquiclude: Zone A (upper) and Zone B (lower), which are approximately 15 to 25 and 75 to 80 ft bgs, respectively. Site groundwater monitor wells are screened within these two zones. General groundwater chemistry analyses were performed at the Site to evaluate if a hydraulic interconnection exists between Zone A and Zone B due to the existence of a downward vertical gradient between the two zones. The groundwater chemistry analysis indicated the two zones are characterized by different groundwater geochemistry. The concrete lined Dominguez Channel influences the flow direction of the shallow Zone A groundwater southward while the deeper Zone B groundwater has a flow direction to the east – southeast. Groundwater monitoring at the Site over the past seven years indicates that COCs are not migrating vertically or laterally over any significant distance from the locations of the waste material.

2.9 Surface Water

The area surrounding the Site is urbanized, with surface waters that drain via storm drains into the Dominguez Channel. The Dominguez Channel is a concrete-lined flood-control structure immediately south of the Site. The upstream portion of the modern-day Dominguez Channel originates several miles west-northwest of the Site, and it drains

surface water to the southeast where it discharges to the Cerritos Channel of the Los Angeles Harbor. Surface water at the Site generally drains towards the north and east following site topography and is intercepted by a flood control storm drain located at the northeast corner of the Site adjacent to the intersection of Artesia Boulevard and Normandie Avenue.

Historically, the Dominguez Channel flowed along a natural channel bed located approximately several hundred feet west and north of the Site where it flowed eastward into Laguna Dominguez. Presently the shallow groundwater beneath the Site is influenced by the concrete lined Dominguez Channel and flows southward.

3. SUMMARY OF REMEDIAL INVESTIGATIONS

3.1 General

The nature and extent of hydrocarbon and metal impacts at and surrounding the Site have been evaluated through several investigation programs conducted since 1982. Sludge, soil, surface water, groundwater, and soil vapor have been investigated. The following sections provide a summary of findings for each of these media. Figures 3-1 through 3-3 depict the locations of soil matrix, soil vapor, and groundwater samples, respectively, collected during the RI. Details of the investigations and findings can be found in the Revised Draft RIR (Stantec, 2008) and the Addendum to the Revised Draft RIR (Stantec, 2010b).

3.2 Sludge and Soil

As a part of the RI, Stantec investigated the Cooper South Sump, the Cooper North Sump, The Haack Sump, the Haack Rework Area, as well as other on-Site and off-Site areas to delineate the vertical and horizontal extents of continuous (nonreworked) sludge and sludge-induced impacts to soil. The investigation included over 300 subsurface soil and sludge samples analyzed for the following organic and inorganic constituents:

- Volatile fuel hydrocarbons (VFHs);
- Total extractable hydrocarbons (TEHs);
- Volatile organic compounds (VOCs);
- Semi-volatile organic compounds (SVOCs);
- Polynuclear aromatic hydrocarbons (PAHs);
- Title 22 metals;
- Mercury; and
- Hexavalent chromium.

Detected constituents in soil and sludge samples analyzed as part of the RI investigation are provided in the Revised Draft RIR (Stantec, 2008) and updated in the Addendum to the Revised Draft RIR (Stantec, 2010b). The delineation of sludge is shown on Figure 1-2 and described in the sections below. The thickness of sludge in the sumps and the Haack

Rework Area, as identified in the Stantec 2008 and Stantec 2010 reports, is variable due to uneven basal surfaces and interlayered reworked sand deposits.

3.2.1 Cooper South Sump

Typical average total thickness of sludge in the Cooper South Sump is approximately 4 to 5 ft with a maximum thickness of 11.5 ft. Lateral impacts of sludge in soil are negligible. Approximately 6,700 cubic yards (CY) of sludge was calculated by Stantec to be in the Cooper South Sump (Stantec, 2010b).

3.2.2 Cooper North Sump

Typical average total thickness of sludge in the Cooper North Sump is approximately 6 ft with a maximum thickness of 15.5 ft. Chrysene was detected in one boring up to 11 ft beneath the sludge. Some TEH and PAH constituents were detected approximately 6 ft laterally from this sump in depths up to 15 ft bgs, indicating some lateral migration in soil to the north; however, other borings indicated lateral impacts of sludge in soil in other directions is negligible. Approximately 7,000 CY of sludge was calculated by Stantec to be in the Cooper North Sump (Stantec, 2010b).

3.2.3 Haack Sump

Typical total thickness of sludge in the Haack Sump is approximately 4 to 5 ft with a maximum thickness of 12 ft. Boring logs indicated the western and central areas of the sump had been reworked, possibly during Site development in the late 1940s. Approximately 2,250 CY of sludge was calculated by Stantec to be in the Haack Sump (Stantec, 2010b).

3.2.4 Haack Rework Area

The Haack Rework Area consists of deposited sludge, soil, and debris in discontinuous and mixed layers of varying thickness beneath a soil cover. Sludge deposits in the Haack Rework Area slope and thicken to the northeast, to a maximum thickness of 6 ft. Approximately 670 CY of sludge material was calculated by Stantec to be in the Haack Rework Area (Stantec, 2010b).

3.3 Surface Water

Surface water samples were collected upstream and downstream of the Site from the Dominguez Channel in 2006 and 2008. Analytical data from these samples indicated concentrations of gasoline range organics (GRO) to be an estimated concentration of 58 J micrograms per liter (µg/L), which is just above the reporting limit of 50 µg/L, in both upgradient and downgradient 2006 samples. Samples collected in 2008 were below the reporting limit in both upgradient and downgradient samples. Although GROs have been detected in the past in one monitor well, MW-05A, located on the north portion of the Haack Property and adjacent to the Haack Sump area, GRO concentrations have been trending downward since 2018, with the last three sampling events below the reporting limit. GRO concentration data, obtained in 2009 and collected from groundwater Hydropunch™ locations GWP100 and GWP101 between MW-05A and the Dominguez Channel, indicate that GROs do not impact the water quality of the Dominguez Channel south of the Site (Stantec, 2010). VOCs, including PCE and TCE, have been measured in surface water within the Dominguez Channel both upgradient and downgradient of the Site. These VOCs are not present in groundwater beneath the Site.

Based on the organic chemical parameters, the Site is not impacting surface water quality in the channel. Overall, the observed concentrations of metals in surface water adjacent to the Site support the same conclusion that the Site groundwater conditions are not impacting surface water quality (Stantec, 2008).

3.4 Soil Vapor

The soil vapor investigation activities evaluated the subsurface concentrations of VOCs, hydrogen sulfide, and methane at various locations across the Site for use in the baseline HHRA. Constituent concentrations reported above the detection limit for targeted VOCs included benzene, toluene, ethylbenzene, m-,p-,o-xylenes, 1,3,5-trimethylbenzene, and Freon 113.

During the 2009 RI activities, additional samples were collected from 22 semi-permanent direct-push soil vapor probes. Samples collected near the Haack administrative building showed no VOCs greater than California Human Health Screening Levels (CHHSLs). On the residential properties, benzene from the sample collected from the former corral (SV-135) was the only constituent reported higher than the specific constituent CHHSL

value. The results elsewhere at the Site during the 2009 RI activities generally confirmed the results of the 2006 RI (Stantec, 2010a).

An Air Pathway Analysis (APA) was performed during the 2006 investigation to evaluate the exposure pathway of outdoor inhalation of vapors. The APA showed disturbed sludge can be generally characterized as having moderate to high area source emissions as compared to the low to moderate source emissions for undisturbed sludge. Odor analyses confirmed the potential for sulfur compounds from disturbed sludge to create nuisance odors to people in the area or downwind of the disturbed sludge. The APA also showed individual compound emissions are greatly affected by the existing surface coverings and concrete slab (Stantec, 2008).

3.5 Groundwater

Groundwater is currently monitored from wells G-4 and MW-05A, screened in the upper (Zone A) hydrogeologic unit, and from four additional wells screened in both the Zone A and lower (Zone B) hydrogeologic zones (MW-02A/B, MW-03A/B, and MW-04A/B). Data collected during first quarter 2019 indicated groundwater elevations ranging from 6.17 to 7.82 ft amsl in Zone A and from 3.11 to 4.35 ft amsl in Zone B. Groundwater in Zone A generally flows to the south from Artesia Boulevard to the Dominguez Channel while groundwater in Zone B generally flows to the east.

Results of the third quarter 2020 semi-annual groundwater monitoring event are generally consistent with the analytical results from past sampling events since February 2006. GRO concentrations in MW-05A, located on the north portion of the Haack Property and adjacent to the Haack Sump area, have generally continued to decrease since 2018 with the last three sampling events below the reporting limit. Groundwater and surface water data obtained between MW-05A and the Dominguez Channel (i.e., groundwater Hydropunch™ investigation locations, and existing monitor wells) indicate that GROs are not observed in groundwater adjacent to or near the portion of the Dominguez Channel that is adjacent to the Site. The groundwater quality data indicates that GROs observed in MW-05A are not migrating to the Dominguez Channel. Throughout 2019 and 2020, neither SVOCs nor metals have been detected above their respective maximum contaminant levels (MCLs).

3.6 Fate and Transport

Based on the results from previous investigations and the extensive field work performed as part of the Revised Draft RIR (Stantec, 2008) and the Addendum to the Revised Draft RIR (Stantec, 2010b), the current CSM suggests:

- The undisturbed sludge at the Site does not pose a threat to surface water and does not pose a threat to shallow (Zone A) or deeper (Zone B) groundwater quality throughout much of the Site. Shallow groundwater is impacted (lower pH, total & dissolved metals) south of the Haack sump; however, these impacts are not detected in samples collected downgradient of the sumps;
- The undisturbed sludge at the Site does not pose a substantive threat to the air quality in the immediate vicinity of the Site. Isolation of the sludge from temperature fluctuations above approximately 100 °F would further minimize this potential impact.
- The undisturbed sludge does not pose a threat to further contamination of soil surrounding the sludge by leaching of constituents of potential concern (COPCs) from the sludge; and
- The transport mechanisms identified during the HHRA are wind, erosion and dust; volatilization to indoor and ambient air; and leaching to groundwater (Geosyntec, 2010).

3.7 Treatability Studies Conducted

As part of the RI, a treatability study was conducted by Stantec to define and evaluate the physical and chemical characteristics of the sludge and evaluate neutralization/stabilization options. Characteristics of the sludge evaluated included acidity, wet density, moisture, viscosity, and softening point. Components of the neutralization/stabilization evaluation included:

- Potential of off-vapor evolution during full-scale mixing operations;
- Analysis of mobilization of organics and metals in treated and untreated sludges including long-term leaching analysis;
- Permeability testing;
- Analysis of soil additives;

- Testing for the potential for thermal treatment;
- Evaluation of moisture/density relationships for sludge and sludge/soil mixtures; and
- Analysis of asphaltic quality.

Testing indicated the sludge can be neutralized by using 25 percent treatment reagent addition by weight where the treatment reagent is comprised of 50 percent hydrated lime (calcium hydroxide, Ca(OH)2) and 50 percent calcium carbonate (CaCO3) fines. Approximately 10 percent water addition was also required to help activate the lime and carbonate reactions. The addition of 50 percent soil by weight during this mixing will also effectively solidify the waste so it is no longer susceptible to viscoelastic deformation. This treatment also effectively fixates lead, as demonstrated through long-term leaching tests, and neutralizes acid gases such as hydrogen sulfide and sulfur dioxide (Stantec, 2008).

4. SUMMARY OF REMOVAL ACTIONS

Since the Site was identified by the DTSC in 1981, three removal actions have been performed. The following section summarizes the removal actions completed at the Site.

4.1 1993 – Interim Cover Construction

In 1993, the DTSC prepared an Engineering Evaluation/Cost Analysis Report (EECAR) for the Site with the objective of preventing human dermal contact with the sludge. The EECAR identified three alternatives to achieve the stated objective: Haul and Dump (Alternative 1), Recycling (Alternative 2), and Construction of Cover (Alternative 3). The EECAR identified Alternative 3 as the proposed removal action (DTSC, 1993a).

Between 14 June and 6 August 1993, the removal action was implemented. The interim cover was constructed to prevent dermal contact with the sludge over an area of approximately 114,000 square feet (sf). Further investigation of the Site was identified as additional work to be completed (DTSC, 1993b).

4.2 1994 – Sludge Seepage Removal

Between 10 January and 24 January 1994, a layer of clean fill dirt was placed above exposed areas of sludge on the Southern Pacific Railroad right-of-way to the east. Additionally, a fence was installed around an approximately 12,000 sf portion of the Southern Pacific Railroad right-of-way bordering the Site (DTSC, 1994).

4.3 1998 – Haack Property Cover Construction

As part of the legal settlement between the DTSC and Mr. Clarence Haack (Haack property owner), DTSC Docket #91/92-012, Mr. Haack was responsible for abating the risk to human health from the sludge on his property. The Removal Action Workplan (RAW) identified three alternative treatment options: haul and dump (Alternative 1), Recycling (Alternative 2), and Construction of Cover (Alternative 3).

Alternative 3 was found to be the best option for the Haack Property. The cover reportedly consists of a 6-mil thick visqueen vapor barrier, with 2 inches of sand above and below to provide protection, and a concrete cap. The concrete cap included steel reinforcement within a minimum 6-inch thick slab.

4.4 2013 – Interim Cover Replacement

An additional geosynthetic liner was placed over the 1993 liner in August 2013. The new 45-mil reinforced polypropylene (RPP) geomembrane material was hot air welded along internal seams and seam taped and hot air welded to the underlying original geomembrane along the perimeter of the existing cover by Barber-Webb Co., Inc (BW). At the conclusion of cover repair, 25- pound sandbags constructed out of geomembrane material were placed on top of the cover at 25-ft intervals. Additional details of the new liner construction are provided in the Annual Cover Inspection and Maintenance Report prepared by Stantec dated 31 January 2014 (Stantec, 2014).

5. SUMMARY OF RISK ASSESSMENT, REMEDIAL ACTION OBJECTIVES AND SITE CLEANUP LEVELS

This section describes the development of RAOs and target cleanup levels for the Site. The process of developing the RAOs depends upon the assessment of risk to identified receptors at the Site and in the Site vicinity. A discussion of the HHRA at the Site follows.

5.1 Constituents of Potential Concern

The COPCs for the Site were developed and discussed in the hazard identification section of the HHRA (Geosyntec, 2010). United States Environmental Protection Agency (USEPA) guidance states the list of chemicals should include all chemicals that were:

- Positively detected in at least one sample;
- Detected above levels of the same chemicals found in associated blank samples;
- Tentatively identified, but may be associated with the Site based on historical information;
- Transformation products of detected chemicals; and
- Detected above naturally occurring levels (background).

During the HHRA, those contaminants posing a potential risk to receptors at the Site were identified as COPCs and can be found in Table 5-1 for soil, soil vapor, and groundwater.

5.2 Human Health Risk Assessment

5.2.1 Approach

The draft HHRA included an evaluation of health risks to potentially exposed receptor populations consisting of commercial/industrial workers, construction workers, hypothetical future residents, and trespassers. Potential exposures were evaluated for these populations assuming existing physical Site conditions (without the existence of the protective caps on the Cooper and Haack properties and prior to any future remediation efforts at the Site). In addition, a current residential scenario was included for the immediate adjacent off-Site residential area (Geosyntec, 2010).

Future development of the Site and the immediate adjacent off-Site residential area would be zoned for commercial as designated in the City of Gardena's report titled Artesia Corridor Specific Plan (The Planning Center [TPC], 2006). A more conservative hypothetical future residential scenario was included in the HHRA to evaluate potential risks under an unrestricted land use scenario. For the construction worker scenario, shallow groundwater was also evaluated assuming that outdoor vapor inhalation and dermal contact could potentially occur when groundwater is exposed in an open excavation (Geosyntec, 2010).

To evaluate the spatial distribution of risk driving chemicals, two types of comparison criteria were developed for each chemical identified in the risk characterization: (1) those based on background; and (2) risk-based concentrations (RBCs) or target risk concentrations which are based on each receptor group and assuming Site-specific soil characteristics and a target risk goal. For worker exposures (commercial/industrial and construction worker) a target risk goal of 1 in 100,000 (1×10-5) was used. For residential and trespasser scenarios a 1 in 1,000,000 (1×10-6) target risk goal was used. For those chemicals in which the RBCs are below background, the background concentration is used as the comparison criteria. This is the case for arsenic for residential and commercial/industrial worker scenarios, and benzo(a)pyrene toxicity equivalent (BaP-eq) for the residential scenarios (Geosyntec, 2010).

5.2.2 Results

The results of the HHRA indicate exposures to on-Site soils may potentially exceed target risk goals for all potential receptor scenarios evaluated: commercial/industrial worker, construction worker, hypothetical future on-Site/current off-Site resident, and trespasser. The primary contributors to the risk estimates were arsenic, hexavalent chromium, naphthalene, and predominantly the carcinogenic PAHs as represented by the BaP-eq concentration. The majority of locations where concentrations of these chemicals were elevated occurred within areas of known sludge material which are currently covered by the existing geomembrane cap, soil, concrete, and/or asphalt (Geosyntec, 2010).

5.3 Constituents of Concern

Following completion of the HHRA, primary risk driving chemicals were identified as COCs from the list of COPCs (see Section 5.1). These chemicals were identified as primary risk drivers because they are the most ubiquitous chemicals throughout the Site

and because they are co-located with a majority of the COPCs (i.e., the risk associated with the COCs would encompass the COPCs). Based on the HHRA, the primary COCs at the Site are:

- Soil: arsenic, hexavalent chromium, naphthalene, and the BaP-eq.
- Air: benzene, hydrogen sulfide.
- Groundwater: dibenz(a,h)anthracene.

These COCs are present in the Cooper and Haack Sumps as well as in the Haack Rework Area. Methane has been detected at low concentrations around the Site but was not identified as a COC based on the HHRA. Due to the potential explosive risk associated with methane, it has been included as an RAO.

5.4 Remedial Action Objectives

RAOs are goals specific to various media and apply to those media that have been identified as posing an unacceptable risk based on the HHRA work performed for the Site. The RAOs for on-Site soils, soil vapor, and groundwater are:

- Prevent ingestion/direct contact with sludge and/or soil having 10-5 to 10-6 excess cancer risk from carcinogenic constituents as represented by arsenic, hexavalent chromium, naphthalene, and the BaP-eq concentration;
- Prevent dermal contact with shallow groundwater having 10-5 excess cancer risk from carcinogenic PAHs as represented by dibenz(a,h)anthracene;
- Prevent dermal contact with low pH, PAH containing sludge;
- Prevent inhalation of VOCs, as represented by benzene, posing excess cancer risk levels of 10-5 to 10-6; and
- Prevent explosive risks associated with methane.

5.5 Future Site Use

The Site is currently used for residential and commercial/industrial applications. Future Site use considerations have been identified by DTSC, the City of Gardena, and the Site owner. Specific future Site uses, as described in this document, will be accommodated in the design phase of the work. The basis of design and specific design parameters will be

considered during the design phase of work. As discussed with DTSC, the basis of design and design parameters cannot incorporate or consider all potential future uses or redevelopment scenarios; therefore, any additional redevelopment work, beyond the current specific and intended uses, should be considered in future permitting processes at the time of the future redevelopment.

The DTSC has requested the following three future land use scenarios be evaluated for the Site:

- Current land use will continue; residential properties would remain, and Cooper and Haack areas would remain commercial/industrial;
- Use the Site for residential only; and
- Use the Site for commercial/industrial only.

Although not planned to accommodate residential redevelopment, as a conservative approach to meet the DTSC request, the residential cleanup goals will be used, which are the most stringent.

The City of Gardena has developed the City of Gardena Master Plan (TPC, 2006) which indicates the Site would be developed in the future as commercial property with a mix of commercial buildings and parking. To accommodate this development plan and constraints of the Site, The City of Gardena requested the remedial design be compatible with a parking lot or open space end use incorporating curbs, gutters, light poles, and utilities.

5.6 Target Cleanup Levels

The target cleanup levels for the Site were developed with consideration given to the following factors:

- Hypothetical future use scenario;
- RAOs; and
- Potential Site health risk.

The Site-Specific Action Levels (SSALs) shown in Tables 5-2, 5-3, and 5-4 were developed for each of the COCs identified in Section 5.3. Cleanup criteria either are

numeric goals to be achieved through remediation or are non-numeric, performance-based criteria. The cleanup levels shown in Tables 5-2, 5-3, and 5-4 were used to guide the selection and screening of remedial technologies and the development and detailed analysis of remedial alternatives. A discussion of the development of cleanup criteria follows.

5.6.1 Site-Specific Action Levels

Soil cleanup criteria are based on the derivation of RBCs for Site COCs. RBCs were developed for each chemical identified as a COC or "risk driver" in the risk characterization of the HHRA (Geosyntec, 2010) based on each receptor group and assuming Site-specific soil characteristics. RBCs were derived for arsenic, BaP-eq, hexavalent chromium, benzene, and naphthalene in soil (Table 5-2); benzene in soil vapor (Table 5-3); and dibenz(a,h)anthracene in groundwater (Table 5-4). The derivation of these concentrations is provided in Appendix B of the HHRA (Geosyntec, 2010). RBCs are presented for both cancer and noncancer effects; cancer effects generally produce lower RBCs. The selected SSALs, considering background concentrations, are presented in Tables 5-2 through 5-4 for each receptor group.

For arsenic in soil, the DTSC screening level of 12 milligrams per kilogram (mg/kg), which is considered background for southern California sites (Cal-EPA DTSC, 2007), was used as the SSAL for residential receptors.

For BaP-eq in soil, a concentration of 0.9 mg/kg, considered representative of background PAH concentrations in southern California soils, was used as the SSAL for residential receptors (CalEPA DTSC, 2009).

6. SUMMARY AND EVALUATION OF ALTERNATIVES

The FS, approved by DTSC on 14 July 2020, screened alternatives for remediation of the AOCs at the Site. The objectives of the FS were to identify remedial technologies available to address COCs at the AOCs, to assemble remedial alternatives, to evaluate the remedial alternatives against the nine criteria outlined in the CERCLA guidance document, and to recommend a preferred alternative.

The approach used in the FS first defined RAOs and ARARs for the AOCs at the Site, then evaluated remedial technologies for addressing the RAOs and ARARs. The remedial technologies judged inapplicable or ineffective were eliminated from further evaluation. Retained process options underwent screening to assess effectiveness, implementability, and cost. The selected methods were then assembled into four potential remedial alternatives. A detailed evaluation of these alternatives was performed using the nine criteria required by the CERCLA guidance document (USEPA, 1988). Finally, based on a comparative analysis of the remedial alternatives, the FS recommended a preferred alternative for the AOCs. The DTSC approved the FS in a letter dated 14 July 2020.

6.1 Screening of Remedial Technologies

Potentially applicable technologies for soil remediation were screened based on effectiveness, implementability, and cost. The remedial alternatives determined to be most applicable to the AOCs, including a no action alternative, are defined below.

- Alternative 1 – No action.
- Alternative 2A – Capping with selective excavation.
- Alternative 3 – Capping with selective excavation and stabilization/neutralization.
- Alternative 4 – Excavation with off-Site disposal.

6.2 Evaluation Criteria

The CERCLA guidance document explains the nine criteria are used to evaluate each remedial alternative (USEPA, 1988). The first two criteria relate directly to findings that must be made in the Record of Decision (ROD) for the Site. These are categorized as threshold criteria that a selected remedy must meet.

1. Overall Protection of Human Health and the Environment – This criterion requires evaluation of how the alternative achieves and maintains protection of human health and the environment. The overall assessment of protectiveness draws on the assessments conducted under other evaluation criteria, especially long-term effectiveness and permanence, short-term effectiveness, and compliance with ARARs. Evaluation of the overall protectiveness of an alternative focuses on whether an alternative achieves adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled through treatment, engineered controls or institutional controls. This evaluation also considers whether an alternative poses any unacceptable short-term or cross-media impacts.
2. Compliance with ARARs – This criterion requires an evaluation of how the alternative complies with identified ARARs and applicable advisories or guidance that are "to be considered." ARARs are generally categorized as action-specific, location-specific, or chemical-specific Federal or state-promulgated requirements. A list of potential Federal and state action-specific, location-specific, and chemical-specific ARARs have been identified for the AOCs at the Site and are included in Table 6-1.
3. Long-Term Effectiveness and Permanence – This criterion requires evaluation of the long-term effectiveness of the remedial alternative in maintaining protection of human health and the environment following implementation of the alternative.
4. Reduction of Toxicity, Mobility, and Volume Through Treatment – This criterion evaluates the anticipated performance of the treatment technologies the alternative comprises, and assesses their ability to reduce the toxicity, mobility and volume of contaminated materials through the use of treatment.
5. Short-Term Effectiveness – This criterion requires an assessment of the protection of human health and the environment during construction and implementation of the remedial alternative until RAOs are met. The following factors are addressed as appropriate for each alternative: protection of the community during remedial actions, protection of workers during remedial actions, environmental impacts, and time until remedial response objectives are achieved.
6. Implementability – This criterion requires an assessment of the technical and administrative feasibility of an alternative, including the availability of required services and materials to execute the alternative. How each alternative is impacted

by the property ownership (i.e., one, large, single property or seven individual properties) will also be discussed.

7. Cost – This criterion requires evaluation of the anticipated capital costs and operation and maintenance (O&M) costs of an alternative.
8. State Acceptance – This criterion allows for consideration of preferences or apparent concerns by the DTSC.
9. Community Acceptance – This criterion allows for consideration of the community's preferences or concerns regarding remedial alternatives. DTSC formally considers the community's preferences or concerns after the FS Report and RAP are prepared.

6.3 Remedial Alternatives Considered

The four remedial alternatives developed from the retained remedial technologies are described below.

6.3.1 Alternative 1 – No Action

Alternative 1 consists of no remedial actions or institutional controls to address soils above target cleanup levels.

6.3.2 Alternative 2A – Capping with Selective Excavation

Alternative 2A consists of excavating the Haack Rework Area and a portion of sludge overflow along the eastern perimeter of the Cooper Sumps and consolidating the materials above the Cooper North and South Sumps. A cap consisting of a stabilization layer, foundation layer, low-hydraulic conductivity layer, and erosion resistance layer would be constructed above the sumps. A vapor control and monitoring system would be designed and installed beneath the cap and around the sumps, and groundwater monitoring would continue. The vapor control system would include a flexible gas collection system designed to accommodate the long-term operation of the system. The northern edge of the Haack Sump cap would slope to terminate at an elevated curb adjacent to the sidewalk along Artesia Boulevard. Institutional controls consisting of a Health and Safety Plan (HASP), Construction Quality Assurance (CQA) Plan, and Risk Management Plan (RMP) would be implemented. Alternative 2A replaced Alternative 2 in the Draft FS dated February 2011. Alternative 2A is consistent with the former

Alternative 2 in that capping and selective excavation of the sludge in the Haack Rework Area are evaluated. However, the cap proposed in Alternative 2A is significantly lower in overall height than the cap of former Alternative 2.

6.3.3 Alternative 3 – Capping with Selective Excavation and Stabilization/Neutralization

This alternative includes mixing the top 3 ft of sludge in the Cooper North and South Sumps with reagent to stabilize/neutralize the sludge. The Haack Rework Area and a portion of sludge overflow along the eastern Cooper Sumps would also be mixed with the stabilized/neutralized material. A cap consisting of a foundation layer, low-hydraulic conductivity layer, and erosion resistance layer would be constructed above the Cooper North and South and Haack Sumps. A vapor control and monitoring system would be installed beneath the cap and around the sumps, and groundwater monitoring would continue. Institutional controls consisting of a HASP, CQA Plan, and RMP would be implemented.

6.3.4 Alternative 4 – Excavation with Off-Site Disposal

This alternative includes excavation of sludge with disposal off-Site. The sludge would be mixed with neutralizing agent and loaded into trucks for disposal off-Site. Major components of this alternative include concrete and asphalt removal, excavation and mixing of sludge, transportation to the disposal facility, confirmation sampling, sump backfill, and groundwater monitoring.

6.4 Alternatives Analysis and Recommended Alternative

The purpose of the evaluation of relative performance of the alternatives is to select a preferred remedial alternative that will be most suitable for the AOCs at the Site, based on the CERCLA guidance document (USEPA, 1988). In the comparative analysis and evaluation, the remedial alternatives are weighed against each of the nine criteria in the CERCLA guidance document, and comparisons between alternatives are made to assist in screening out inferior alternatives and selecting a preferred alternative. The preferred alternative becomes the alternative that meets the threshold criteria (Section 6.2, criteria 1 and 2), and best achieves a balance between the balance criteria (Section 6.2, criteria 3 through 7). The modifying criteria (Section 6.2, number 8 and 9) are used to guide DTSC to project modifications, if needed. Below is a summary of the evaluation.

6.4.1 Comparative Evaluation of the Alternatives

1. Overall Protection of Human Health and the Environment – Alternative 1, No Action, does not provide adequate protection of human health and the environment. No further assessment or comparison with this alternative is provided. Alternative 2A would perform better than Alternative 3. While Alternative 3 stabilizes/neutralizes a portion of the sludge, the mixing of the reagent releases potentially hazardous amounts of hydrogen sulfide and sulfur dioxide gas. Alternative 4 would provide very good protection of human health and the environment with the removal of the impacted materials; however, because of the risks associated with hazardous vapor generation during excavation and transportation of the material, the overall protection is deemed moderate.
2. Compliance with ARARs – Alternative 2A would perform better with respect to ARARs due to the reduction of vapor emissions when compared to Alternatives 3 and 4.
3. Long-Term Effectiveness and Permanence – Alternative 3 is ranked higher than Alternative 2A with respect to long-term effectiveness and permanence. Both alternatives would be effective and permanent over the long-term with maintenance; however, because Alternative 3 neutralizes the sludge, the treatment is likely more permanent. Alternative 4 provides the greatest long-term effectiveness and permanence since the sludge would be removed from the AOCs at the Site and disposed off-Site.
4. Reduction of Toxicity, Mobility, and Volume Through Treatment – Alternative 3 would slightly reduce toxicity and mobility through partial in-situ treatment of the source zone; however, toxicity would increase as sulfur dioxide gases are released during mixing of the sludge for treatment. Alternatives 2A and 3 would reduce mobility of the sludge by limiting infiltration and wind erosion. Alternative 4 would reduce the mobility of the sludge after off-Site disposal since the disposal landfill would be equipped with a liner system to collect leachate; however, transport of the material would temporarily increase the potential mobility.
5. Short-Term Effectiveness – Alternative 2A would perform the best with respect to short-term effectiveness. Unlike Alternatives 3 and 4, Alternative 2A does not significantly disturb the sludge, thereby minimizing the release of sulfur dioxide gas. Both Alternatives 2A and 3 incorporate a cap into the final design which would provide an immediate reduction in risk due to inhalation, dermal exposure,

and ingestion. Alternative 4 would provide a reduction in risk after the sludge was transported off-Site; however, risk is temporarily increased in the short-term during sludge disturbance and transport.

6. Implementability – Alternatives 3 and 4 pose significant implementation issues due to the vapor generation during mixing and excavation of the sludge. Vapor control and treatment would be necessary during mixing and excavation of the sludge. Construction of an enclosure to contain the vapors would be difficult to perform due to low bearing capacity of the sludge to support the enclosure structure and the area the enclosure would need to span (enclosure structural support would need to be founded on native soils outside the limits of each sump, creating a need for the enclosure to span the entire width of each sump). Vapors captured by the enclosure would need treatment prior to discharge.

   Alternative 2A is relatively easy to implement. A stabilization layer on the Cooper sumps would be placed first to provide a surface on which to install the foundation and vapor collection, barrier, and cover layers. Disturbance of the sludge would be limited to the eastern overflow and Haack Rework Area, which are significantly degraded and would release significantly less sulfur dioxide gas than the sludge in the Haack and Cooper Sumps (Appendix A, Stantec, 2008). The materials necessary for construction of Alternative 2A are available and do not require admixtures or special equipment.

7. Cost[1] – Alternative 2A has the lowest capital cost of approximately $6MM (not including Alternative 1). Alternative 3 has capital costs ranging from approximately $11MM to $13MM while Alternative 4 capital costs range from approximately $28MM to $29MM. Alternatives 2A and 3 have identical net present value O&M costs of approximately $5MM. Alternative 4 has the lowest net present value O&M cost of approximately $120K. Alternative 2A has the lowest combined remedial cost.

8. State Acceptance – In accordance with USEPA guidance, this criterion will be addressed when DTSC is making its final remedial decision and the RAP approval letter is being prepared.

[1] All costs are in 2014 values consistent with the approved FS (Geosyntec, 2014).

9. Community Acceptance – In accordance with USEPA guidance, this criterion will be addressed when DTSC is making its final remedial decision and the RAP approval letter is being prepared.

6.4.2 FS-Recommended Alternative

Based on the comparative analysis of the remedial alternatives, the alternative that meets the RAOs and ranks the highest is Alternative 2A, capping with selective excavation with an optional cover that will eliminate the need for a retaining wall adjacent to Artesia Boulevard to accommodate the City of Gardena's request for future potential redevelopment of the AOCs at the Site as a parking lot to support future commercial operations adjacent to the remedy. This remedial alternative effectively mitigates the risk from ingestion, inhalation, and dermal contact with on-Site soils for both future non-residential and residential occupants of buildings on Site, and future landscapers and utility workers. This alternative also effectively mitigates the risk from dermal contact with Site groundwater through the cap and institutional controls including the HASP and RMP.

Alternative 2A readily meets the criteria of overall protection of human health and the environment and satisfies ARARs. When evaluated against the balancing criteria, Alternative 2A provides short-term effectiveness as well as long-term effectiveness and permanence. It is readily implementable and presents an effective balance of cost against the other criteria. Alternative 2A also would best accommodate future potential redevelopment of the Site.

In addition to the cap elements discussed in the following sections, Alternative 2A includes institutional controls. The controls include restrictions on land use as a residence, day care center for children, long-term care hospital, or a traditional public or private school for persons less than 21 years of age, without DTSC consent.

7. REMEDIATION IN THE AREAS OF CONCERN

7.1 Introduction

As presented in Section 6.4, Alternative 2A was selected in the FS as the most suitable remedial alternative for the AOCs at the Site because it meets the primary objective of protecting public health and the environment and minimizes negative impacts to the extent reasonably practical. The DTSC approved the FS in a letter dated 14 July 2020. The following sections summarize the remedy components, sequence of work activities, safety, traffic, community relations procedures, and schedule for the FS-approved remedy.

7.2 Components of the FS-Approved Remedy

The components of Alternative 2A (FS-Approved Remedy), include:

1. Degraded and soil-sludge mixture (Haack Rework Area) excavation;
2. Consolidation of excavated degraded and soil-sludge mixture materials in the AOCs;
3. Site grading for excavated areas;
4. Grading and installation of a cap (cap) over the Cooper North and Cooper South sumps, including the following layers:
    a. Stabilization layer
    b. Foundation layer
    c. Low hydraulic conductivity layer
    d. Erosion resistance layer
5. Installation of a retaining wall system along the north side of the Haack sump;
6. Installation of a vapor control and monitoring system;
7. Groundwater monitoring system; and
8. Vegetation and Site Restoration.

The Alternative 2A cap overview, including layout and feature locations relative to the AOC and Site boundaries and surrounding features is depicted on Figure 7-1. Alternative

2A cap design detail and cross section profile references are shown on Figure 7-2. East-west and north-south cross-sections of the Alternative 2A cap are shown on Figures 7-3 and 7-4, respectively. Figures 7-9 and 7-10 show the soil vapor control system and monitor probes, respectively.

7.3 Sequence of Work

The general sequence for implementing the FS-approved remedy is summarized below. A more detailed sequence of activities and design requirements will be provided during the remedial design process. Descriptions of design configurations and work sequences below are subject to change based on the remedial design process.

1. Mobilization and Setup: Mobilize equipment (excavators, loaders, trucks, water tanks, foam applicators, etc.), materials, and construction personnel. Set up office trailers, staging areas, temporary utilities, and access roads. An initial topographic survey will be performed at the AOCs prior to the start of work.
2. Vapor Monitoring and Control: Air monitoring will be conducted during excavation activities for health and safety as well as for nuisance odors. Workers will be provided personal health and safety monitoring devices such as hydrogen sulfide and sulfur dioxide indicator badges. The devices alert workers when the permissible exposure limit (PEL, 10 parts per million [ppm] and 2 ppm for hydrogen sulfide and sulfur dioxide, respectively) is nearing so workers can exit the work area or change practices. Additionally, fixed monitoring will be performed around the perimeter of the Site to minimize impacts to off-Site receptors. Odor control measures, such as foam suppressants and/or misting sprayers, will be available at the Site should it be necessary to mitigate odors. Additional details are provided in Section 7.4 below.
3. AOC Clearing and Demolition: Demolish and remove structures, pavement, vegetation, and debris remaining within the remedy construction area on the Haack and Cooper properties and demolish relevant residential structures that conflict with remedy implementation. Prior to demolition, buildings will be evaluated for the presence of lead-based paint, asbestos, and/or polychlorinated biphenyls (PCBs). Materials from clearing and demolition will be characterized and disposed of based on characterization sampling results at inert waste landfills, non-hazardous, and/or hazardous disposal facilities. Monitor wells that are not

compatible with the remedial design will be abandoned according to applicable regulations.

4. Anchor Trench Excavation and Cap Stabilization Layer: Install a high-strength geotextile above the existing Cooper Sump geomembrane and anchor the perimeter of the geotextile in an anchor trench.
5. Sheet Pile Wall Installation: Sheet piles will be installed to a maximum depth corresponding to the bottom depth of the identified sludge in the Cooper North and Haack Sumps. Sheet piles will be terminated above ground surface so that sheet pile stickup can be integrated into the retaining wall required along the north edge of the Haack sump to facilitate cap construction. The sheet piles will be coated to minimize corrosion of the steel due to the low pH and high hydrogen sulfide environment. The sheet pile cut-off wall will provide a physical barrier between the sludge remaining in the Haack and Cooper North Sumps and Artesia Boulevard and adjacent sidewalk. The sheet pile wall will aid in the mitigation of lateral migration of soil vapor.
    a. Sheet Pile Wall Maintenance: Sheet piles will be designed and installed with appropriate corrosion mitigation measures. Details of corrosion mitigation measures will be presented in the design. Additional maintenance of the exposed portion of the sheet pile wall after construction may be required due to vandalism, accidents, or other damage. Maintenance requirements will be included as part of a monitoring and maintenance plan or as part of a land use covenant.
6. Installation of Vapor Collection and Control System: The Vapor Collection and Control system will be comprised of below-cap horizontal vapor collection geostrips (Item 8b), perimeter vertical vapor migration control wells, vapor treatment system, soil vapor monitor probes, and groundwater monitor wells. The system will be designed to accommodate differential settlement, maintain gas flow, and mitigate condensate buildup.
    a. Vertical Vapor Migration Control Wells: A series of alternating air inlet and vapor extraction wells will be placed no more than every 80 ft along the perimeter of the cap, except where sheet piles are installed as shown on Figure 7-9. The wells would be installed to approximately 2 ft above the groundwater “A” horizon. The air inlet and vapor extracting wells act

to create a "curtain" of air surrounding the sumps, minimizing the horizontal migration of vapor without extracting vapor from the sludge.

The system of vapor migration control wells will be designed to be a passive system that, as a contingency, can be converted readily to an active system. The system will operate actively for a startup period following completion of the remedial action construction at the AOCs. Based on the concentrations of constituents detected during the startup period, the system will remain active or switch to passive operation with the option for active control in the future. The system may be converted to passive operation with written prior approval from the DTSC. The decision to make the system active again would be based upon future gas monitoring at the AOCs.

During active vapor extraction, a vacuum will be applied to the vapor extraction wells, thus extracting vapors from these wells, which will be conveyed to a treatment system for treatment prior to discharge to the atmosphere. The location of the system is shown on Figures 7-6 and 7-9. The vacuum pressure in the vapor extraction wells imparts a vacuum on the soils surrounding each vapor extraction well. With the air inlet wells equally spaced between the vapor extraction wells, the air inlet forces a "short-circuiting" of the flow into the vapor extraction wells. The "short circuiting" effect creates a preferential flow path between the air inlet and vapor extraction wells, thereby allowing the system to "sweep" or "flush" vapors migrating from the sludge material laterally without extracting vapors from within the sludge (Figure 7-10).

b. Vapor Treatment System: The vapor treatment system will include conveyance piping from the extraction wells, treatment pad, and treatment system. Conveyance piping will be installed in the approximate locations shown on Figures 7-6 and 7-9. The treatment system will be installed on a temporary skid and include granular activated carbon (GAC) vessels specifically formulated for treatment of hydrogen sulfide and sulfur dioxide. The temporary skid will be installed in the location shown on Figures 7-6 and 7-9.

   The vapor treatment system will be operated actively for a time period, which will be defined in a future Operation, Maintenance, and Monitoring (OMM) Plan. During initial operation, soil vapor data, including

constituents extracted and their concentrations, will be collected. The need for active vapor collection will be based on the extracted soil vapor COC concentrations and associated, calculated health risk goals. If start-up data indicates COC concentrations are below risk-based trigger concentrations, and therefore, active vapor collection is not needed, the system may be converted to a passive system which vents to the atmosphere or is turned off with no venting.

Soil vapor samples will be collected from the treatment system on a regular basis to evaluate the operation of the system and/or migration of soil vapor and to comply with South Coast Air Quality Management District (SCAQMD) permit requirements. Sample results will be compared to risk-based trigger concentrations developed with the OMM Plan for each COC.

c. Soil Vapor Monitor Probes: Multi-level soil vapor monitor probes will be placed outside of the perimeter of the cap. The monitor probes will be installed in accordance with Detail 5 on Figure 7-7 and spaced, on average, 300 ft apart to detect potential subsurface vapor migration, if any.

d. Groundwater Monitor Wells: The existing groundwater monitor well network, or some subset of the network, will be monitored at an appropriate frequency. Groundwater monitor wells may be used to monitor for soil vapor. Details of the typical groundwater monitor well is shown as Detail 3 on Figure 7-7.

7. Sludge Excavation and Consolidation:

   a. Sludge and soil materials will be excavated from the Haack Rework Area, portions of the high strength woven geotextile anchor trench, and certain areas outside the limits of the cap as shown on Figure 7-2. The Haack Rework Area will be excavated to an elevation of approximately 20 ft amsl, as shown on Figure 7-5. Anchor trench materials and sludge located along the north east perimeter of the Cooper North Sump will be excavated to the extent sludge is found outside the limits of the anchor trench. Excavated materials will be utilized as a portion of the cap system stabilization layer and/or foundation layer (as appropriate).

   b. Contact water, including stormwater run-on, stormwater run-off, antecedent rainfall, and groundwater which comes into contact with the

sludges or materials containing potential COCs, will be managed during construction through interim contact water management controls. These may include pumps, erosion and sediment controls, diversion berms, etc. Water within work areas will be managed to prevent ponding and to remove excess water prior to construction of remedy features. Details regarding requirements for contact water management will be included in the remedy design documents (e.g., specifications).

c. Confirmation Sampling: Post-excavation confirmation samples will be obtained from the sloped portions (side walls or slopes of excavation not covered by cap) of the Haack Rework Area once target excavation elevations have been achieved. Confirmation sampling will be performed at a frequency of one sample per 50 lineal feet of side wall or slope, with samples collected from the lower two-thirds of the side wall or slope. Confirmation sample results will be compared to risk-based cleanup goals described in Section 5.6. For locations where test results indicate concentrations in excess of cleanup goals, additional material will be excavated from side walls or slopes, 25 ft on either side of the confirmation sample exceeding cleanup goals, then either hauled and disposed of off-Site or used as cap stabilization and/or foundation material. Additional confirmation test will be performed in area of exceedance once additional materials are removed and the original sample number will be appended with an alpha code designation (e.g., sample 4 will be retested and labeled as 4A, 4B, etc., until confirmation results indicate values less than cleanup goals).

d. Vapor suppression foams, soil, plastic sheeting, and/or spray applied cover materials will be used as necessary during the excavation and construction work to mitigate fugitive vapors and excessive odors. The use of vapor controls will be based on personnel and perimeter air monitoring devices. At the completion of excavation activities each day, a vapor suppressing foam, soil, plastic sheeting, and/or spray applied cover will be used to cover the exposed surface of the excavation and stockpiles of impacted materials from the excavation to minimize release of vapors overnight.

8. Cap System Construction:

   a. Foundation Soil: The foundation soil will be placed above the high-strength geotextile (Cooper Sumps), relocated sludge materials (used as

stabilization layer material and/or foundation layer material as appropriate), or asphalt/concrete surface (Haack Sump). The foundation soil will consist of excavated material from the Haack Rework Area and the anchor trench excavations. The foundation soil layer minimum thickness will be 0.5 ft (Haack Sump) and 1 ft (Cooper Sumps). The foundation layer soil thickness may increase above the minimum thickness as necessary to achieve the design goals for grading, waste separation, and surface water conveyance. Where necessary around the cap system perimeter, the foundation layer will be graded (thinned) to blend with the existing ground surface. The foundation soil will be placed in lifts until foundation grades are met (i.e., 1 ft below the cap grades shown on Figures 7-1 and 7-2). The slopes will be a minimum of 2 percent (%) to reduce impacts on drainage due to settlement of the foundation material and/or sludge. The foundation layer and other cap components are shown on Figure 7-7, Details 1-A and 1-B.

b. Vapor Collection Layer: Rows of vapor collection geostrips will be placed at the surface of the finished foundation layer. The geostrips will generally be 6 to 12 inches wide and up to 1 inch thick, and consist of a geosynthetic filter fabric surrounding a molded polyethylene core (US Fabrics, 2011). The molded polyethylene core provides a pathway for the vapor to travel, while the filter fabric prevents soil intrusion into the core. A polyethylene core and polypropylene geotextile, which are more resistant to acidic environments, will be required in the technical specifications. The vapor collection geocomposite will be placed above the geostrip rows and the foundation layer (Figure 7-6).

c. Low Hydraulic Conductivity Layer: The low hydraulic conductivity layer will be placed above the foundation soil and vapor collection geostrips and geocomposite and will consist of a geosynthetic clay liner (GCL) overlain by a 60 mil high-density polyethylene (HDPE) geomembrane (Details 1-A and 1-B, Figure 7-7).

d. Anchor Trenches: The GCL and HDPE geomembrane will be secured by an anchor trench around the perimeter of the cap. The anchor trench will vary in configuration depending on the termination condition. Along the cap perimeter, the anchor trench will consist of a v-shaped trench filled with soil and concrete to form a surface water drainage ditch (Detail 6,

Figure 7-8). Along portions of the northern and western perimeter, the GCL and HDPE will be anchored with a rectangular anchor trench (Detail 7, Figure 7-8). Along the northern edge of the Haack sump, where sheet piles are located, the geosynthetic materials will be secured to the sheet piles using battens.

e. Drainage Layer: The drainage layer will overlie the low hydraulic conductivity layer and provide a means to drain surface water that percolates through the erosion resistance layer to minimize head build up on the low hydraulic conductivity layer. The drainage layer will consist of a geocomposite (geonet core bounded by nonwoven geotextile) that will daylight along the perimeter of the cap to promote drainage towards the perimeter of the cap and into surface water management features (concrete ditches).

f. Erosion Resistance Layer: The erosion resistance layer will overlie the drainage geocomposite and will consists of 1 ft of an aggregate base material (Details 1-A and 1-B, Figure 7-7). The aggregate base material will be resistant to foreseeable erosion effects caused by wind-scour, raindrop impact, and runoff prior to Site development.

g. Haack Protection Layer: At the northern-most portion of the Haack Sump, along the retaining wall and sheet pile wall alignment adjacent to Artesia Boulevard, the geosynthetics and sheet pile wall will be protected by landscaping in the form of decorative rock, artificial turf, and/or planter box-type vegetation structures. These features will also limit maintenance. If necessary, cushion geotextiles may be used above the geomembrane where geocomposite is not present to prevent damage from installed landscaping.

h. Curb Installation: Immediately adjacent to the Artesia Boulevard sidewalk, the Haack Sump and a portion of the Cooper North Sump caps will terminate at a concrete curb. The curb will deter unintended light traffic across the slope, act as a water-stop for drainage from the slope and accommodate slight variations in the existing Haack Sump concrete slab surface elevation.

9. Final Administrative Work: Establish final AOC conditions, implement monitoring and maintenance requirements: soil vapor and groundwater

monitoring, and operate the vapor collection system. Implement administrative controls/restrictive covenants.

10. Groundwater Monitoring: Groundwater and soil vapor monitoring will be established and documented in the OMM Plan. The vapor mitigation system will be operated actively for a period of time defined in a future OMM Plan. During initial operation, soil vapor data, including constituents extracted and their concentrations, will be collected. The need for active vapor collection will be based on the extracted soil vapor COC concentrations and associated, calculated health risk goals. If start-up data indicates that COC concentrations are below risk-based trigger concentrations, and therefore, active vapor collection is not needed, the system may be converted to a passive system which vents to the atmosphere.

7.4 Site Safety Procedures

7.4.1 Air Monitoring

7.4.1.1 Air Monitoring During Implementation

An Air Monitoring Plan (AMP) will be prepared prior to implementation of the remedial action. The AMP will be approved by DTSC and will include, at a minimum, the following monitoring and control measures described in the following sections.

7.4.1.2 Air Monitoring Objectives:

- Monitor COPC changes in ambient air resulting from excavation and grading of impacted Site materials.
- Identify if mitigation measures are necessary to meet SCAQMD permit conditions during excavation and grading activities.
- Monitor ambient air at Site perimeter to prevent off-Site migration during excavation and grading and provide additional control measures, as needed.

The AMP will supplement the HASP and will consider data collected during the RI. It is anticipated that potential air emissions from the Haack Rework Area excavation and grading will be low due to the significantly degraded sludge within the rework material.

Air monitoring will be performed at the working areas and up- and down-wind areas near the Site perimeter as discussed in Section 7.3 above. Wind direction and velocity will be

documented during field activities with an on-Site weather station. Dust will be monitored with particulate monitors while VOCs will be monitored with photoionization detectors (PIDs). Odors, such as those indicating hydrogen sulfide or sulfur dioxide, will be monitored with personal indicator badges. Nuisance odors will be evaluated by an on-Site, trained individual. Mitigation measures, such as the use of vapor suppression foams, soil, plastic sheeting, and/or spray-applied covers, will be used as necessary.

7.4.1.3 Work Area Monitoring

Workers will wear hydrogen sulfide and sulfur dioxide indicator badges which alert workers when the PEL (10 ppm and 2 ppm for hydrogen sulfide and sulfur dioxide, respectively) is nearing. This allows the worker to exit the work area or change practices before the PEL is reached. In addition, air monitoring will be conducted at excavation equipment and up- and down-wind of the work area using a PID to monitor for VOCs in accordance with the SCQAMD Rule 1150/1166/1466 permit. Dust monitoring will be performed downwind.

7.4.1.4 Perimeter Monitoring

Perimeter monitoring will be performed for VOCs, dust, and odors resulting from hydrogen sulfide and sulfur dioxide. If action levels are exceeded at the perimeter, response actions will be undertaken such as stopping or changing work activities, applying water for dust suppression and applying foam suppressants and/or using misting sprayers for odor suppression.

7.4.2 Mitigation of Odor

Hydrogen sulfide and sulfur dioxide are known to be emitted from the sludge when it is disturbed. Odor control measures, such as foam suppressants and/or misting sprayers, will be available at the Site should it be necessary to mitigate odors. If sludge material is staged on-Site prior to off-Site disposal, stockpiles and/or roll-off bins will be covered to minimize odor. In addition, at the completion of excavation activities each day, a vapor suppressing foam, soil, plastic sheeting, and/or spray-applied cover will be used to cover the exposed excavation and stockpiles to minimize release of vapors.

7.5 Traffic Control

Truck traffic is anticipated to be greatest during mobilization/demobilization and off-Site transportation and disposal of any Haack Rework Area sludge. A City-approved traffic plan will be developed to establish the trucking route, operating times, maximum number of trucks per day, and other requirements to reduce adverse impacts to the City of Gardena.

7.6 Worker Protection

A Project HASP will be developed which outlines the actions to protect workers during remedy implementation. The HASP will include, but not be limited to, the following:

- Health and safety-related roles and responsibilities of key personnel: Project Manager and Project Safety Officer;
- A stop-work authority requirement for all work locations and workers. The stop-work authority grants any worker the ability to stop work if an unsafe condition is identified that could cause substantial harm or imminent danger to health and safety of workers, the public, or the environment.
- Air monitoring procedures in work areas for VOCs, hydrogen sulfide, sulfur dioxide, and dust.
- Safety Data Sheets (SDSs) for chemicals that could be found in sludge and/or brought to the Site by workers.
- Identification of Site-specific safety hazards including: chemical exposure; heavy equipment; and fire, temperature, acoustic, biological, dust, and physical hazards. The process to identify and mitigate these hazards will be included.
- Safety measures when performing tasks such as excavation, backfill, sheet pile installation, and liner deployment.
- Hazard communication procedures.
- Training requirements for workers.
- Work zone designations and access control.
- Personal protective equipment (PPE) requirements for work tasks and within specific work zones.

- Medical surveillance requirements for workers.
- Decontamination procedures for workers and equipment.
- Contingency plans for spills, fires, or other emergencies.

The HASP will be reviewed and approved by the DTSC prior to implementing the remedy.

7.7 Community Relations

Residents and commercial business owners in the surrounding community will be kept informed of activities through community outreach. Community relation activities may include issuance of fact sheets and/or public meetings, if needed. Community members may ask questions and obtain information via a telephone number established for the project. The DTSC will update the DTSC EnviroStor website with project documents as they become approved.

7.8 Permit Requirements and Implementation

Several permits will be required to implement the Site remedy. Anticipated permits include:

- Grading permit,
- SCAQMD Rule 1150/1166/1466/403 permits,
- Encroachment permits,
- Traffic permit,
- State Water Resources Control Board (SWRCB) Construction General Permit (CGP), and
- SCAQMD permit to operate vapor treatment system.

7.9 Implementation Schedule

The duration for implementation of the remedy is estimated to be approximately six months. This time frame does not include the final remedial design or contracting and permitting. The remedial design, contracting, and permitting are anticipated to be

completed approximately one year after approval of the CEQA findings and all documentation related to implementation of this RAP.

7.10 Reporting

During implementation of the remedy, DTSC will be kept appraised of progress with routine progress reports. The frequency of these reports will be determined during the design phase.

Upon completion of the remedy, a report will be prepared documenting the remedial activities. The report will include, at a minimum, a description of the work conducted, as-built drawings of the cap and vapor collection and control system, any analytical data collected during implementation, copies of all permits obtained for implementation of the remedy, waste manifests for any material disposed of off-Site, and certification by a licensed professional that the cap was installed in accordance with all applicable regulations.

7.11 Site Redevelopment

Redevelopment plans for the Site have been proposed by a developer but have not yet been approved nor has the developer purchased the property at this point. ARC has provided a copy of the RAP to the developer and has engaged them in conversation regarding the nature of their development and how it would fit with the selected remedy. The redevelopment plans are generally consistent with the remedy presented in this RAP. To the extent that the redevelopment plans are approved in such a manner so as to be consistent with the remedy, ARC will coordinate with the developer, as necessary, to carry out redevelopment at the Site to the extent practical and appropriate.

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TABLES

TABLE 5-1
CONSTITUENTS OF POTENTIAL CONCERN
Gardena Sumps, Gardena, California

Geosyntec consultants

Soil		
1,1,1,2-Tetrachloroethane	Chlorobenzene	Methylene chloride
1,2,3-Trichlorobenzene	Chloroethane	Molybdenum
1,2,4-Trimethylbenzene	Chromium	Naphthalene
1,3,5-Trimethylbenzene	Chromium VI	n-Butylbenzene
1,3-Dichlorobenzene	Chrysene	Nickel
Acenaphthene	Cobalt	n-Propylbenzene
Acenaphthylene	Copper	Oil range organics (C29-C40)
Aluminum	Dibenz(a,h)anthracene	o-Xylene
Anthracene	Dibromochloromethane	Phenanthrene
Antimony	Diethyl phthalate	p-Isopropyltoluene
Arsenic	Diesel range organics (C13 - C28)	Pyrene
Barium	Extractable fuel hydrocarbons (C10 - C40)	sec-Butylbenzene
Benzene	Extractable fuel hydrocarbons (C13 - C40)	sec-Butylbenzene
Benzo(a)anthracene	Extractable fuel hydrocarbons (C8 - C40)	Selenium
Benzo(a)pyrene	Ethylbenzene	Silver
Benzo(b)fluoranthene	Fluoranthene	Styrene
Benzo(g,h,i)perylene	Fluorene	tert-Butylbenzene
Benzo(k)fluoranthene	Gasoline range organics (C4 - C12)	Thallium
Benzoic acid	Indeno(1,2,3-cd)pyrene	Toluene
Beryllium	Iron	trans-1,3-Dichloropropene
Bis(2-ethylhexyl)phthalate	Isopropylbenzene	Vanadium
Bromobenzene	Lead	Volatile fuel hydrocarbons (C4-C12)
Butyl benzyl phthalate	m,p-Xylenes	Zinc
Cadmium	Mercury	
Soil Gas		
1,1-Difluoroethane (LCC)	Chloroethane	
1,2,4-Trimethylbenzene	Chloroform	
1,2-Dichloro-1,1,2,2-tetrafluoroethane	Chloromethane	
1,2-Dichloroethane	Cyclohexane	
1,3,5-Trimethylbenzene	Dichlorodifluoromethane	
1,3-Butadiene	Ethylbenzene	
1,4-Dioxane	Freon 113	
2,2,4-Trimethylpentane (Isoctane)	Heptane	
2-Butanone	Hexane	
4-Ethyltoluene	m,p-Xylene	
4-Methyl-2-pentanone	Methylene chloride	
Acetone	Naphthalene	
Benzene	o-Xylene	
Bromodichloromethane	Propylene	
Bromoform	Styrene	
Carbon disulfide	Tetrachloroethene	
Carbon tetrachloride	Toluene	
Chlorobenzene	Trichloroethene	
Chloroethane	Trichlorofluoromethane	

TABLE 5-1
CONSTITUENTS OF POTENTIAL CONCERN
Gardena Sumps, Gardena, California

Geosyntec consultants

Groundwater		
1,2,4-Trimethylbenzene	Chloride	Mercury
1,2-Dichlorobenzene	Chloroethane	Methylene chloride
1,2-Diphenylhydrazine/Azobenzene	Chloromethane	Molybdenum
1,3,5-Trimethylbenzene	Chromium	Naphthalene
1,4-Dichlorobenzene	Chromium VI	Nickel
2,4-Dimethylphenol	Chrysene	Nitrate-N
2-Methylnaphthalene	Cobalt	Oil range organics (C29-C40)
2-Methylphenol	Copper	o-Xylene
Acenaphthylene	Dibenz(a,h)anthracene	Phenanthrene
Antimony	Diethyl phthalate	Phenol
Arsenic	Di-n-butyl phthalate	Potassium
Barium	Di-n-octyl phthalate	Pyrene
Benzene	Diesel range organics (C13 - C28)	Selenium
Benzo(a)anthracene	Extractable fuel hydrocarbons (C13 - C40)	Silver
Benzo(b)fluoranthene	Ethylbenzene	Sodium
Benzo(g,h,i)perylene	Fluorene	Sulfate
Benzo(k)fluoranthene	Gasoline range organics (C4 - C12)	Sulfide
Benzoic acid	Indeno(1,2,3-cd)pyrene	Thallium
Benzyl alcohol	Iron	Toluene
Beryllium	Isophorone	Vanadium
Bis(2-ethylhexyl)phthalate	Lead	Xylenes, total
Butyl benzyl phthalate	m,p-Xylenes	Zinc
Cadmium	Magnesium	
Calcium	Manganese	

TABLE 5-2
SUMMARY OF SITE-SPECIFIC ACTION LEVELS FOR SOIL
Gardena Sumps, Gardena, California

Geosyntec consultants

Chemicals of Concern	Site-Specific Action Levels for Soil (mg/kg)											
	Commercial/Industrial			Construction			Residential			Trespasser		
	Site-Specific RBCnc	Site-Specific RBCc	Selected SSAL	Site-Specific RBCnc	Site-Specific RBCc	Selected SSAL	Site-Specific RBCnc	Site-Specific RBCc	Selected SSAL	Site-Specific RBCnc	Site-Specific RBCc	Selected SSAL
Inorganics												
Arsenic	2.7E+02	1.7E+01	1.7E+01	6.2E+01	1.2E+02	6.2E+01	2.2E+01	3.9E-01	1.2E+01[(1)]	3.8E+03	8.5E+01	8.5E+01
Chromium VI	3.0E+03	5.4E+01	5.4E+01	6.1E+02	7.3E+01	7.3E+01	2.3E+02	1.2E+00	1.2E+00	4.9E+04	3.2E+02	3.2E+02
Polyaromatic Hydrocarbons												
Benzo(a)pyrene	2.0E+04	1.6E+00	1.6E+00	5.5E+03	1.1E+01	1.1E+01	1.7E+03	3.7E-02	9.0E-01[(2)]	2.2E+05	6.2E+00	6.2E+00
Volatile Organic Compounds												
Benzene	6.7E+02	2.4E+01	2.4E+01	1.6E+02	1.4E+02	1.4E+02	1.2E+02	4.8E-01	4.8E-01	1.4E+04	1.8E+02	1.8E+02
Naphthalene	8.5E+02	2.5E+02	2.5E+02	1.9E+02	1.4E+03	1.9E+02	1.8E+02	4.9E+00	4.9E+00	1.8E+04	1.9E+03	1.9E+03

Notes:

BaP-eq: benzo(a)pyrene toxicity equivalent

mg/kg: milligram per kilogram

RBCc: risk-based concentration based on cancer effects

RBCnc: risk-based concentration based on noncancer effects

SSAL: site-specific action level

Selected SSALs are the lowest between RBCc and RBCnc, or the background concentration for chemicals in which the RBCs were below background (e.g., arsenic and BaP-eq for the residential scenario).

(1) For arsenic, the DTSC screening level of 12 mg/kg (Cal-EPA DTSC, 2007), considered representative of background in southern California soils, was selected as the SSAL.

(2) For benzo(a)pyrene, a concentration of 0.9 mg/kg, considered representative of background PAH concentrations in southern California soils, was selected as the SSAL.

TABLE 5-3

SUMMARY OF SITE-SPECIFIC ACTION LEVELS FOR SOIL VAPOR

Gardena Sumps, Gardena, California

Geosyntec consultants

Chemical of Concern	Site-Specific Action Levels for Soil Gas (µg/L)					
	Commercial/Industrial			Residential		
	Site-Specific RBCnc	Site-Specific RBCc	Selected SSAL	Site-Specific RBCnc	Site-Specific RBCc	Selected SSAL
Benzene						
5 ft bgs	3.2E+02	1.0E+01	1.0E+01	3.8E+01	1.0E-01	1.0E-01
10 ft bgs	5.5E+02	1.8E+01	1.8E+01	6.5E+01	1.8E-01	1.8E-01
12 ft bgs	6.4E+02	2.1E+01	2.1E+01	7.6E+01	2.1E-01	2.1E-01
15 ft bgs	7.8E+02	2.5E+01	2.5E+01	9.3E+01	2.5E-01	2.5E-01

Notes:

Soil gas to indoor air pathway

ft bgs: feet below ground surface

RBCc: risk-based concentration based on cancer effects

RBCnc: risk-based concentration based on noncancer effects

SSAL: site-specific action level

µg/L: micrograms per liter

Selected RBCs are the lowest between RBCc and RBCnc

Soil gas RBCs were derived using default soil properties for soil type loam in the model

Values revised per response to comments package dated 4/4/12

TABLE 5-4

SUMMARY OF SITE-SPECIFIC ACTION LEVELS FOR GROUNDWATER

Gardena Sumps, Gardena, California

Geosyntec consultants

Chemical of Concern	Site-Specific Action Levels for Groundwater (µg/L)		
	Construction		
	Site-Specific RBCnc	Site-Specific RBCc	Selected SSAL
Polyaromatic Hydrocarbons			
Dibenz[a,h]anthracene	--	2.0E+00	2.0E+00

Notes:

" -- " not applicable

RBCc: risk-based concentration based on cancer effects

RBCnc: risk-based concentration based on noncancer effects

SSAL: site-specific action level

µg/L: micrograms per liter

Selected SSAL is the lowest between RBCc and RBCnc

TABLE 6-1
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
Gardena Sumps, Gardena, California

Geosyntec consultants

Requirement	Prerequisites	Citation	ARAR Determination (A, RA, or TBC)	Comments
CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS				
Clean Air Act (42 USC 7401-7671) Regulated by the SCAQMD				
Primary and secondary national standards for ambient air quality to protect public health and welfare (including standards for particulate matter and lead)	Air contamination affecting public health and welfare	40 CFR 50.4-50.12	A	SCQAMD standards from State Implementation Plan and California Air Resources Board are more restrictive
Resources Conservation and Recovery Act (42 USC 6901-6991[i]) Regulated by the CalEPA, DTSC				
Defines RCRA hazardous waste; a solid waste is toxic, based on the TCLP, if the waste exceeds the TCLP maximum concentrations	Waste	22 CCR 66261.21-66261.24, 66261.100	A	Applicable for material disposed of off-Site
Definition of "non-RCRA hazardous waste"	Waste	22 CCR 66261.22, 66261.24, 66261.101, 66261.3	A	Applicable for determining whether a waste is non-RCRA hazardous waste
Safe Drinking Water Act (42 USC 300(f-j) - 26) Regulated by the SWRCB				
MCLs for organic and inorganic chemicals of concern in drinking water.	Public water system	40 CFR 141.61 (a,b), 141.62(b), & 141.11	RA	Leachate from the sumps may impact groundwater that has a designated beneficial use as municipal water. The Lynwood, Silverado, Gardena, and Gage aquifers have designated domestic water supply use.
Non-zero MCLGs for organic and inorganic chemicals of concern in drinking water	Public water system	40 CFR 141.50 & 141.51	RA	Leachate from the sumps may impact groundwater that has a designated beneficial use as municipal water. The Lynwood, Silverado, Gardena, and Gage aquifers have designated domestic water supply use.
California Safe Drinking Water and Toxic Enforcement Act (California Health and Safety Code 25249.5 - 25249.13) Regulated by the SWRCB				
Primary MCLs for inorganic chemicals of concern in drinking water	Drinking water source	22 CCR 64431 and 64449	RA	Leachate from the sumps may impact groundwater that has a designated beneficial use as municipal water. The Lynwood, Silverado, Gardena, and Gage aquifers have designated domestic water supply use.
Public health goals for inorganic chemicals in drinking water	Drinking water source	Health and Safety Code 116365	TBC	Guidelines established by the Office of Environmental Health Hazard assessment based on health considerations; HHRA was performed with Site-specific conditions and acceptable risk was identified
LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS				
No location-specific ARARs were identified for the Gardena Sumps Site; the Site is not located in a sensitive or protected area	----	----	----	----
ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS				
Porter-Cologne Water Quality Control Act (California Water Code, Division 7) Regulated by the SWRCB				
Any activity that could affect water quality must not result in water quality parameters exceeding appropriate beneficial use water quality objectives	Contaminants affecting waters of the state	Los Angeles Basin Water Quality Control Plan	A	Groundwater protection standards are set at levels consistent with identified beneficial use for the area
State antidegradation policy applicable to both surface and groundwater requiring that discharges to waters of the state be regulated to achieve the "highest water quality consistent with maximum benefit to the people of the State"	Contaminants affecting waters of the state	Los Angeles Basin Water Quality Control Plan	A	Groundwater protection standards are set at levels consistent with identified beneficial use for the area
Requires that quality of the waters of the state that is better than needed to protect all beneficial uses be maintained unless certain findings are made. Discharges to high-quality waters must be treated using best practicable treatment or control necessary to prevent pollution or nuisance and to maintain the highest quality water. Requires cleanup to background water quality or to lowest concentrations technically and economically feasible to achieve. Beneficial uses must, at least, be protected.	Contaminants affecting waters of the state	SWRCB Res. 68-16	A	Groundwater protection standards are set at levels consistent with identified beneficial use for the area

TABLE 6-1
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
Gardena Sumps, Gardena, California

Geosyntec consultants

Requirement	Prerequisites	Citation	ARAR Determination (A, RA, or TBC)	Comments
California Hazardous Waste Control Laws Regulated by the Cal EPA, DTSC				
Person who generates waste shall determine if that waste is hazardous waste	Waste	22 CCR 66262.10 & 66262.11	A	Materials in sumps are hazardous in certain areas; hydrogen sulfide emissions in excess of 500 ppm_v are also hazardous
Owners and operators of a RCRA surface impoundment, waste pile, land treatment unit, or landfill shall conduct a monitoring and response program for each regulated unit	Unit which has waste which may pose a threat to human health or the environment	22 CCR 66264.91	A	A monitoring and response program will be prepared as part of the final remedial design
Requirements for monitoring groundwater, surface water, and the vadose zone	Hazardous waste unit	22 CCR 66264.97	A	Requirements will be determined as part of the final remedial design
Design and construction requirements for the foundation, earth-barrier, and vegetation-support layers of the final cover	Discharge of hazardous waste to land after 7/18/97 for treatment, storage, or disposal	22 CCR 66264.228	A	General design elements included in this RAP; final design and construction requirements will be determined as part of the final remedial design
Requires that hazardous wastes be covered by a low-permeability cover of specific properties. The cover will prevent the downward entry of water to the closed unit for at least 100 years. Provides for post-closure care and maintenance of the cover and related components. Toxic or flammable gas or vapor must be controlled for as long as it is emitted from the Site.	Discharge of hazardous waste to land after 7/18/97 for treatment, storage, or disposal	22 CCR 66264.310	A	General design elements included in this RAP; final design and construction requirements will be determined as part of the final remedial design
Solid Waste Disposal Regulatory Reform Act Regulated by the SWRCB and CalRecycle				
Waste dischargers are responsible for accurate characterization of waste; defines designated nonhazardous solid waste and inert waste	Discharge of nonhazardous waste to land after 7/18/97 for treatment, storage, or disposal	27 CCR 20220 (b,c,d) and 20230 (b)	A	----
Requires detection monitoring; once a significant release has occurred, evaluation or corrective action monitoring is required	Discharge of water to land after 7.18.1997	27 CCR 20385 (a) (1) and (2)	A	Water quality monitoring required for closed units, unless they are clean-closed
Defines water quality protection standards that apply during closure and post-closure maintenance periods	Discharge of water to land after 7.18.1997	27 CCR 20390, 20395, and 20400	A	Water quality protection standards in WDRs must be met as demonstrated in detection monitoring program
Establishes requirements for gas monitoring and controls as related to closure and post-closure of units	Discharge of water to land after 7.18.1997	27 CCR 20921 to 20937	A	Gas monitoring required for closed units
Defines point of compliance as hydraulically downgradient from the unit and requires soil, surface water, and groundwater monitoring with RAOs for 3 years after cleanup	Discharge of water to land after 7.18.1997	27 CCR 20405, 20410, and 20415	A	WDRs will specify monitoring locations
Closure and postclosure maintenance submittal requirement showing that the unit will meet performance standards and will comply with waste containment and precipitation and drainage control	Discharge of water to land after 7.18.1997	27 CCR 20950	A	Relevant to Site closure
Requirements for final cover slopes, foundation layer, low-hydraulic conductivity layer, and erosion-resistance layer and mandates cover maintenance plan and annual cost estimates	Discharge of water to land after 7.18.1997	27 CCR 21090	A	Relevant to Site closure
Requires access control, site protection, and signage during closure and postclosure	Discharge of water to land after 7.18.1997	27 CCR 21135	A	Relevant to Site closure
Sets design criteria for final covers of units	Discharge of water to land after 7.18.1997	27 CCR 21140	A	Relevant to Site closure
Requires monitoring and analysis of differential settlement during the postclosure period	Discharge of water to land after 7.18.1997	27 CCR 21142	A	Relevant to Site closure
Requires minimum of 1.5 factor of safety for static and seismic stability of final unit face	Discharge of water to land after 7.18.1997	27 CCR 21145 and 21750	A	Relevant to Site closure
Requires postclosure maintenance of final cover and control systems for no less than 30 years	Discharge of water to land after 7.18.1997	26 CCR 21180	A	Relevant to Site closure
Requires that postclosure land uses shall protect public health and safety, prevent damage to the unit, and prevent public contact with waste	Discharge of water to land after 7.18.1997	26 CCR 221190 (a)	A	Relevant to Site closure

TABLE 6-1
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
Gardena Sumps, Gardena, California

Geosyntec consultants

Requirement	Prerequisites	Citation	ARAR Determination (A, RA, or TBC)	Comments
Clean Air Act (42 USC 7401-7671) Regulated by the SCAQMD				
Limits visible emissions from a single source	Air emissions	SCAQMD Rule 401	A	Applicable for construction activities
Prohibits discharge of materials that cause injury, detriment, nuisance, or annoyance to the public; endanger the comfort, repose, health, or safety of the public; or cause or have tendency to cause injury or damage to business or property	Air emissions	SCAQMD Rule 402	A	Applicable for construction activities
Shall not cause or allow emissions of fugitive dust such that the presence of dust remains visible in the atmosphere beyond the property line of the emission source and shall not allow PM10 levels to exceed 50 mg/m^3	Generation of fugitive dust	SCAQMD Rule 403	A	Applicable for construction activities
Prohibits discharge into the atmosphere of particulate matter in excess of specified	Generation of particulates	SCAQMD Rule 404	A	Applicable for construction activities
Limits equipment from discharging particulate emissions in excess of 0.99 to 30 lbs/hr, based on a given process weight	Generation of particulates	SCAQMD Rule 405	A	Applicable for construction activities
Limits carbon monoxide and sulfur dioxide from any equipment other than that used for mobile equipment propulsion or stationary equipment engines	Air contaminant sources except mobile equipment or stationary engines	SCAQMD Rule 407	A	Applicable for construction activities
Prohibits building or using equipment which reduces or conceals an emission otherwise constituting a violation	Air emissions	SCAQMD Rule 408	A	Applicable for construction activities
Limits particulate emissions from the exhaust of a combustion source (other than an internal combustion engine) to 0.23 g/m^3 at 12% carbon dioxide averaged over 15 minutes	Combustion sources except internal combustion engines	SCAQMD Rule 409	A	Applicable for construction activities
Limits emissions of sulfur compounds from gaseous fuels to no more than 40 ppm, 0.05 percent by weight (liquid fuels), and 0.56 pounds of sulfur per million BTUs (solid fossil fuels)	Combustion sources using liquid or solid fossil fuels	SCAQMD Rules 431.1, 431.2, 431.3	A	Applicable for construction activities
Limits concentrations of oxides of nitrogen from any non-mobile sources fuel-burning equipment, averaged over 15-minutes, to a range of 125 to 300 ppm (gaseous fuels) and 225 to 400 ppm depending on equipment size	Non-mobile equipment using gaseous, liquid, or solid fuels	SCAQMD Rule 474	A	Applicable for construction activities
Specifies emissions testing, monitoring procedures, or handling or hazardous pollutants such as beryllium, benzene, mercury, vinyl chloride, and asbestos	Hazardous air pollution	SCAQMD Reg. X NESHAPS	A	Applicable for construction activities
Sets emissions standards for nitrous oxides, volatile organic compounds, and carbon monoxide from gaseous and liquid fuels portable engines	Portable engines used on construction site	SCAQMD Rule 1110-2	A	Applicable for construction activities
Requires person excavating a landfill to identify mitigation measures to ensure that a public nuisance does not occur	Excavation of inactive landfill	SCAQMD Rule 1150	A	Applicable for construction activities
Limits volatile organic compound emissions from contaminated soil to less than 50 ppm; for higher emissions an approved mitigation plan, describing removal methods and mitigations measures must be obtained	Volatile organic compounds in soil being excavated	SCAQMD Rule 1166	A	Applicable for construction activities
All new sources of air pollution that may result in a net emission increase of any non-attainment air contaminant or any halogenated hydrocarbon are to employ Best Available Control Technology; limits emissions of non-methane organic compounds to less than 1 lb/day	Non-attainment contaminant or halogenated hydrocarbon	SCAQMD Rule 1303	A	Applicable for construction activities
Requires equipment to be constructed with Best Available Control Technology; non-attainment emission increases must be offset and substantiated with modeling that the equipment will not significantly increase concentrations of nonattainment emissions.	New/modified equipment which may cause issuance of a non-attainment contaminant	SCAQMD Reg XII New Source Review	A	Applicable for construction activities
Defines health risk assessment methodology; exempts nonmethane organic compounds from controls if the health risk is less than 1 in 1 million	nonmethane organic compounds	SCAQMD Rule 1401	A	----

TABLE 6-1
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
Gardena Sumps, Gardena, California

Geosyntec consultants

Requirement	Prerequisites	Citation	ARAR Determination (A, RA, or TBC)	Comments
Clean Water Act (33 USC 1251-1387) and Porter-Cologne Water Quality Control Act (California Water Code, Division 7) Regulated by the SWCRB and Los Angeles RWQCB				
Waste Management Units undergoing final closure, with 1 acre of disturbance or more, must comply with substantive requirements for eliminating most non-stormwater discharges, developing and implementing a stormwater pollution prevention plan, and monitoring stormwater discharges	Construction activity on site larger than 1 acre	SWRCB Order 99-08-DWQ; SWRCB Res. 2001-046	A	Site exceeds 1 acre
Requires incorporation of permanent Best Management Practices to control stormwater runoff pollution after completion of the project; requires monitoring, sampling, and analysis of stormwater discharges under specified circumstances	Long-term operation and maintenance of site	SWRCB Order R8-2002-0012	A	Stormwater pollution controls required for long-term maintenance
Miscellaneous State Provisions for Institutional Controls				
Provides conditions under which land-use restrictions apply to successive owners of land	Transfer site to new owner	Ca. Civil Code 1471	A	Institutional controls apply to future Site use
Prohibits certain uses of land containing hazardous waste without a specific variance	Hazardous waste property	California Health and Safety Code 25232 (b)(1)(A-E)	A	Institutional controls that will contain appropriate restrictive covenants to be finalized during the final remedial design
OSWER Directive – Air Stripper Control Guidance (9355.8-28)				
Guidance regarding the use of emission controls at CERCLA sites; will be used to develop air emissions controls if necessary	----	----	----	----
Air Toxic "Hot Spot" Act (California Health and Safety Code § 44300 et seq.) as implemented by the SCAQMD and overseen by the Air Resources Board under CCR, Title 17, Section 93300 et seq.				
This statute and its regulations require operators of regulated facilities to prepare and submit inventory emission plans and reports and, in some cases, the preparation of health risk assessments. Only applicable if facility uses or releases a "listed" substance and releases more than 25 tons/year of total organic gases, particulate matter, nitrogen oxides or sulfur oxides.	----	----	TBC	The risk assessment required under the "Hot Spot" Act is more stringent than that performed under the FS because the FS risk assessment calculated risks due to exposure to soil and groundwater at the Site, not risks attributable to treatment processes from the remedial alternatives.

NOTES:

A - Applicable requirement (cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under Federal or State environmental or facility citing laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site)

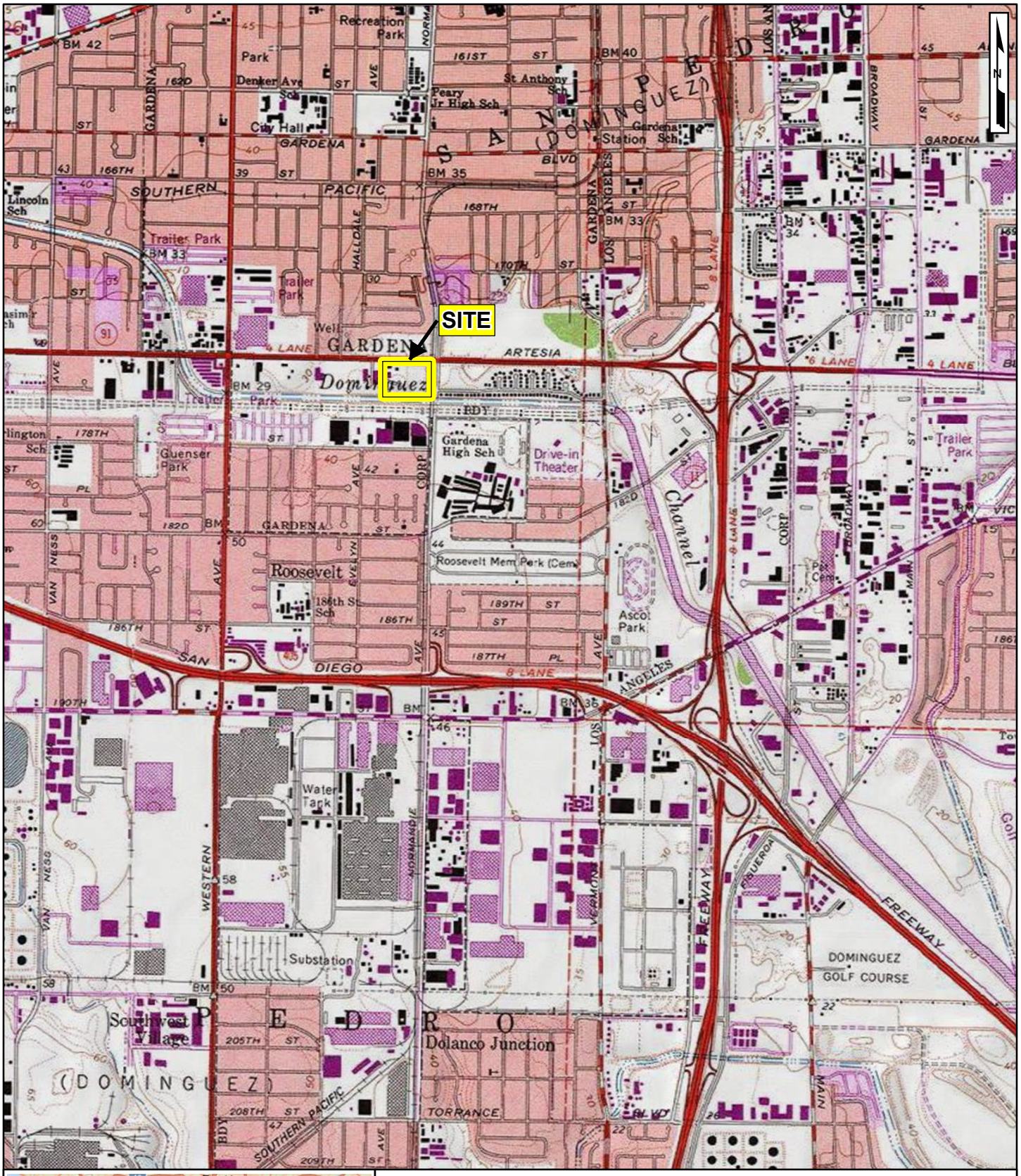
RA - Relevant and appropriate requirement (cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under Federal environmental or State environmental or facility siting laws that, while not applicable to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site)

TBC - To be considered (Federal and State nonpromulgated standards, policies, or guidance documents and local requirements)

NA - Not applicable

ARAR - Applicable or Relevant and Appropriate Requirement
BTU - British Thermal Unit
CalEPA - California Environmental Protection Agency
CCR - California Code of Regulations
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
CFR - Code of Federal Regulations
DTSC - California Department of Toxic Substances Control
DWQ - Division of Water Quality
EPA - Environmental Protection Agency
FS - Feasibility Study
g/m^3 - grams per cubic meter
HHRA - Human Health Risk Assessment
lb/day - pound per day
lbs/hr - pounds per hour
mg/m^3 - milligrams per cubic meter
MCL - Maximum contaminant level
MCLG - Maximum contaminant level goal
OSWER - Office of Solid Waste and Emergency Response
PM10 - Particulate Matter with diameters generally 10 micrometers and smaller
ppm - parts per million
ppm_v - parts per million by volume
RAO - Remedial Action Objective
RAP - Remedial Action Plan
RCRA - Resources Conservation and Recovery Act
RWQCB - Regional Water Quality Control Board
SCAQMD - South Coast Air Quality Management District
SWRCB - California State Water Resources Control Board
TCLP - Toxic characteristic leaching procedure
USC - United States Code
WDR - Waste Discharge Requirement

FIGURES



SITE LOCATION
GARDENA SUMPS
1440 WEST ARTESIA BOULEVARD
GARDENA, CA

Geosyntec consultants

DATE: NOVEMBER 2020

PROJECT NO: SC0467A

FIGURE 1-1

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LEGEND

- SITE PROPERTY LINE
- L.A. COUNTY DEPARTMENT OF PUBLIC WORKS PROPERTY LINE
- PPIVATE RESIDENCE PROPERTY LINE
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- LATERAL EXTENT OF GEO FABRIC MEMBRANE COVERING SUMPS ON COOPER PROPERTY
- CHAIN–LINK FENCE
- WOODEN FENCE
- FENCE
- RAIL ROAD
- BUILDING
- PAVED ROAD
- UNPAVED ROAD
- TREES/BRUSH
- APPROXIMATE DISTRIBUTION OF SLUDGE
- APPROXIMATE LOCATION OF HAACK REWORK AREA

NOTES:

1. SITE FEATURES PROVIDED BY STANTEC ON 5/15/09.
2. SITE FEATURES ARE APPROXIMATE.

0 80' 160'

SCALE IN FEET

SITE LAYOUT
GARDENA SUMPS
1440 WEST ARTESIA BOULEVARD
GARDENA, CALIFORNIA

Geosyntec consultants

DATE: NOVEMBER 2020

PROJECT NO. SC0467A

FIGURE 1–2

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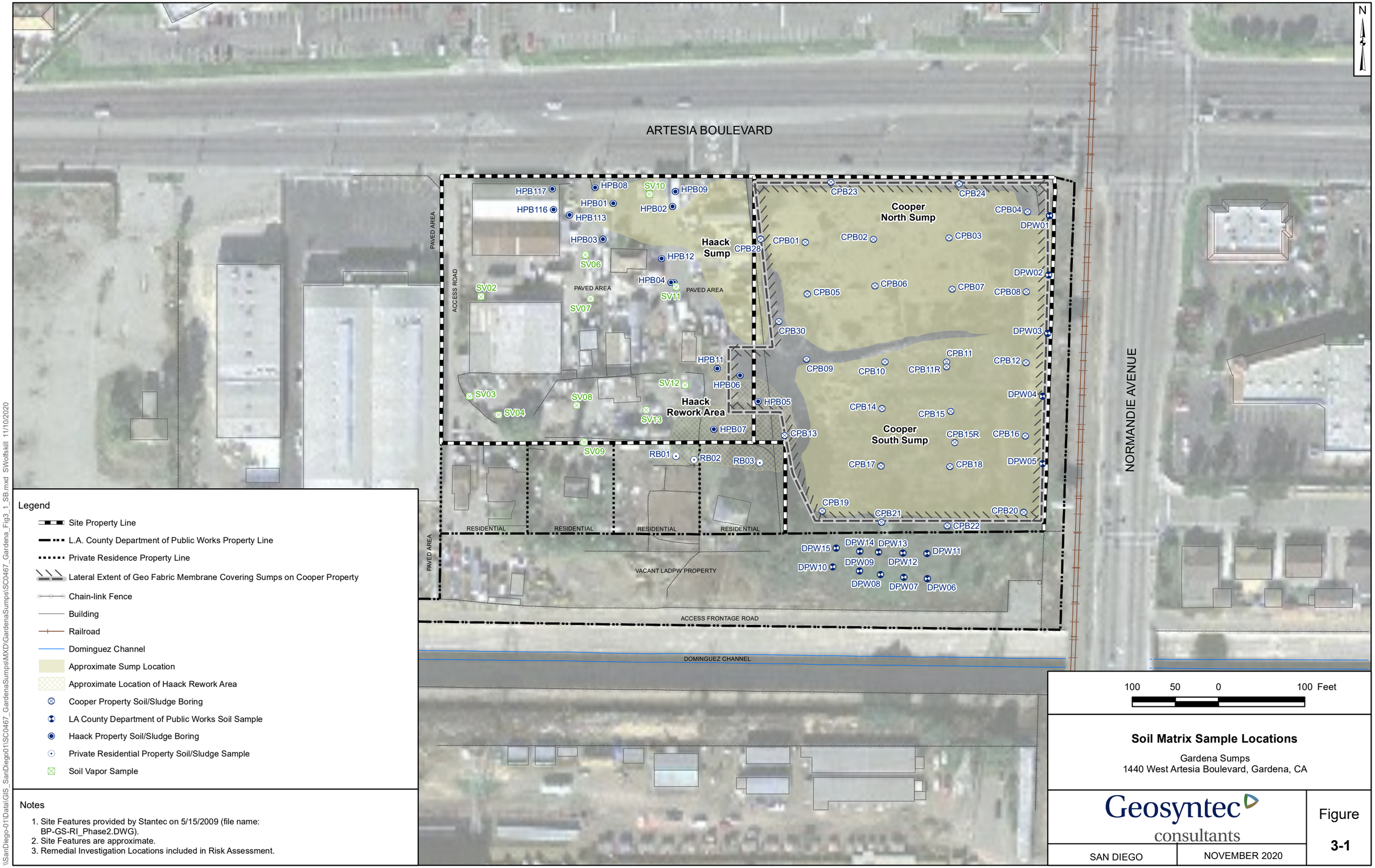

Legend

- Site Property Line
- L.A. County Department of Public Works Property Line
- Private Residence Property Line
- Lateral Extent of Geo Fabric Membrane Covering Sumps on Cooper Property
- Chain-link Fence
- Building
- Railroad
- Dominguez Channel
- Approximate Sump Location
- Approximate Location of Haack Rework Area
- Cooper Property Soil/Sludge Boring
- LA County Department of Public Works Soil Sample
- Haack Property Soil/Sludge Boring
- Private Residential Property Soil/Sludge Sample
- Soil Vapor Sample

Notes

1. Site Features provided by Stantec on 5/15/2009 (file name: BP-GS-RI_Phase2.DWG).
2. Site Features are approximate.
3. Remedial Investigation Locations included in Risk Assessment.

100 50 0 100 Feet

Soil Matrix Sample Locations

Gardena Sumps
1440 West Artesia Boulevard, Gardena, CA

Geosyntec consultants

SAN DIEGO | NOVEMBER 2020

Figure 3-1

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Legend

- Site Property Line
- L.A. County Department of Public Works Property Line
- Private Residence Property Line
- Lateral Extent of Geo Fabric Membrane Covering Sumps on Cooper Property
- Chain-link Fence
- Building
- Railroad
- Dominguez Channel
- Approximate Sump Location
- Approximate Location of Haack Rework Area
- Soil Vapor Samples

Notes

1. Site Features provided by Stantec on 5/15/2009 (file name: BP-GS-RI_Phase2.DWG).
2. Site Features are approximate.
3. Remedial Investigation Locations included in Risk Assessment.

100 50 0 100 Feet

Soil Vapor Sample Locations

Gardena Sumps
1440 West Artesia Boulevard, Gardena, CA

Geosyntec consultants

SAN DIEGO | NOVEMBER 2020

Figure **3-2**

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Legend

- Site Property Line
- L.A. County Department of Public Works Property Line
- Private Residence Property Line
- Lateral Extent of Geo Fabric Membrane Covering Sumps on Cooper Property
- Chain-link Fence
- Building
- Railroad
- Dominguez Channel
- Approximate Sump Location
- Approximate Location of Haack Rework Area
- Groundwater Hydropunch Sample Location (A + B Water-Bearing Zones)
- Cluster Wells (A + B)
- Temporary Groundwater Monitoring Wells

Notes

1. Site Features provided by Stantec on 5/15/2009 (file name: BP-GS-RI_Phase2.DWG).
2. Site Features are approximate.
3. Remedial Investigation Locations included in Risk Assessment.

100 50 0 100 Feet

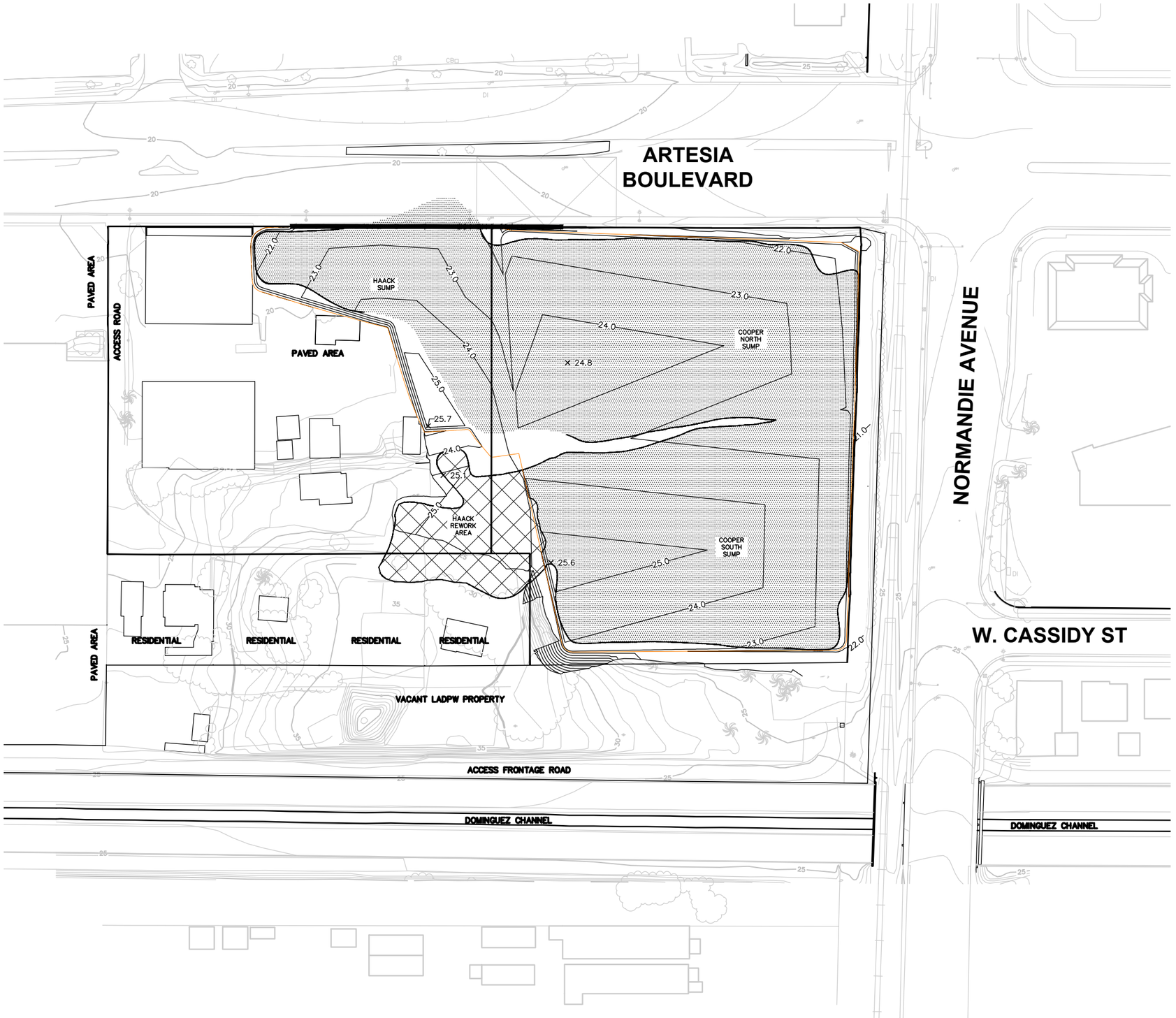
Groundwater Sample Locations

Gardena Sumps
1440 West Artesia Boulevard, Gardena, CA

Geosyntec consultants

SAN DIEGO | NOVEMBER 2020

Figure 3-3



LEGEND

- SITE PROPERTY LINE
- L.A. COUNTY DEPARTMENT OF PUBLIC WORKS PROPERTY LINE
- PRIVATE RESIDENCE PROPERTY LINE
- EXISTING MAJOR CONTOURS (5 FEET, SEE NOTE 3)
- EXISTING MINOR CONTOURS (1 FOOT, SEE NOTE 3)
- PROPOSED FINAL MAJOR CONTOUR (1 FOOT)
- LIMIT OF FINAL COVER GRADING
- LIMIT OF FINAL COVER GEOMEMBRANE
- PROPOSED RETAINING WALL (2 / 7-7)
- CHAIN-LINK FENCE
- WOODEN FENCE
- RAIL ROAD
- BUILDING (TO BE REMOVED PRIOR TO CONSTRUCTION)
- PAVED ROAD
- UNPAVED ROAD
- TREES/BRUSH
- PALM TREE
- APPROXIMATE DISTRIBUTION OF SLUDGE
- HAACK REWORK MATERIAL TO BE REMOVED

NOTES:

1. SITE FEATURES PROVIDED BY STANTEC ON 5/15/09.
2. SITE FEATURES ARE APPROXIMATE.
3. EXISTING GRADE ASSUMES HAACK REWORK EXCAVATION IS COMPLETE.

0 100' 200'

SCALE IN FEET

ALTERNATIVE 2A CAP – OVERVIEW
GARDENA SUMPS
1440 WEST ARTESIA BOULEVARD
GARDENA, CALIFORNIA

Geosyntec consultants

DATE: NOVEMBER 2020

PROJECT NO. SC0467A

FIGURE 7-1

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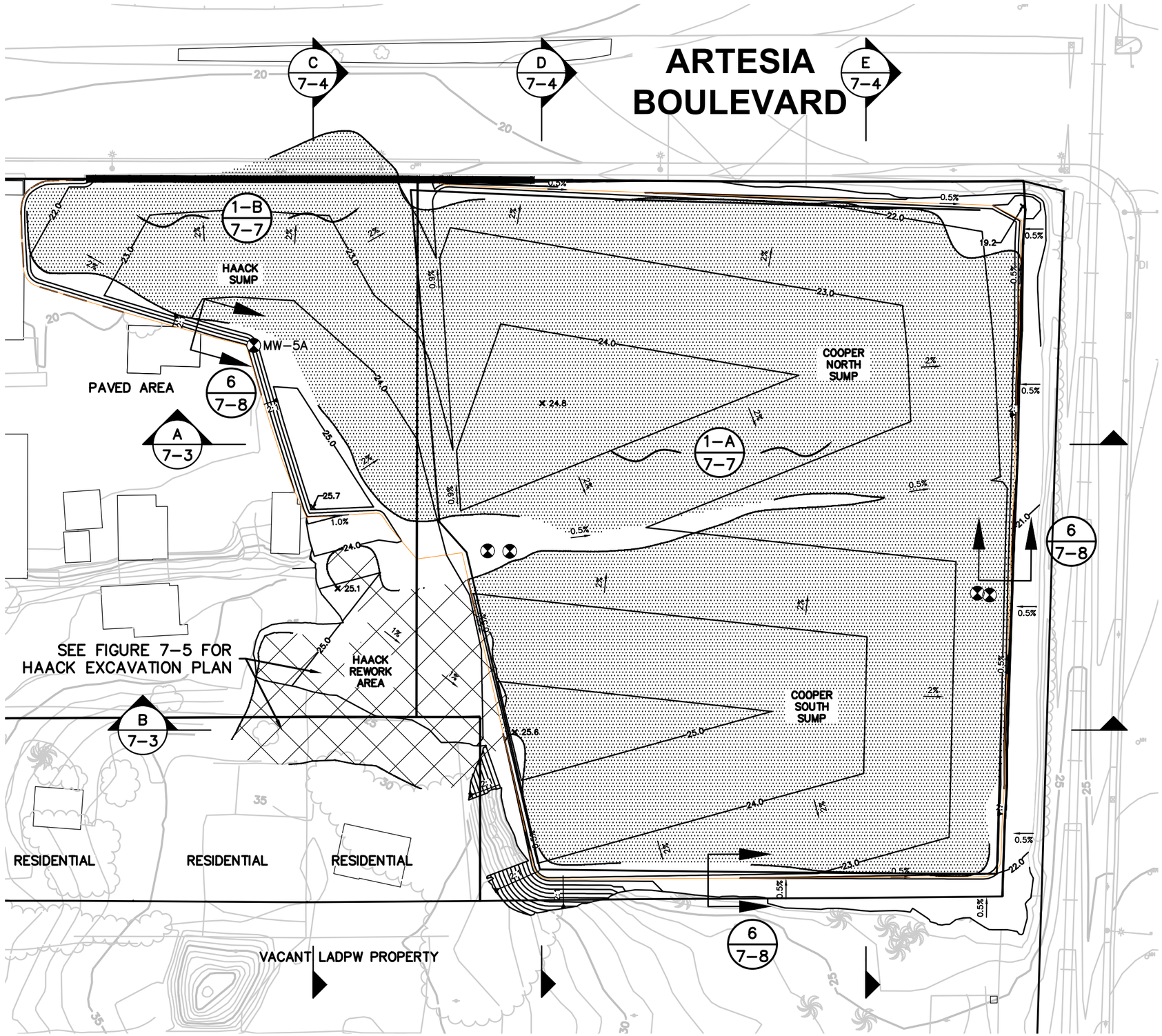

LEGEND

- SITE PROPERTY LINE
- L.A. COUNTY DEPARTMENT OF PUBLIC WORKS PROPERTY LINE
- PRIVATE RESIDENCE PROPERTY LINE
- EXISTING MAJOR CONTOURS (5 FEET, SEE NOTE 3)
- EXISTING MINOR CONTOURS (1 FOOT, SEE NOTE 3)
- PROPOSED FINAL MAJOR CONTOUR (1 FOOT)
- LIMIT OF FINAL COVER GRADING
- LIMIT OF FINAL COVER GEOMEMBRANE (NOTE 4)
- PROPOSED RETAINING WALL (2 / 7-7)
- CHAIN-LINK FENCE
- WOODEN FENCE
- RAIL ROAD
- BUILDING (NOTE 4)
- PAVED ROAD
- UNPAVED ROAD
- TREES/BRUSH
- LIMIT OF HIGH STRENGTH GEOTEXTILE (NOTE 5)
- APPROXIMATE DISTRIBUTION OF SLUDGE
- HAACK REWORK MATERIAL TO BE REMOVED
- EXISTING GROUNDWATER MONITORING WELL TO BE ABANDONED

NOTES:

1. SITE FEATURES PROVIDED BY STANTEC ON 5/15/09.
2. SITE FEATURES ARE APPROXIMATE.
3. EXISTING GRADE ASSUMES HAACK REWORK EXCAVATION IS COMPLETE.
4. BUILDINGS WILL BE REMOVED PRIOR TO CONSTRUCTION, AS NECESSARY AND DEPENDING ON FINAL DESIGN. REMAINING BUILDINGS WILL BE MAINTAINED.
5. LIMIT OF GEOSYNTHETICS IS APPROXIMATE. ACTUAL LIMIT TO BE DETERMINED DURING FINAL DESIGN ON CONSTRUCTION DRAWINGS.

0 60' 120'

SCALE IN FEET

ALTERNATIVE 2A CAP
GARDENA SUMPS
1440 WEST ARTESIA BOULEVARD
GARDENA, CALIFORNIA

Geosyntec consultants

DATE: NOVEMBER 2020

PROJECT NO. SC0467A

FIGURE 7-2

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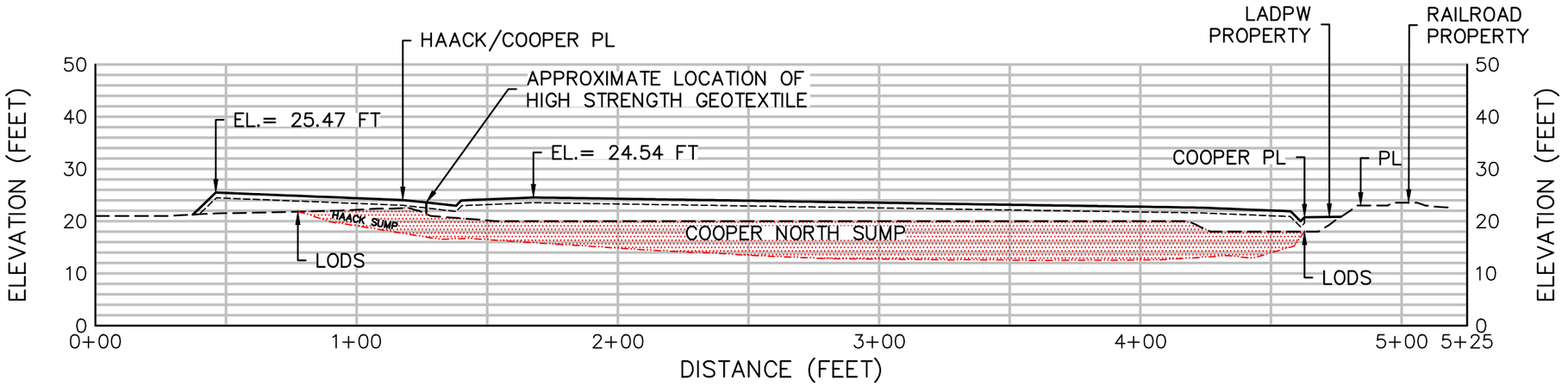
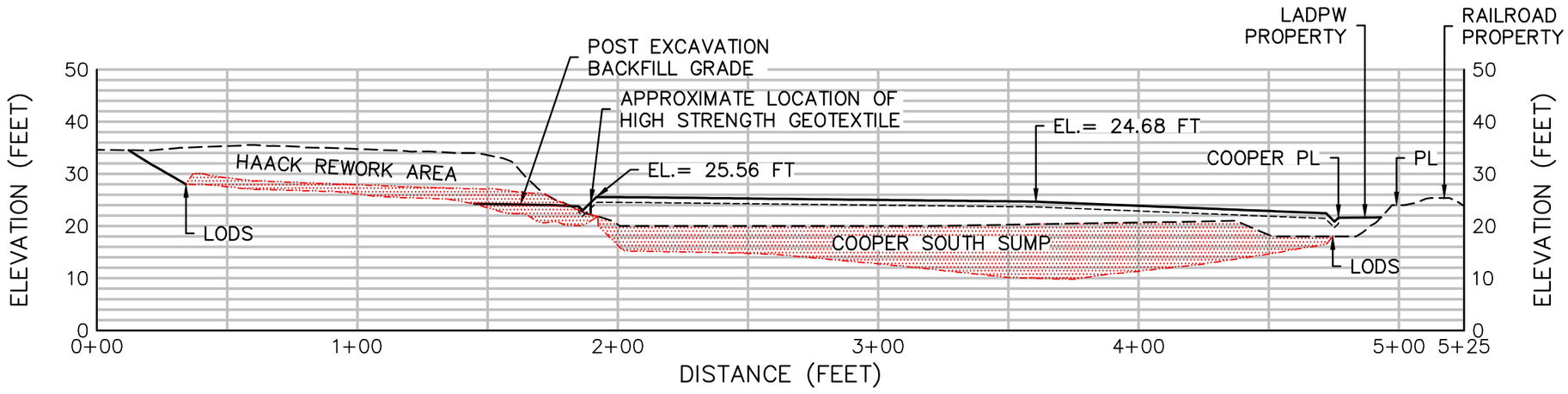
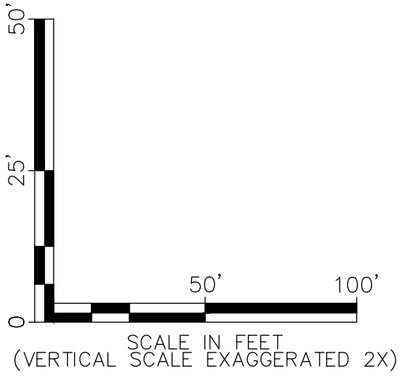


SECTION A



SECTION B



LEGEND

- EXISTING GRADE
- GEOMEMBRANE
- FINAL GRADE
- APPROXIMATE LIMITS OF DETECTED SLUDGE

NOTES:

1. LODS = LIMIT OF DETECTED SLUDGE
2. LADPW = LOS ANGELES DEPARTMENT OF PUBLIC WORKS
3. PL = PROPERTY LINE

ALTERNATIVE 2A EAST–WEST SECTIONS
GARDENA SUMPS
1440 WEST ARTESIA BOULEVARD
GARDENA, CALIFORNIA

Geosyntec consultants

DATE: NOVEMBER 2020

PROJECT NO. SC0467A

FIGURE 7–3

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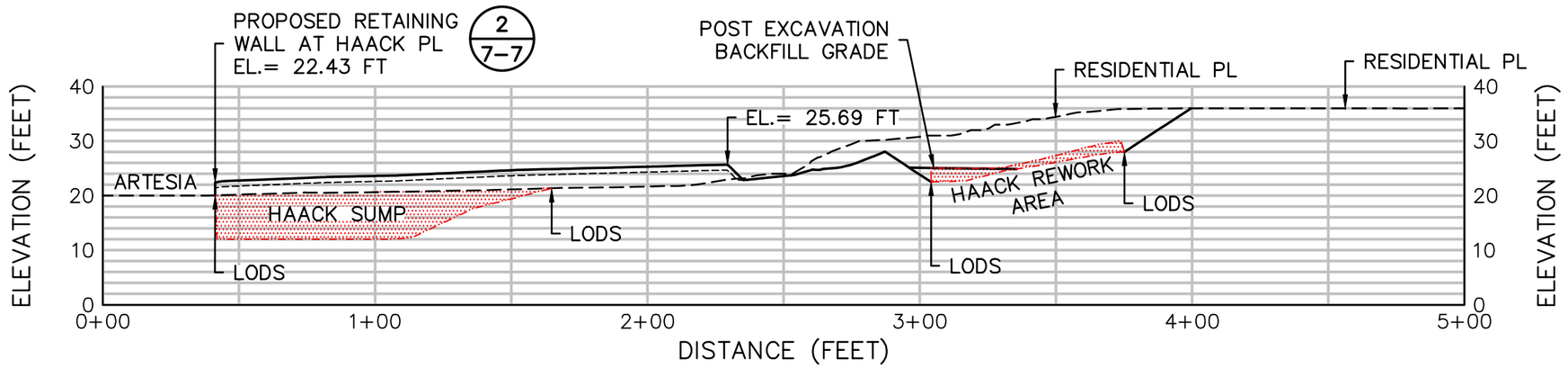
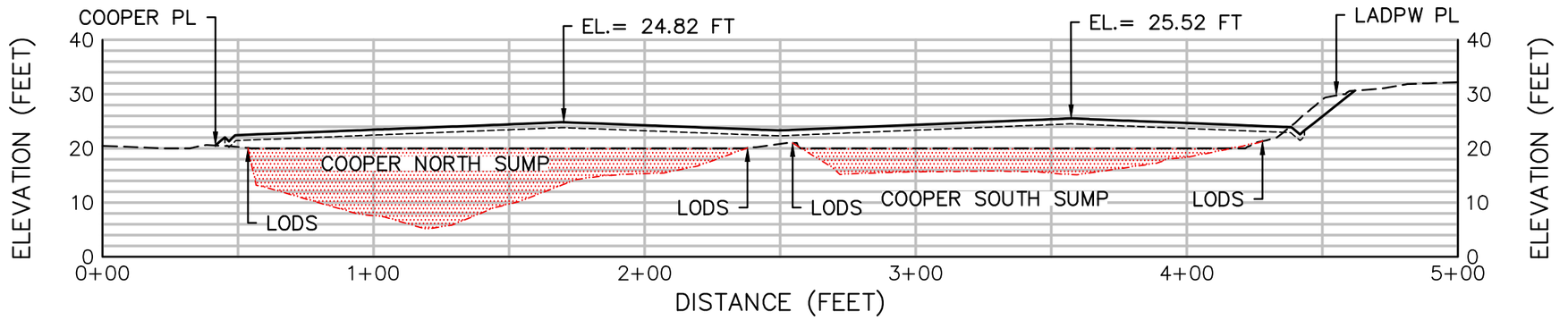
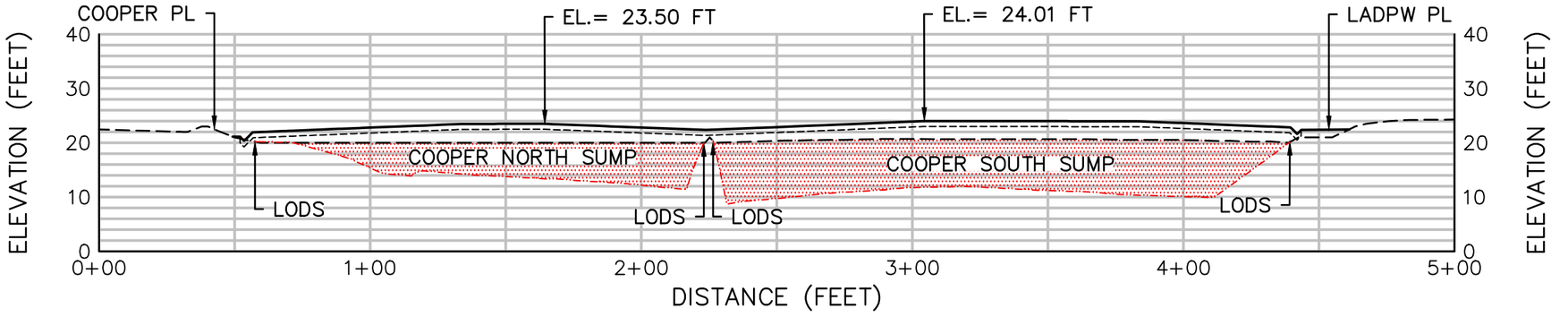


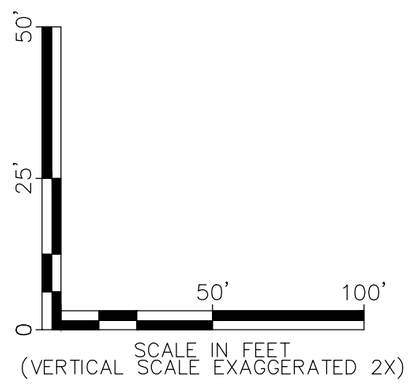
SECTION C



SECTION D



SECTION E



LEGEND

- EXISTING GRADE
- GEOMEMBRANE
- FINAL GRADE
- APPROXIMATE LIMITS OF DETECTED SLUDGE

NOTES:

1. LODS = LIMIT OF DETECTED SLUDGE
2. LADPW = LOS ANGELES DEPARTMENT OF PUBLIC WORKS
3. PL = PROPERTY LINE

ALTERNATIVE 2A NORTH-SOUTH SECTIONS
GARDENA SUMPS
1440 WEST ARTESIA BOULEVARD
GARDENA, CALIFORNIA

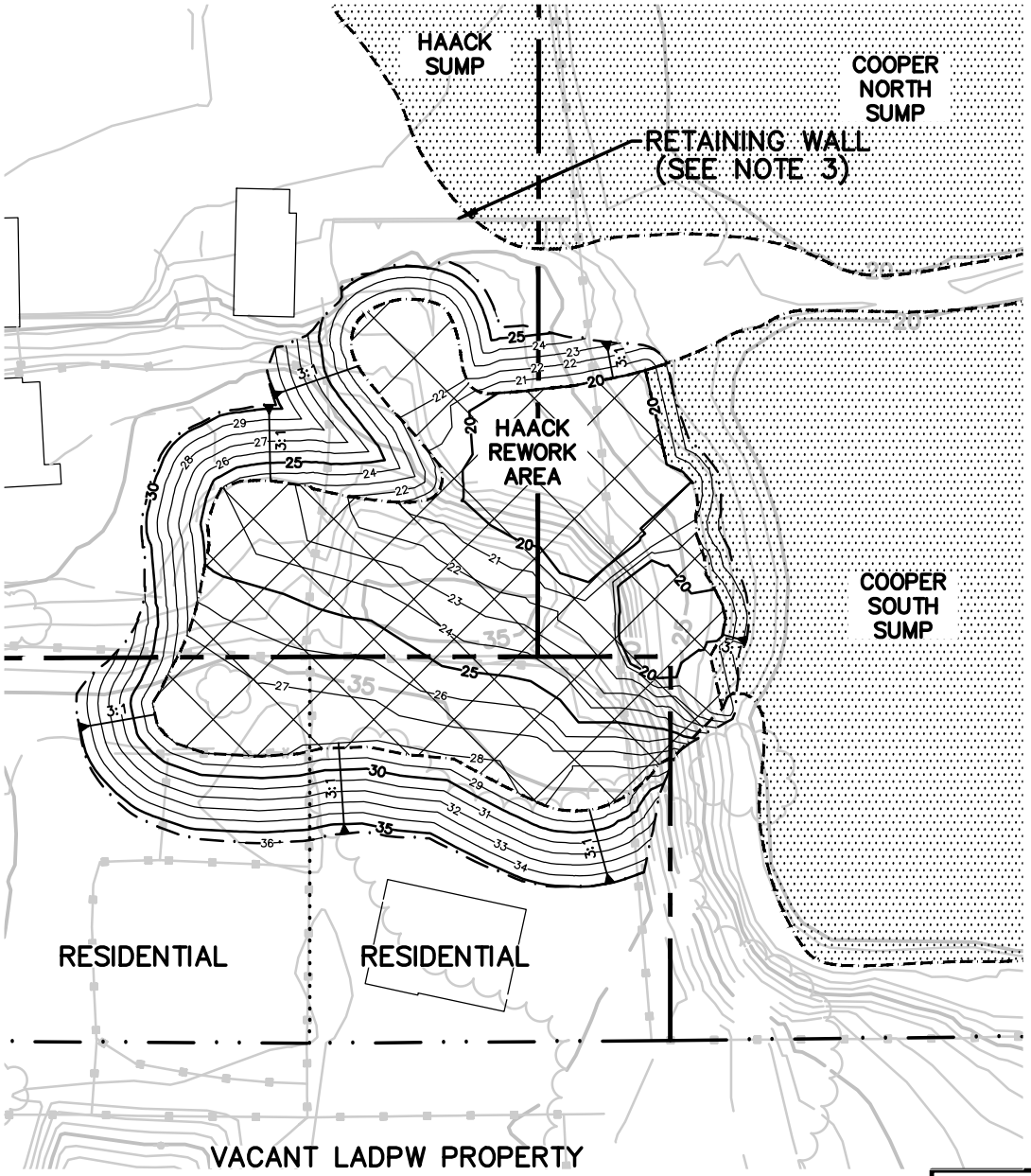
Geosyntec consultants

DATE: NOVEMBER 2020

PROJECT NO. SC0467A

FIGURE 7-4

P:\PRJ\SDCadd\CADD\SC0467A - Gardena Sumps\SC0467A-01-02\Planset_Current Set\Pile Set\SC0467A-6-1 to 6-4.dwg



LEGEND

- SITE PROPERTY LINE
- EXISTING MAJOR CONTOURS (5 FEET)
- EXISTING MINOR CONTOURS (1 FOOT)
- PROPOSED FINAL MAJOR CONTOUR (5 FEET)
- PROPOSED FINAL MINOR CONTOUR (1 FOOT)
- LIMIT OF EXCAVATION
- CHAIN LINK FENCE
- BUILDING (NOTE 4)
- PAVED ROAD
- UNPAVED ROAD
- TREES/BRUSH
- APPROXIMATE DISTRIBUTION OF SLUDGE
- HAACK REWORK MATERIAL TO BE REMOVED

0 50' 100'

SCALE IN FEET

NOTES:
1. SITE FEATURES PROVIDED BY STANTEC ON 5/15/09.
2. SITE FEATURES ARE APPROXIMATE.
3. EXISTING RETAINING WALL TO BE DEMOLISHED PRIOR TO CONSTRUCTION.
4. BUILDINGS WILL BE REMOVED PRIOR TO CONSTRUCTION, AS NECESSARY AND DEPENDING ON FINAL DESIGN. REMAINING BUILDINGS WILL BE MAINTAINED.

HAACK REWORK EXCAVATION PLAN
GARDENA SUMPS
1440 WEST ARTESIA BOULEVARD
GARDENA, CALIFORNIA

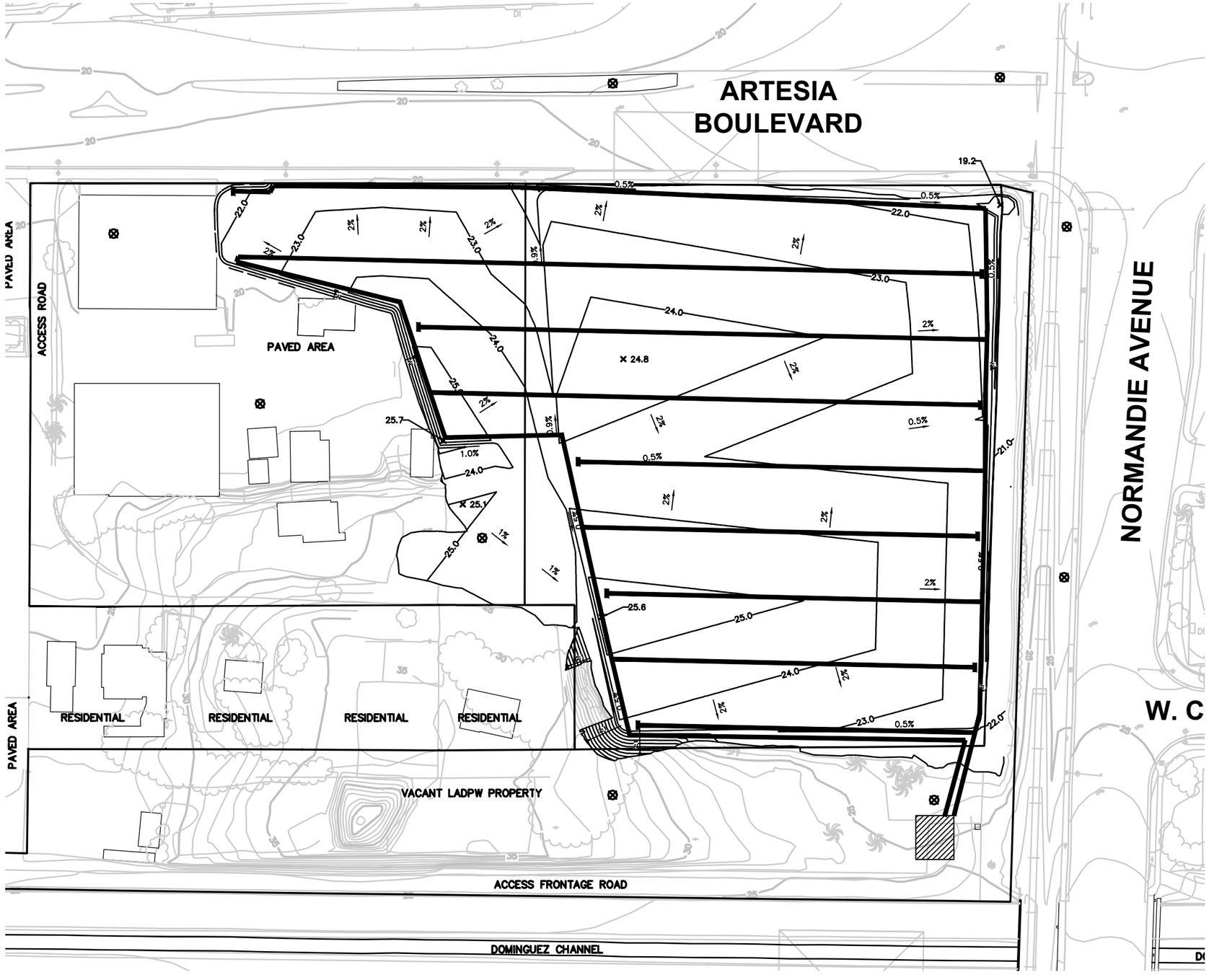
Geosyntec consultants

DATE: NOVEMBER 2020

PROJECT NO. SC0467A

FIGURE 7-5

p:\PRJ\SDCadd\CADD\sc0467a - gardena sumps\sc0467a-01-02\Plansets_current set\Pile Set\SC0467A-6-5.dwg



LEGEND

- SITE PROPERTY LINE
- L.A. COUNTY DEPARTMENT OF PUBLIC WORKS PROPERTY LINE
- PRIVATE RESIDENCE PROPERTY LINE
- EXISTING MAJOR CONTOURS (5 FEET, SEE NOTE 3)
- EXISTING MINOR CONTOURS (1 FOOT, SEE NOTE 3)
- PROPOSED FINAL MAJOR CONTOUR (1 FOOT)
- LIMIT OF FINAL COVER GRADING
- CHAIN–LINK FENCE
- WOODEN FENCE
- RAIL ROAD
- BUILDING (NOTE 4)
- PAVED ROAD
- UNPAVED ROAD
- TREES/BRUSH
- HORIZONTAL GAS COLLECTION GEOSTRIP
- HORIZONTAL AIR INLET GEOSTRIP
- HORIZONTAL GAS COLLECTION / AIR INLET SOLID WALL PIPE LOCATION
- PROPOSED TREATMENT SYSTEM LOCATION
- GAS MONITORING PROBE (5 / 7–7)

NOTES:

1. SITE FEATURES PROVIDED BY STANTEC ON 5/15/09.
2. SITE FEATURES ARE APPROXIMATE.
3. EXISTING GRADE ASSUMES HAACK REWORK EXCAVATION IS COMPLETE.
4. BUILDINGS WILL BE REMOVED PRIOR TO CONSTRUCTION, AS NECESSARY AND DEPENDING ON FINAL DESIGN. REMAINING BUILDINGS WILL BE MAINTAINED.

0 80' 160'

SCALE IN FEET

ALTERNATIVE 2A HORIZONTAL VAPOR CONTROL SYSTEM
GARDENA SUMPS
1440 WEST ARTESIA BOULEVARD
GARDENA, CALIFORNIA

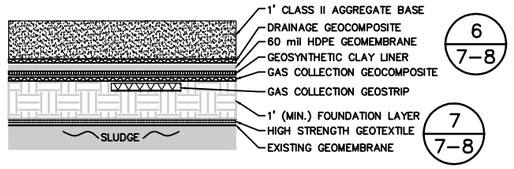
Geosyntec consultants

DATE: NOVEMBER 2020

PROJECT NO. SC0467A

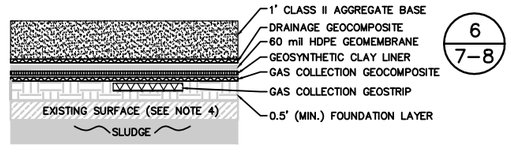
FIGURE 7–6

p:\PRJ\SDCadd\CADD\sc0467a – gardena sumps\sc0467a-01-02\Plansets_current set\Pile Set\SC0467A-6-7.dwg



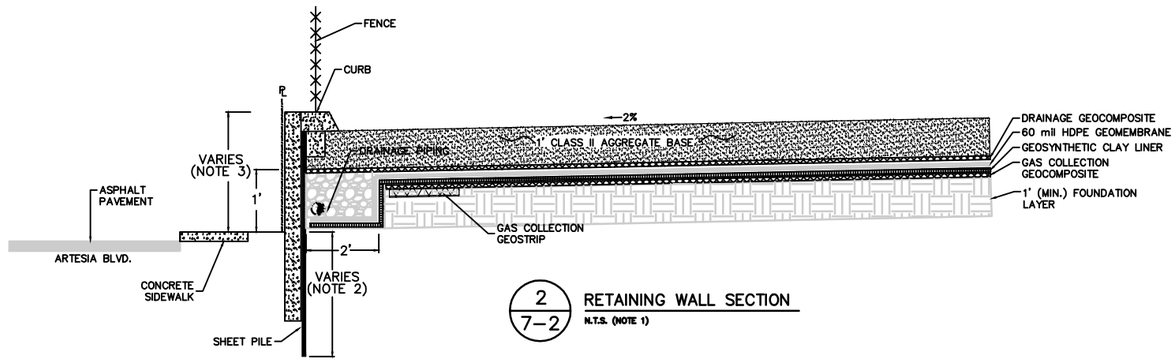
1-A / 7-2 ALTERNATIVE 2A COOPER SUMP CAP DETAIL

SCALE = 1" = 4' (NOTE 1)



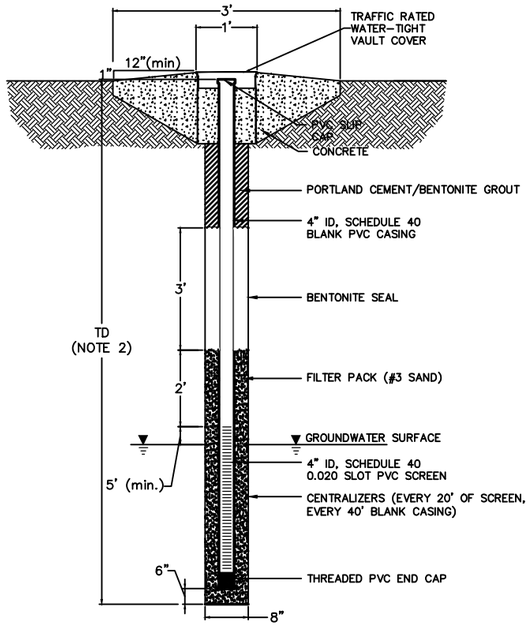
1-B / 7-2 ALTERNATIVE 2A HAACK SUMP CAP DETAIL

SCALE = 1" = 4' (NOTE 1)



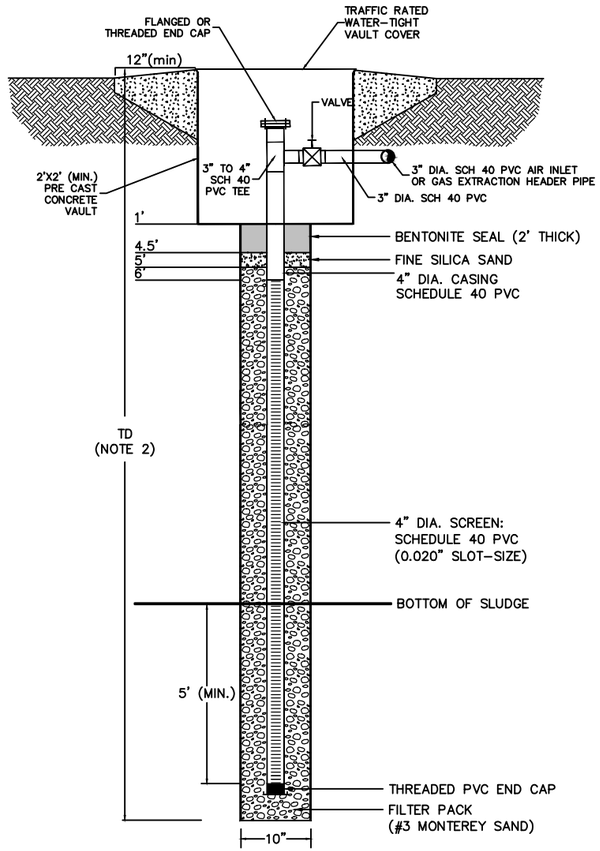
2 / 7-2 RETAINING WALL SECTION

N.T.S. (NOTE 1)



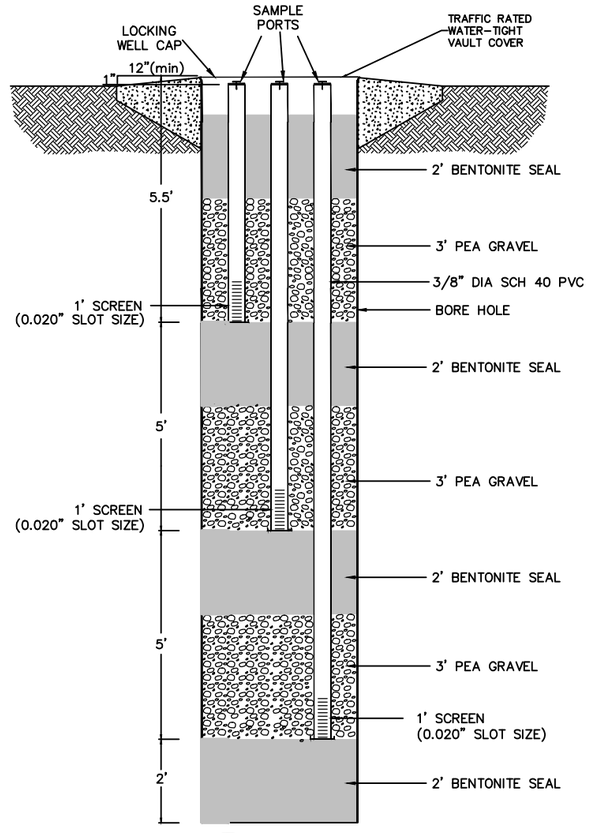
3 DETAIL NEW MONITORING WELL

N.T.S.



4 / 7-9 ALTERNATIVE 2 AND 3 CONCEPTUAL VERTICAL GAS CONTROL WELL

N.T.S.



5 / 7-6 DETAIL SOIL VAPOR MONITORING PROBES

N.T.S.

NOTES:

1. GEOSYNTHETIC THICKNESS EXAGGERATED FOR CLARITY.
2. FINAL CONSTRUCTION DEPTHS BASED ON FIELD CONDITIONS. ALL DEPTHS IN FEET BELOW GROUND SURFACE.
3. FINAL RETAINING WALL HEIGHT DEPENDENT ON FINAL CAP ELEVATIONS. MAXIMUM RETAINING WALL HEIGHT IS 23 FT MSL.
4. EXISTING SURFACE IS DEGRADED ASPHALT OR CONCRETE. SURFACE WILL BE PROTECTED IN PLACE.

ALTERNATIVE 2A DETAILS I
GARDENA SUMPS
1440 WEST ARTESIA BOULEVARD
GARDENA, CALIFORNIA

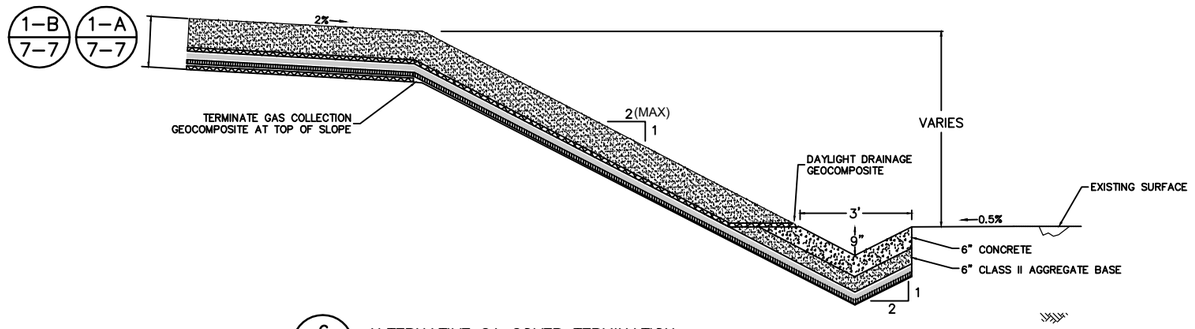
Geosyntec consultants

DATE: NOVEMBER 2020

PROJECT NO. SC0467A

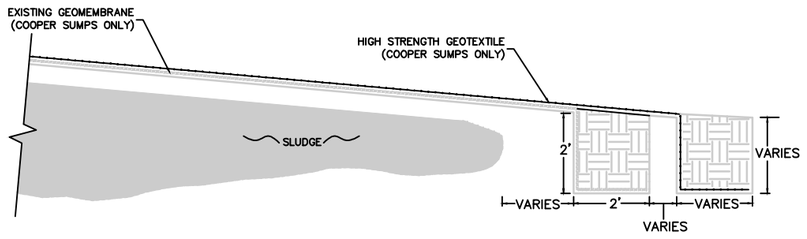
FIGURE 7-7

p:\PRJ\SDCadd\CADD\sc0467a - gardena sumps\sc0467a-01-02\Planset_current set\Pile Set\SC0467A-6-14.dwg



6 / 7-2 ALTERNATIVE 2A COVER TERMINATION
SCALE = 1" = 4' (NOTE 1)

7 / 7-7 ALTERNATIVE 2A HIGH STRENGTH GEOTEXTILE ANCHOR TRENCH DETAIL
SCALE = 1" = 4' (NOTE 1)



7 / 7-7 ALTERNATIVE 2A HIGH STRENGTH GEOTEXTILE ANCHOR TRENCH DETAIL
SCALE = 1" = 4' (NOTE 1)

7 / 7-7 ALTERNATIVE 2A HIGH STRENGTH GEOTEXTILE ANCHOR TRENCH DETAIL
SCALE = 1" = 4' (NOTE 1)

NOTES:

1. GEOSYNTHETIC THICKNESS EXAGGERATED FOR CLARITY.

ALTERNATIVE 2A DETAILS II
GARDENA SUMPS
1440 WEST ARTESIA BOULEVARD
GARDENA, CALIFORNIA

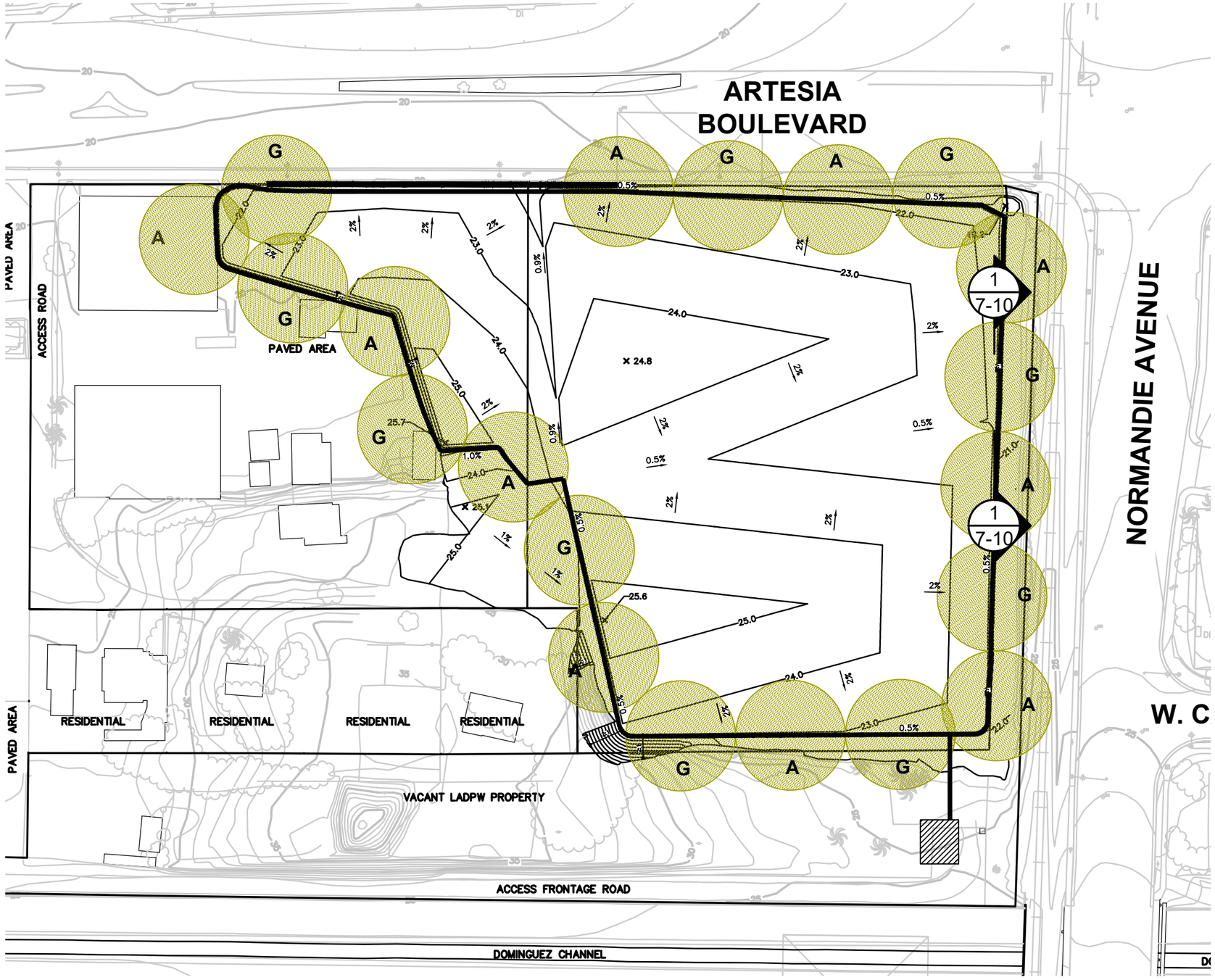
Geosyntec consultants

DATE: NOVEMBER 2020

PROJECT NO. SC0467A

FIGURE 7-8

p:\PRJ\SDCadd\CADD\sc0467a - gardena sumps\sc0467a-01-02\Plansets_current set\Pile Set\SC0467A-6-14.dwg



LEGEND

- SITE PROPERTY LINE
- L.A. COUNTY DEPARTMENT OF PUBLIC WORKS PROPERTY LINE
- PRIVATE RESIDENCE PROPERTY LINE
- EXISTING MAJOR CONTOURS (5 FEET, SEE NOTE 3)
- EXISTING MINOR CONTOURS (1 FOOT, SEE NOTE 3)
- PROPOSED FINAL MAJOR CONTOUR (1 FOOT)
- LIMIT OF FINAL COVER GRADING
- PROPOSED RETAINING WALL (2 / 7-7)
- CHAIN-LINK FENCE
- WOODEN FENCE
- RAIL ROAD
- BUILDING (NOTE 4)
- PAVED ROAD
- UNPAVED ROAD
- TREES/BRUSH
- VERTICAL GAS CONTROL WELL RADIUS OF INFLUENCE (WELL AT CENTER OF CIRCLE) (4 / 7-7)
  - **A** = AIR INLET WELL
  - **G** = GAS EXTRACTION WELL
- VERTICAL GAS COLLECTION PIPE LOCATION
- PROPOSED TREATMENT SYSTEM LOCATION

NOTES:

1. SITE FEATURES PROVIDED BY STANTEC ON 5/15/09.
2. SITE FEATURES ARE APPROXIMATE.
3. EXISTING GRADE ASSUMES HAACK REWORK EXCAVATION IS COMPLETE.
4. BUILDINGS WILL BE REMOVED PRIOR TO CONSTRUCTION, AS NECESSARY AND DEPENDING ON FINAL DESIGN. REMAINING BUILDINGS WILL BE MAINTAINED.

0 80' 160'

SCALE IN FEET

ALTERNATIVE 2A VAPOR CONTROL LAYOUT PLAN
GARDENA SUMPS
1440 WEST ARTESIA BOULEVARD
GARDENA, CALIFORNIA

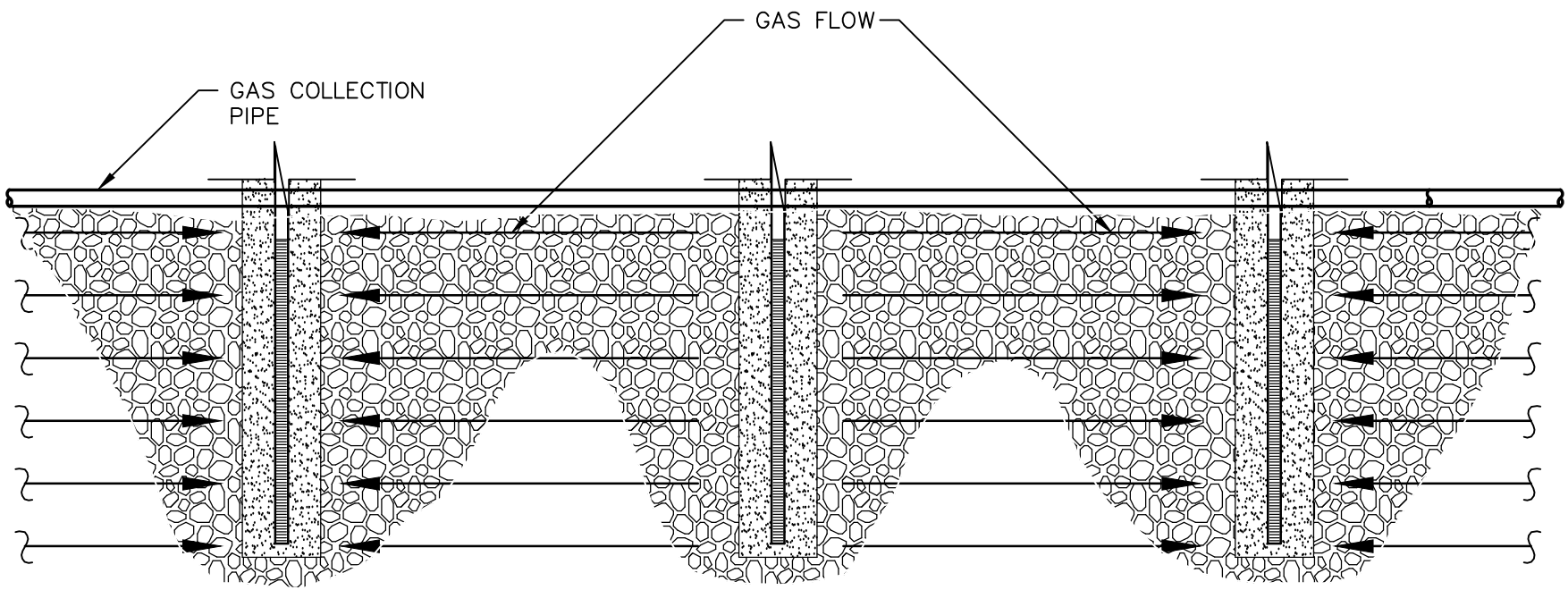
Geosyntec consultants

DATE: NOVEMBER 2020

PROJECT NO. SC0467A

FIGURE 7-9

p:\PRJ\SDCadd\CADD\sc0467a - gardena sumps\sc0467a-01-02\Planset_current set\Pile Set\SC0467A-6-6.dwg



NOT TO SCALE

1/7–9 CROSS SECTION/VAPOR CONTROL SYSTEM PROFILE
SCALE = 1" = 4' (NOTE 1)

ALTERNATIVE 2A VAPOR CONTROL SYSTEM
GARDENA SUMPS
1440 WEST ARTESIA BOULEVARD
GARDENA, CALIFORNIA

Geosyntec consultants

DATE: NOVEMBER 2020

PROJECT NO. SC0467A

FIGURE 7–10

p:\PRJ\SDCadd\CADD\sc0467a - gardena sumps\sc0467a-01-02\Plansets_current set\Pile Set\SC0467A-6-8.dwg

APPENDIX A

Administrative Record

Department of Toxic Substances Control

Jared Blumenfeld
Secretary for
Environmental Protection

Meredith Williams, Ph.D., Director
1001 "I" Street
P.O. Box 806
Sacramento, California 95812-0806

Gavin Newsom
Governor

June 17, 2022

Mr. Wade Melton
Operation Project Manager
Atlantic Richfield Company (ARC)
Remediation Management - Exec Office
6 Centerpoint Drive,
La Palma, CA 92408

APPROVAL OF REMEDIAL ACTION WORKPLAN, GARDENA SUMPS, 1440-1450 ARTESIA BOULEVARD, GARDENA, CA (DTSC SITE CODE - 401218)

Dear Mr. Melton:

The Department of Toxic Substances Control (DTSC) has completed its review of, and approves the Draft Final Remedial Action Plan (RAP) for the Gardena Sumps Site (Site) prepared by Geosyntec Consultants (January 18, 2021) on behalf of Atlantic Richfield Company (ARC). Please submit the Final RAP signed and stamped by a California registered geologist or professional engineer within 45 days.

The Site, approximately 6.5 acres, is located at 1440-1450 West Artesia Boulevard, at the southwest corner of the Artesia Boulevard and Normandie Avenue intersection, in the City of Gardena, Los Angeles County, California. Historically, the site was developed as a clay mine during the 1920s by the Moneta Brick Company. Clay mining resulted in open pits that were later used for oil sludge disposal beginning in 1940. By September 1946, the pits at the Haack and Cooper properties were filled with oily sludge. DTSC identified the Site under its environmental response program in 1983, and conducted an interim removal action in 1993 with the installation of an engineered cover and a fence surrounding the Cooper property, along with a concrete cap over portions of the Haack property. In 2013, an additional cover was placed on top of the Cooper property. A human health risk assessment prepared for the Site identified the primary chemicals of concern to include arsenic, hexavalent chromium, naphthalene, and the benzo(a)pyrene in soils; benzene and hydrogen sulfide in air; and dibenz(a,h)anthracene in groundwater.

Based on the approved 2017 Feasibility Study, the proposed remedial actions would involve excavating contaminated soils at select areas, and constructing a multi-layer engineered cover over the Site. The proposed remedial actions would effectively mitigate the risk of ingestion, inhalation, and dermal contact from on-site contaminated sludge; the risk from dermal contact with Site groundwater through construction of a cap; and the placement of institutional controls prohibiting land use including residences, day care centers for children, schools, hospitals and other unrestricted land use development. The proposed remedial actions are designed to accommodate future commercial development consistent with Conceptual Site Development 2A in the Feasibility Study, with structures to be built on the Haack property and an elevated paved lot on the Cooper property.

The Draft RAP and the accompanying California Environmental Quality Act (CEQA) Initial Study for the proposed remedial action were made available for the 30-day Public Comment period in accordance with California Health and Safety Code, Division 20, Chapter 6.8, § 25300 et seq., and Title 14, CCR, § 15000 et seq. The RAP Public Review period occurred from January 31, 2022, through March 2, 2022. The Public Comment period for the CEQA Initial Study occurred from February 14, 2022 through March 18, 2022. DTSC received 2 sets of comments on the Draft RAP and no comments on the CEQA Initial Study. As a Lead Agency under CEQA, DTSC has prepared and will file a Notice of Determination to the State Clearinghouse within five days of the issuance of this letter.

DTSC acknowledges that ARC has satisfactorily completed its obligations under the November 2, 2004 Consent Order CV04-7882 AHM (JTLx). The Department recommends ARC to enter into a Voluntary Agreement to continue and complete the response action at the Site.

If you have any questions regarding the project, please contact the Project Manager, Mr. Nick Ta at (714) 484-5381 or by email at Nicholas.Ta@dtsc.ca.gov or Mr. Patrick Hsieh, Unit Chief, at (714) 484-5442 or by email at Patrick.Hsieh@dtsc.ca.gov.

Sincerely,

A. Edward Morelan, PG, CEG
Branch Chief
Site Mitigation and Restoration Program

(Via Email)

cc: See Next Page

cc: Mr. Patrick Hsieh, Unit Chief
Senior Environmental Scientist (Sup)
Site Mitigation and Restoration Program
Patrick.Hsieh@dtsc.ca.gov

Nick Ta, Project Manager
Sr. Environmental Scientist
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Attorneys for Plaintiffs

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Send ✓
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Closed
JS-5/JS-6 ✓
JS-2/JS-3
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IN THE UNITED STATES DISTRICT COURT

FOR THE CENTRAL DISTRICT OF CALIFORNIA

THE CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL; THE HAZARDOUS WASTE CONTROL ACCOUNT; THE HAZARDOUS SUBSTANCE ACCOUNT; THE TOXIC SUBSTANCES CONTROL ACCOUNT; and THE SITE REMEDIATION ACCOUNT,

Plaintiffs,

v.

ATLANTIC RICHFIELD COMPANY,

Defendant.

Case No. CV04-7882 AHM (JTLx)

CONSENT DECREE

Table of Contents

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Fax: (619) 645-2012
Attorneys for Plaintiffs

IN THE UNITED STATES DISTRICT COURT

FOR THE CENTRAL DISTRICT OF CALIFORNIA

THE CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL; THE HAZARDOUS WASTE CONTROL ACCOUNT; THE HAZARDOUS SUBSTANCE ACCOUNT; THE TOXIC SUBSTANCES CONTROL ACCOUNT; and THE SITE REMEDIATION ACCOUNT,

Plaintiffs,

v.

ATLANTIC RICHFIELD COMPANY,

Defendant.

CASE NO. CV04-7882 AHM (JTLx)

CONSENT DECREE

INTRODUCTION

The General Purpose of the Decree.

The Parties to this Consent Decree are ATLANTIC RICHFIELD COMPANY (referred to as "ARC" or "Defendant") and the CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL (the "Department" or "DTSC"), the CALIFORNIA HAZARDOUS WASTE CONTROL ACCOUNT, the CALIFORNIA HAZARDOUS SUBSTANCE ACCOUNT, the CALIFORNIA TOXIC SUBSTANCES CONTROL ACCOUNT and the CALIFORNIA SITE REMEDIATION ACCOUNT (collectively referred to as the "Plaintiffs"). The Parties enter into this Consent Decree ("Decree" or "Consent Decree") in order to (1) provide for certain response actions at the Gardena Sumps Site, located at the southwest corner of Artesia Boulevard and Normandie Avenue in Gardena, California (the "Site"); (2) resolve certain alleged ARC liabilities with respect to the Site; and (3) provide ARC, including its parents, subsidiaries and current affiliates, including, without limitation, BP America, Inc., with contribution protection and a covenant not to sue in connection with certain claims relating to the Site.

Concurrently with the lodging of this Decree, Plaintiffs have filed a complaint in this matter (the "Complaint") against Defendant pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §9601, et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499, 100 Stat. 1613 (1986) ("CERCLA"). In the Complaint, the Plaintiffs assert that Defendant "arranged for the disposal" of "hazardous substances" at the Site, as those terms are defined under CERCLA, and that Defendant is therefore liable for the costs that have been, or will be, incurred in response to releases and threatened releases of hazardous substances at and from the Site.

This Decree resolves portions of the claims asserted in the Complaint, and requires the Defendant to do the following:

Defendant will (1) implement those response actions set forth below; (2) prepare studies and planning documents, including a Remedial Action Plan ("RAP"), for the Site; and (3) pay certain costs that Plaintiffs have incurred or will incur with respect to the Site.

This Decree does not address the remedial work for the Site that will be required in order to implement the RAP and, under this Decree, the Defendant is neither required to, nor released from any obligation to, undertake such remedial work.

The Defendant denies that it is a liable party under CERCLA, the HSAA or any other state or federal law, and denies that it has any liability to Plaintiffs or to any other person. The Parties agree that the actions undertaken by the Defendant in accordance with this Consent Decree do not constitute an admission of liability on the part of Defendant. For the purposes of this Decree, the Defendant does not admit either (1) any of the facts set forth in the Statement of Facts contained in Section III of this Consent Decree (Site Background), or (2) any other allegations of fact or law set forth in this Consent Decree and/or in the Complaint. The Defendant reserves its rights to controvert any such allegations in any subsequent proceeding (other than a proceeding to implement or enforce the terms of this Consent Decree).

This Consent Decree is entered into by Plaintiffs pursuant to their authority under Sections 107 and 113 of CERCLA, 42 U.S.C. §§ 9607 and 9613, 42 U.S.C. 9621, et seq., Section 7003 of RCRA, 42 U.S.C. §§ 6973 and California Health & Safety Code ("H&SC") §§ 25100 et seq, 25187, 25355.5, 25358.3, 25360, 58009 and 58010.

Pursuant to the aforementioned authority and pursuant to CERCLA § 113(f)(2), 42 U.S.C. § 9613(f)(2), Plaintiffs and the Defendant each have

stipulated and agreed to the making and entry of this Consent Decree prior to the taking of any testimony.

Plaintiffs and the Defendant agree that this settlement and entry of this Consent Decree are made in good faith in an effort to avoid expensive and protracted litigation and to benefit the environment and the community without any admission or finding of liability or fault as to any allegation or matter.

NOW THEREFORE, it is ORDERED, ADJUDGED, AND DECREED, as follows:

I. JURISDICTION

The Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. § 1331 and CERCLA, 42 U.S.C. § 9601 et seq. Solely for the purposes of this Consent Decree and the underlying Complaint, the Defendant waives service of summons and agrees to submit to the jurisdiction of this Court and to venue in this District. The Defendant agrees not to challenge or object to entry of this Decree by the Court unless Plaintiffs have notified ARC in writing that Plaintiffs no longer support entry of the Decree or that Plaintiffs seek to modify the Decree. The Defendant and Plaintiffs agree not to challenge this Court's jurisdiction to enforce the terms of this Decree once it has been entered.

II. PARTIES BOUND

A. The "Parties" to this Consent Decree are ARC, DTSC, the California Hazardous Waste Control Account, the California Hazardous Substance Account, the California Toxic Substances Control Account and the California Site Remediation Account.

B. The Defendant has agreed to pay the amounts specified under Section VIII of this Decree (Payment of Plaintiffs' Costs) and to undertake the Work and certain other obligations set forth in this Decree.

C. This Consent Decree applies to and is binding upon the Plaintiffs and the Defendant. Any change in ownership, partnership status or corporate status of ARC, including, but not limited to, any transfer of assets or real or personal property, shall in no way alter ARC's rights or responsibilities under this Consent Decree.

D. The Defendant shall be responsible and shall remain responsible for carrying out all activities required of it under this Consent Decree. DTSC is acting as the lead agency with respect to the Site pursuant to H&SC § 25300, et seq. The Covenants Not to Sue provided by DTSC pursuant to this Decree are those of the DTSC only and do not affect the rights of any other agency of the State of California or the United States.

E. ARC shall be responsible for ensuring that its contractors and subcontractors perform the Work contemplated herein in accordance with this Consent Decree.

III. SITE BACKGROUND

The following is a summary of the Site background as alleged by Plaintiffs:

A. The Facility.

The facility ("Facility") which is the subject of this Decree is located at the southwest corner of Artesia Boulevard and Normandie Avenue in the City of Gardena. A legal description of the Facility is attached to this Decree as Exhibit "A." The Facility occupies approximately 6.48 acres, in an industrial/ commercial/residential area of Gardena, California.

B. Facility History and Operations

From 1925 until 1931, the Moneta Brick Company ("Moneta") operated a brick manufacturing business on the Facility property. Moneta mined clay out of large pits that it dug at that property, and it used this clay for the manufacture of bricks. Sometime after Moneta ceased operations at the Site,

John Morrison commenced operating a hazardous waste disposal facility at the Facility. Sometime between 1940 and 1944, certain wastes were disposed of into the pits left over from the brickyard operation.

C. Richfield Oil Company's Involvement with the Facility.

During the period that certain wastes were being dumped at the Site, ARC's predecessor, Richfield Oil Corporation ("Richfield"), operated a refinery (the "Richfield Refinery") approximately seven miles away, in what is today Carson, California, at which Richfield produced an acid sludge waste. Richfield arranged to have certain waste from the Richfield Refinery disposed of at the Facility.

D. Contamination.

As a result of the operation of the Facility, the Site is now contaminated with hazardous substances, including benzene, ethyl benzene, toluene, trichloroethene, low pH (acid) sludges and substances, anthracene, chromium, chrysene, copper, hydrogen sulfide, lead, methyl anthracene isomers, methyl ethyl benzene, methyl fluorene, nickel, phenanthrene, pyrene, sulfur dioxide, trimethyl benzene, and trimethylnapthalene isomers; acetone, barium, benzo(a)anthracene, benzo(k)fluoranthene, benzo(g,h)perylene, benzo-(a)pyrene, 2-butanone, cadmium, carbon disulfide, chrysene, cobalt, dibenzo-(a,h)anthracene, fluoranthene, fluorene, phenanthrene, phenols, sulfide, vanadium, and xylenes.

E. Regulatory History.

In responding to the pollution from the Facility, Plaintiffs have taken significant and time-consuming efforts toward a cleanup of the Site. In 1988 and 1992, the Department determined that the presence of hazardous substances in the soil at the Site posed an imminent and substantial endangerment to public health and the environment. In 1992, the Department issued an *Imminent and Substantial Endangerment Order and Remedial Action*

Order ("I&SE Order"), which ordered the respondents named therein, including ARC and the owners of the Site, to undertake certain cleanup measures at the Site. ARC and the other respondents declined to comply with the I&SE Order. ARC contended that it was not a liable party with respect to the Site, because it had not arranged for the disposal of hazardous waste at the Site.

The Plaintiffs thereupon expended taxpayer and bond funds on removal and response actions that have been designed to minimize the threat that the Site poses to human health and the environment. Specifically, the Department installed an interim cover over the eastern portion of the Site which was designed to (1) reduce human contact with the wastes in the disposal pits; (2) prevent these wastes from migrating away from the Site, and (3) prevent rainwater from percolating and migrating through the wastes and driving contamination further into the earth. In addition, the Department entered into an agreement with Clarence and Genevieve Haack, who owned a parcel located on the western portion of the Site; this agreement required the Haacks to take certain response actions. The response actions taken to date at the Site do not constitute the final remedy for the hazardous substance contamination at the Site.

F. Hazardous Substances.

The contaminants found at the Site include hazardous substances as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and H&SC §§ 25316 and 25317 and hazardous wastes as defined in H&SC § 25117.

G. Releases.

There have been releases and threatened releases of hazardous substances at the Site.

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H. Facility.

The property located at the southwest corner of Artesia Boulevard and Normandie Avenue in the City of Gardena, California is a "facility" as that term is defined by Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

I. Person/Arranger.

~~ARC~~ is a "person" as that term is defined by Section 101(21) of CERCLA, 42 U.S.C. § 9601(21) and H&SC § 25319 who arranged for the disposal of hazardous substances at the Site.

J. Response Activities.

DTSC has identified the following response actions which Defendant has agreed to undertake at the Site: (1) Repair and maintenance of the existing Site fencing; (2) Repair and maintenance of the interim cover system that DTSC has installed at the Site; and (3) Preparation of a Remedial Investigation/Feasibility Study ("RI/FS") and RAP for the Site.

IV. DEFINITIONS

Unless otherwise expressly provided herein, terms used in this Consent Decree which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them therein. Whenever terms listed below are used anywhere in this Consent Decree or its exhibits, the following definitions shall apply:

1. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499, 100 Stat. 1613 (1986), 42 U.S.C. §§ 9601, et seq., as amended.

2. "Consent Decree" or "Decree" shall mean this Consent Decree and its attachments and exhibits.

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3. "Contractor" shall mean the individual, company or companies retained by or on behalf of Defendant to undertake and complete the Work.

4. "Day" shall mean a calendar day. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or State or Federal holiday, the period shall run until the close of business of the next working day.

5. "Facility" is defined at Section 101(9) of CERCLA, 42 U.S.C. § 9601(9), and shall mean the property of approximately 6.48 acres in size located at southwest corner of Artesia Boulevard and Normandie Avenue in the City of Gardena, California, including, without limitation, any waste disposal pits located in whole or in part at that property. A legal description of the Facility property is attached hereto as Exhibit "A."

6. "Matters Addressed" in this Consent Decree shall mean: (1) the Work, (2) the Past Response Costs, paid and unpaid; (3) Work Oversight Costs; and (4) any response costs, incurred by any person, prior to the timely completion of the Work required by this Decree or during the time that Defendant is timely completing such Work, with respect to any hazardous substances, pollutants or contaminants on, under, or migrating to or from the Facility, and (5) response actions performed by any person at the Site prior to the Effective Date of this Decree. "Matters Addressed," however, shall not include those matters reserved in Section XII (Reservation of Rights) of this Decree.

7. "National Contingency Plan" or "NCP" shall refer to the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300.

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8. "Oversight" shall mean inspection, review, advice, direction and comments performed or provided by DTSC, its contractors, or its representatives, with respect to any of the following actions taken by Defendant pursuant to this Decree: (1) any investigatory, removal or remedial activities; (2) any plans, assessments or reports; and (3) the performance of the Work. "Oversight" shall also include any actions, including but not limited to, sampling, testing or analysis taken by DTSC, its contractors or its representatives that are necessary to verify or ensure the adequacy of the Work or of any other activity undertaken, or proposed to be undertaken, by ARC pursuant to this Decree.

9. "Parties" shall mean:

a. Plaintiffs: (1) DTSC, and (2) the California Hazardous Waste Control Account, the California Hazardous Substances Account, the Toxic Substances Control Account and the Site Remediation Account (the "State Accounts"), to the extent that moneys from those accounts have been expended at DTSC's direction.

b. Defendant: ARC.

10. "Past Response Costs" shall mean all costs, including, but not limited to, interest, that DTSC has incurred on behalf of Plaintiffs with regard to the Site up until December 31, 2003.

11. "Plan(s)" or "Workplan(s)" shall mean the plans and designs developed by or on behalf of ARC which detail the elements of the Work to be conducted pursuant to this Consent Decree.

12. "RCRA" shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. § 6901, et seq. (also known as the Resource Conservation and Recovery Act).

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13. "Report(s)" shall mean the reports developed by ARC in compliance with this Decree, detailing the Work and the results of its implementation.

14. "Site" shall mean the (i) Facility and (ii) the vertical and areal extent of hazardous substance contamination at and from the Facility.

15. "Waste Material" shall mean (1) any "hazardous substance" as defined under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14) that is in, or threatens to migrate to or from, soil or groundwater at the Site, (2) any "hazardous substance" as defined under California H&SC §§ 25316 and 25317 that is in, or threatens to migrate to or from, soil or groundwater at the Site or (3) any "hazardous waste" as defined under H&SC § 25117.

16. "Work" shall mean the implementation, in accordance with this Decree, of the tasks and activities defined herein, including but not limited to: Section VI (General Obligations Respecting the Work to be Performed); Section VII (Specific Work to Be Performed); and such work as may be modified or performed pursuant to the provisions of this Consent Decree; and any schedules or plans required to be submitted pursuant to this Decree. "Work" does not include the activities necessary for the implementation of the RAP for the Site.

17. "Work Oversight Costs" shall mean all costs incurred by the Plaintiffs and their contractors with respect to this Decree after the date that this Decree is entered. Work Oversight Costs shall include: payroll costs, overhead costs, contractor costs, laboratory costs, the costs incurred pursuant to Subsection VI.J (Site Access), and the costs of reviewing or developing plans, reports and other items pursuant to this Consent Decree, verifying the Work, or costs incurred to implement or enforce this Consent Decree, from the date upon which this Decree is entered. Work Oversight Costs include any such costs incurred by DTSC or its contractors or either of them with respect to this

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Decree, including but not limited to any costs incurred in oversight of the preparation of the RI/FS and RAP. Work Oversight Costs shall also include costs DTSC incurs in oversight of any Work that ARC may perform during the period after this Decree is signed by the parties and before it is entered by the Court. Work Oversight Costs do not include any costs incurred by DTSC in oversight of activities that are beyond the scope of this Decree. Activities that fall within the scope of this Decree include the Work and any other activities necessary for the implementation of this Decree.

V. GENERAL PROVISIONS

A. Purposes.

The purposes of this Consent Decree are:

1. Work.

To protect public health and welfare and the environment from releases or threatened releases of Waste Material at or from the Site by the completion of the following work:

(a) Implementation and operation of removal action(s) necessary to minimize the spread of contaminants from the Site; these removal actions will include the repair and maintenance of the existing Site fencing and cover systems;

(b) Preparation of an RI/FS for the Site; and

(c) Preparation of a RAP for the Site.

2. Resolution of Certain Claims.

To settle certain portions of the claims that the Plaintiffs have asserted against the Defendant in this matter.

3 Contribution Protection and Covenant Not to Sue

To provide ARC, including its parents, subsidiaries and current affiliates, including without limitation BP America, Inc., with contribution

protection for Matters Addressed in this Consent Decree and a covenant not to sue in connection with the Matters Addressed in this Consent Decree, pursuant to the terms specified in Sections XI (Covenants Not to Sue) and XIII (Contribution Protection) of this Decree. The Contribution Protection and Covenants Not to Sue set forth in this Decree are not intended to absolve ARC's future parents, subsidiaries or affiliates from any liability they may have for Matters Addressed in this Consent Decree, unless that liability arises from the acts or omissions of ARC or Richfield that are alleged in the Complaint. For the purposes of this Paragraph A.3, the term "ARC's future parents, subsidiaries and affiliates" shall mean those companies and entities who are not parents, subsidiaries or affiliates of ARC as of the Effective Date of this Decree, but who later become parents, subsidiaries or affiliates of ARC through merger or acquisition.

B. Final Remedy.

The Parties agree that completion of the work required by this Decree may not constitute the final remedial action for the Site. DTSC reserves all of its rights to (i) compel ARC, and its parents, subsidiaries and affiliates, or any liable person, to implement any final remedial action for the Site and (ii) seek recovery of any costs it incurs with respect to any final remedial action from Defendant or any liable party.

C. Compliance With Applicable Law.

All activities undertaken by ARC pursuant to this Consent Decree shall be performed in accordance with the requirements of all applicable federal, state and local laws and regulations, including the NCP. All parties agree that the Work, if performed in accordance with the requirements of this Decree, is consistent with the NCP.

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D. **No Findings By DTSC.**

This Decree in no way constitutes a finding by DTSC as to the risks to human health or the environment which may be posed by contamination at the Site. This Decree does not constitute a representation by DTSC that the Site, or any part thereof, is fit for any particular purpose.

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VI. GENERAL OBLIGATIONS RESPECTING WORK TO BE PERFORMED

A. **Project Coordinator.**

Within fifteen (15) days from the Effective Date of this Decree, ARC shall submit to DTSC in writing the name, address, and telephone number of a Project Coordinator whose responsibilities will be to receive all notices, comments, approvals, and other communications from DTSC. ARC shall promptly notify DTSC of any change in the identity of the Project Coordinator.

B. **Communication and Coordination Plan (CCP)**

Within forty-five (45) days of the Effective Date of this Decree, ARC shall submit to DTSC for approval a Communication and Coordination Plan ("CCP") which specifies the requirements and procedures by which ARC will communicate and coordinate with the owner(s) of the Facility premises in carrying out the requirements of this Decree.

C. **Project Engineer/Geologist.**

The Work performed pursuant to this Decree shall be under the direction and supervision of a qualified professional engineer and/or a registered geologist in the State of California. Within fifteen (15) days from the Effective Date of the Decree ARC will submit for DTSC review and approval: (a) the name(s) and address(es) of the project engineer and/or geologist chosen by ARC; and (b) in order to demonstrate their expertise in hazardous substance cleanup, the resume(s) of the engineer and/or geologist, and the statement of qualifications of the consulting firm responsible for the work. ARC shall

promptly notify DTSC of any change in the identity of the Project Engineer and/or Geologist.

D. Monthly Summary Reports.

Within forty-five (45) days from the Effective Date of the Decree, and every month thereafter, ARC shall submit a Monthly Progress Report of its activities under the provisions of this Decree. ARC shall submit the report to DTSC by the fourth day of the month due, and the report shall describe:

(1) Specific actions taken by or on behalf of ARC during the previous month;

(2) Actions expected to be undertaken during the current month;

(3) All planned activities for the next month;

(4) Any requirements under this Decree that were not completed;

(5) Any problems or anticipated problems in complying with this Decree; and

(6) All results of sample analyses, tests, and other data generated under the Decree during the previous month, and any significant findings from these data.

After ARC has established a satisfactory history of submission of Monthly Progress Reports for a period of six months, it may begin to submit such reports on a quarterly basis; DTSC, however, may at any time instruct ARC to resume submission of such reports on a monthly basis where the submission of monthly reports is necessary and appropriate under the circumstances.

E. Quality Control/Quality Assurance ("QC/QA").

All sampling and analysis conducted by ARC under this Decree shall be performed in accordance with QC/QA procedures submitted by ARC and approved by DTSC pursuant to this Decree.

F. Submittals.

All submittals and notifications from ARC required by this Decree shall be sent to:

Mr. Thomas Cota, Chief
Southern California Cleanup Operations Branch
Cypress Office
Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, CA 90630

and to other DTSC personnel, as determined by DTSC.

G. Communications.

All approvals and decisions of DTSC made regarding submittals and notifications will be communicated to ARC in writing by the Southern California Cleanup Operations Branch Chief, Department of Toxic Substances Control, or his/her designee. No informal advice, guidance, suggestions or comments by DTSC regarding reports, plans, specifications, schedules or any other writings by ARC shall relieve ARC of the obligation to obtain such formal approvals as may be required.

H. DTSC Review and Approval.

If DTSC determines that any report, plan, schedule or other document submitted for approval pursuant to this Decree fails to comply with this Decree or with applicable laws or regulations, or fails to protect public health or safety or the environment, DTSC may:

(1) Return written comments to ARC with recommended changes and a reasonable date by which ARC is to submit to DTSC a revised document incorporating the recommended changes; or

(2) Modify the document as deemed reasonably necessary in light of ARC's responses to DTSC's written comments and approve the document as modified.

Any modifications, final comments or other directives that DTSC issues pursuant to this Subsection VI.H shall be become binding unless disputed by ARC in accordance with the dispute resolution provisions set forth in Section IX of this Decree (Dispute Resolution).

I. Compliance With Applicable Laws.

ARC shall carry out this Decree in compliance with all applicable state, local, and federal requirements including, but not limited to, requirements to obtain permits and to assure worker safety.

J. Site Access.

To the extent access to the Site or laboratories used for analyses of samples under this Decree is within the control of the Defendant, the Defendant shall provide access at all reasonable times to employees, contractors, and consultants of DTSC. Nothing in this Section is intended or shall be construed to limit in any way the right of entry or inspection that DTSC or any other agency may otherwise have by operation of any law.

K. Sampling, Data and Document Availability.

ARC shall permit DTSC and its authorized representatives to inspect and copy all sampling, testing, monitoring or other data generated by ARC or on ARC's behalf in any way pertaining to Work undertaken pursuant to this Decree. ARC shall submit all such data upon the request of DTSC. Copies shall be provided within seven (7) days of receipt of DTSC's written request. ARC shall inform DTSC at least seven (7) days in advance of all field sampling under this Decree, and shall allow DTSC and its authorized representatives to take duplicates of any samples collected by ARC pursuant to this Decree. ARC shall maintain a central repository of the data, reports, and other documents prepared pursuant to this Decree. DTSC shall make its public records file of Site reports, workplans, comments, technical information and all related information concerning the Site available to ARC for its review and

consideration, pursuant to DTSC Public Records Act procedures or pursuant to any expedited procedures that may be agreed upon by the ARC and DTSC. DTSC understands that complete access to its public files for the Site is essential for ARC to initiate compliance with the conditions and requirements of this Decree.

L. Record Retention.

All data, final reports and other documents prepared pursuant to this Decree shall be preserved by ARC for a minimum of six (6) years after the conclusion of all activities under this Decree. If DTSC requests that some or all of these documents be preserved for a longer period of time, ARC shall either comply with that request or deliver the documents to DTSC, or permit DTSC to copy the documents prior to destruction.

M. Government Liabilities.

The State of California shall not be liable for any injuries or damages to persons or property resulting from acts or omissions by ARC in carrying out activities pursuant to this Decree, nor shall the State of California be held as party to any contract entered into by ARC or its agents in carrying out activities pursuant to this Decree.

N. Additional Actions.

Except as expressly provided herein, by entering into this Decree, DTSC does not waive the right to take any further actions authorized by law.

O. Stop Work Order.

In the event that DTSC determines that any activity (whether or not pursued in compliance with this Decree) may pose an imminent or substantial endangerment to the health or safety of people on the Site or in the surrounding area or to the environment, DTSC may order ARC to stop further implementation of such activity for such period of time needed to abate the endangerment (hereafter "Stop Work Order"). In the event that DTSC

determines that any Site activities (whether or not pursued in compliance with this Decree) are proceeding without DTSC authorization, DTSC may order ARC to stop further implementation of such Site activity for such period of time needed to obtain DTSC authorization, if such authorization is appropriate. Any deadline in this Decree directly affected by a Stop Work Order, under this Subsection, shall be extended for the term of the Stop Work Order.

P. Emergency Response Action/Notification.

In the event of any action or occurrence, such as a fire, earthquake, explosion, or human exposure to hazardous substances caused by the release or threatened release of a hazardous substance at the Site, during the course of this Decree, ARC shall immediately take all appropriate action to prevent, abate, or minimize such emergency, release, or immediate threat of release and shall immediately notify the Project Manager. ARC shall take such action in consultation with the Project Manager and in accordance with all applicable provisions of this Decree. Within seven (7) days of the onset of such an event, ARC shall furnish a report to DTSC, signed by ARC's Project Coordinator, setting forth the events which occurred and the measures taken in the response thereto. In the event that ARC fails to take appropriate response action and DTSC takes the action instead, DTSC may seek to recover the costs of its response action from ARC. Nothing in this Section shall be deemed to limit any other notification requirement to which ARC may otherwise be subject by operation of law.

Q. Extension Requests.

If ARC is unable to perform any activity or submit any document within the time required under this Decree, ARC may, prior to expiration of the time, request an extension of the time in writing. The extension request shall include a justification for the delay. All such requests shall be in advance of the date on which the activity or document is due, and all reasonable requests for

extensions shall be granted, if DTSC determines that good cause exists for the extension.

R. Extension Approvals.

If DTSC determines that good cause exists for an extension, it will grant the request and specify a new schedule in writing. ARC shall comply with the new schedule incorporated in this Decree.

VII. SPECIFIC WORK TO BE PERFORMED

A. Removal Actions.

ARC shall undertake the following removal actions. Prior to the implementation of these removal actions, ARC shall submit a removal action workplan, including an implementation schedule for DTSC's review and approval. Implementation of the removal actions shall be completed by the specified dates.

1. Fence and Post.

Within thirty (30) days from the Effective Date of this Decree, ARC shall commence any necessary repair or maintenance to the perimeter fencing and warning signs that have been installed at the easterly portion of the Site.

2. Maintenance of Interim Cover.

ARC shall repair and maintain the interim cover system that DTSC has installed on the easterly portion of the Site. Within forty-five (45) days of the Effective Date of this Decree, ARC shall provide DTSC with a plan for the repair and maintenance of the cover system.

3. Additional Removal Actions.

DTSC and ARC may agree on the need for removal actions in addition to the removal action specified in Subsection V.A.1(a). Any requirement that ARC perform such additional removal actions shall be subject to the dispute resolution procedures of Section IX (Dispute Resolution).

B. Public Participation Plan ("PPP") (Community Relations).

ARC shall work cooperatively with DTSC in ensuring that the public, the affected community, and the owners of the Site are involved in DTSC's decision-making process. Any such public participation activities shall be conducted in accordance with H&SC Section 25356.1(d), DTSC's Public Participation Policy and Guidance Manual, and with DTSC's review and prior approval. Within ninety (90) days after the Effective Date of this Decree, ARC shall submit a Public Participation Plan for DTSC's review and approval.

C. Remedial Investigation/Feasibility Study (RI/FS).

ARC shall complete an RI/FS for the Site. The RI/FS shall be consistent with the U.S. EPA's "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA," October 1988, and "Data Quality Objectives for Remedial Response Activities," March 1987 and any updated guidance documents. The purpose of the RI/FS is to assess Site conditions, to fully characterize the nature and extent of the Site's hazardous substance contamination, and to evaluate alternatives to the extent necessary to select a remedy appropriate for the Site. RI and FS activities shall be conducted concurrently and interactively so that the investigation and permanent remedy, respectively, can be completed and selected expeditiously. Because of the iterative nature of the RI/FS, additional data requirements and analyses may be identified throughout the process. Site characterization may be conducted in one or more phases to focus sampling efforts and increase the efficiency of the investigation. ARC shall fulfill additional data and analysis needs identified by DTSC as necessary to complete the RI/FS; these additional data and analysis requests will be consistent with the general scope and objectives of the Decree.

As part of the RI, ARC shall begin interim local groundwater monitoring, including groundwater level measurements using the existing wells,

within thirty (30) days after DTSC's approval of the RI/FS Workplan (see, paragraph VII.C.1, below). Groundwater level measurements and groundwater sampling shall be conducted on a quarterly basis. A groundwater sampling report shall be submitted to DTSC by the 15th of the month following the end of the quarter. As data is gathered, DTSC may require the need for additional groundwater wells on or off the Property. Any dispute as to the need for such wells shall be subject to the dispute resolution procedures of Section IX of this Decree (Dispute Resolution).

The required Treatability Studies and FS shall evaluate and address the proposal made by Mr. Thomas Cooper, who owns the eastern portion of the Facility, for recycling the waste materials present at the Site. Mr. Cooper's proposal shall be included as one of the alternatives discussed in the FS.

The following RI/FS components shall be prepared, implemented and performed:

1. **RI/FS Workplan.**

Within sixty (60) days from the Effective Date of this Decree, ARC shall prepare and submit to DTSC for review and approval a detailed RI/FS Workplan and implementation schedule which covers all activities necessary to conduct a complete RI/FS of the Site. DTSC may, at its option, grant ARC a thirty (30) day extension for submitting the RI/FS Workplan.

2. **RI/FS Workplan Implementation.**

ARC shall implement the DTSC approved RI/FS Workplan.

3. **RI/FS Workplan Revisions.**

If ARC proposes to modify any methods or initiate new activities for which a Field Sampling Plan, Health and Safety Plan, Quality Assurance Project Plan or other necessary procedures/plans have been

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established, ARC shall prepare an addendum to the approved plan(s) for DTSC review and approval prior to modifying the method or initiating new activities.

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D. Interim Screening & Evaluation of Remedial Technologies.

At the request of DTSC, ARC shall submit an interim screening and evaluation document which identifies and evaluates potentially suitable remedial technologies and recommendations for treatability studies.

E. Treatability Studies.

Treatability testing shall be performed by ARC to develop data for the detailed remedial alternatives set forth in the RI/FS. Treatability testing is required to demonstrate the implementability and effectiveness of technologies, unless ARC can show DTSC that similar data or documentation or information exists. The required deliverables are: a workplan, a sampling and analysis plan, and a treatability evaluation report. To the extent practicable, treatability studies will be proposed and implemented during the latter part of Site characterization.

F. Remedial Investigation (RI) Report.

ARC shall submit an RI Report to DTSC for review and approval in accordance with the approved RI/FS Workplan Schedule. The purpose of the RI is to collect data necessary to adequately characterize the Site for the purpose of defining risks to public health and the environment and developing and evaluating effective remedial alternatives. Site characterization may be conducted in one or more phases to focus sampling efforts and increase the efficiency of the investigation. As part of the preparation of the RI Report, ARC will (i) evaluate the Focused Remedial Investigation Report (Focused RI Report) for the Site that was completed on January 31, 1992 and (ii) collect such additional data as is necessary to evaluate current site conditions.

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G. Baseline Risk Assessment.

ARC shall submit a Baseline Risk Assessment Report within sixty (60) days from the approval of the Revised RI Report. The report shall be prepared consistently with U.S. EPA and DTSC regulations and guidance documents, including at a minimum: "Risk Assessment Guidance for Superfund (RAGS) Part A" (1989); "Soil Screening Guidance Technical Background Document" (1996); "Exposure Factors Handbook" (1997); "Johnson and Ettinger Model, Users Guide for Evaluating Subsurface Vapor Intrusion into Buildings" (2003); "Ecological Risk Assessment Guidance for Superfund" (1997) and "State of California Preliminary Endangerment Assessment Guidance Manual" (1999) and any updates to those documents.

H. Feasibility Study ("FS") Report

ARC shall prepare the FS Report and submit it to DTSC for review and approval no later than sixty (60) days from the date DTSC approves the Revised RI Report. DTSC, at its option, may grant a thirty (30) day extension for submitting this report.

I. California Environmental Quality Act ("CEQA").

DTSC must comply with CEQA insofar as activities required by this Decree are "projects" requiring CEQA compliance. To the extent that relevant documents, information or data are in ARC's possession or control, ARC shall assist DTSC in preparing the documents required by CEQA.

J. Remedial Action Plan ("RAP").

No later than sixty (60) days after DTSC's approval of the FS Report, ARC shall prepare a final Draft RAP and submit it to DTSC for approval. The final Draft RAP shall be consistent with the NCP and H&SC Section 25356.1, et seq. The Draft RAP public review process may be combined with that of any other documents required by CEQA. The Draft RAP shall be based on and summarize the approved RI/FS Report.

VIII. PAYMENT OF PLAINTIFFS' COSTS

A. Past Response Costs.

With respect to Plaintiffs' Past Response Costs, the Defendant shall pay DTSC $800,000. Such payment shall be made within sixty (60) days of the Effective Date of this Decree by check payable to the California Department of Toxic Substances Control and referring to the "Gardena Sumps Site." The check should be sent to:

California Department of Toxic Substances Control
Attention: Accounting Unit
Gardena Sumps Site, Project No. 400067
P.O. Box 806
Sacramento, California 95812-0806

Copies of the transmittal letters and the check shall be sent to

(1) DTSC's Cypress Office, as specified in Paragraph VI.F of this Decree (Submittals); and

(2) Deputy Attorney General Dennis A. Ragen
110 West A Street, Suite 1100,
San Diego, California 92101

This payment shall be credited toward the earliest outstanding costs that the Plaintiffs have incurred with regard to the Site.

B. Work Oversight Costs.

DTSC will provide ARC with an accounting of all Work Oversight Costs as they accrue. DTSC will provide quarterly bills for those Work Oversight Costs incurred in a manner that is not inconsistent with the NCP. DTSC estimates that the Work Oversight Costs will be $144,000. A copy of DTSC's estimate is attached hereto as Exhibit "B." This is only an estimate; the actual amount of these costs may be more or less, depending on the circumstances surrounding the implementation of the Work.

ARC may provide notice of any challenge to the quarterly bill for Work Oversight Costs by letter mailed to DTSC within thirty (30) days after

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ARC receives the quarterly bill. The challenge will then be subject to the dispute resolution provisions of this Decree.

Unless challenged by ARC, ARC shall pay the Work Oversight Costs that are not inconsistent with the NCP by check within thirty (30) days after receipt of the Bill. The check shall be disbursed to:

California Department of Toxic Substances Control
Attention: Accounting Unit
Gardena Sumps Site, Project No. 400067
P.O. Box 806
Sacramento, California 95812-0806

Copies of the transmittal letter and the check shall be sent to:

(1) DTSC's Cypress Office, as specified in Paragraph VI. F of this Decree (Submittals); and

(2) Deputy Attorney General Dennis A. Ragen
110 West A Street, Suite 1100
San Diego, California 92101

IX. DISPUTE RESOLUTION

A. Informal Dispute Resolution.

Should ARC object to any decision that DTSC makes pursuant to this Decree, ARC shall notify DTSC pursuant to Subsection VI. F of this Decree (Submittals) of its objections, in writing, within thirty (30) days after receipt of the decision. Within fifteen (15) days from ARC's submission of such written objections, DTSC and ARC shall meet and confer in an attempt to reach agreement. Within 30 days after meeting or conferring with ARC, or within such other reasonable time period set by DTSC, DTSC shall provide a written statement of its decision to ARC. That statement shall be considered the final and binding decision of DTSC, unless ARC seeks review under the Formal Dispute Resolution procedures, set forth in the following Subsections.

B. Scope of Formal Dispute Resolution.

Formal Dispute resolution under this Decree is exclusively limited to disputes regarding the provisions described in Sections VII (Specific Work to

be Performed); VIII (Payment of DTSC Costs); XIV (Force Majeure); Subsection VI.H (DTSC Review and Approval); and Subsection X.A (Satisfaction by ARC). Formal Dispute resolution does not apply to DTSC decisions with respect to deadlines for submission of documents pursuant to this Decree. Formal dispute resolution shall proceed as described in the following Subsection (IX.C).

C. Formal Dispute Resolution.

For matters that are within the scope of Formal Dispute Resolution, if ARC disagrees with any final decision that DTSC issues pursuant to Subsection IX.A (Informal Dispute Resolution), ARC may, within thirty (30) days after receipt of that decision, submit such action for review by the Deputy Director of Site Mitigation, Department of Toxic Substances Control, (the "Arbiter") or, in the Deputy Director's extended absence, the Deputy Director's designee. ARC's submission shall be made pursuant to Subsection VI.F (Submittals) of this Decree. The Arbiter shall receive written evidence and testimony concerning the relevant action or omission by DTSC, and shall determine whether such action is reasonably necessary or appropriate in light of the overall objectives of this Decree. The Arbiter shall issue a written decision affirming the action of DTSC, setting aside the action of DTSC, or amending the action of DTSC, as appropriate. The Arbiter's written decision shall set forth the reasons for the ruling. The Arbiter shall render all decisions in accordance with applicable state and federal laws. The Arbiter's decision shall be the final decision of DTSC and shall become binding unless ARC seeks review by this Court as provided in the following Subsection.

D. Review by This Court.

Any administrative decision by the Arbiter respecting administrative dispute resolution, as described above, shall be reviewable by this Court, provided that ARC files a notice of judicial appeal with the Court

and serves it on DTSC within thirty (30) days of receipt of the decision of the Arbiter. Judicial review shall be limited to the administrative record as a whole. The notice of judicial appeal shall include a description of the matter in dispute, the efforts made by the parties thereto to resolve it, and the relief requested. Within thirty (30) days of DTSC's receipt of such notice or within the schedule set forth by the Court, DTSC may file a response to ARC's notice of judicial appeal. ARC will have the burden of proving based on the weight of the evidence in the administrative record as a whole (1) that the Arbiter's decision was not supported by the weight of the evidence in the entire administrative record or was otherwise not consistent with state or federal law, or (2) when the Arbiter's decision involves DTSC's response or oversight costs, that the costs incurred by DTSC were not consistent with the NCP or were otherwise not in accordance with State or Federal law.

E. ARC's Work Obligations During Dispute Resolution.

Notwithstanding the invocation of the procedures stated in this Section, ARC shall continue to perform its undisputed obligations under this Consent Decree, including those that are not disputed or not substantially affected by the disputed issue.

F. Obligations After Resolution of Dispute.

If the Court finds that ARC has not satisfied its burden as described in Subsection IX.B.3 (Review by This Court), ARC shall then fulfill its obligation to pay costs or implement the disputed matter as resolved and perform the work which was the subject of the dispute in accordance with the Court's decision. The appropriate plans should be amended to reflect the resolution of the dispute. In any dispute in which ARC prevails, the deadlines for any affected deliverables shall be extended to account fully for any delays attributable to the dispute resolution procedures and ARC need only comply with any disputed obligations as finally determined by the Court.

X. SATISFACTION AND CERTIFICATION

A. Satisfaction by ARC.

If ARC fulfills its obligations by performing the activities required under this Decree, ARC's obligations for the Work required under this Decree shall be deemed to be satisfied. Within sixty (60) days after DTSC determines that ARC has fulfilled its obligations under this Decree, DTSC will issue ARC a statement that ARC's obligations pursuant to this Decree have been completed (Statement of Completion) and that no further action or work is required of ARC pursuant to this Consent Decree. Upon the Effective date of this Consent Decree, and for so long as ARC is in full compliance with the terms of this Decree, and then after the issuance of the Statement of Completion, ARC, including its parents, subsidiaries and current affiliates, including without limitation BP America, Inc., shall be protected by the covenants not to sue in Section XI (Covenants Not to Sue), subject to the reservations of rights set forth in Section XII (Reservation of Rights).

B. Preparation of New RAP.

Notwithstanding the other provisions of this Decree, if, after the completion of the RAP, new facts are discovered which, either by themselves or in combination with other facts, indicate that the remedy selected in the RAP is no longer protective of human health and the environment, then DTSC may seek to compel the Defendant to prepare a new RAP; the Defendant, however, reserves the right to contest the need for a new RAP and to present any other defenses it may have including, without limitation, the right to deny liability or responsibility for the preparation or implementation of the new RAP.

XI. COVENANTS NOT TO SUE

A. Covenants Not to Sue. In consideration of the actions that will be performed and the payments that will be made by the Defendant under the terms of this Consent Decree, and except as specifically provided for in this

Section and in Section XII (Reservation of Rights), the Plaintiffs covenant not to sue or to take administrative action against the Defendant, pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607, Sections 3008(h), 3013 or 7003 of RCRA, 43 U.S.C. §§ 6928(b), 6934 or 6973, or H&SC §§ 25100, et seq, 25300, et seq., or any other federal or state statute or common law relating to:

(1) the Work,

(2) Work Oversight Costs, and/or

(3) Past Response Costs.

These covenants not to sue are conditioned upon the performance by ARC of all its obligations under this Consent Decree but shall take effect on the effective date of this Consent Decree, and shall continue so long as ARC complies with the terms of this Decree. These covenants not to sue shall become permanently binding upon the issuance of the Statement of Completion described in Subsection X.A (Satisfaction by ARC).

B. Defendant's Covenant Not to Sue. Defendant hereby covenants not to sue or assert any claims, causes of action or claims for reimbursement against the Plaintiffs arising out of any matters relating to the Site or this Consent Decree. Nothing in this Decree shall be construed to limit, impair, or prejudice any tort or governmental immunities available to Plaintiffs under applicable law for their oversight activities at the Site under this Decree.

XII. RESERVATIONS OF RIGHTS

A. Except as otherwise provided in this Consent Decree, the Defendant expressly reserves any and all rights, including, but not limited to, rights of contribution or indemnification for all costs, losses, liabilities and damages incurred in connection with the Site, or for complying with the requirements of this Consent Decree.

B. In the event DTSC initiates any legal proceedings against the Defendant for non-compliance with this Consent Decree, the Defendant shall not contest its obligation to comply with this Consent Decree in any motion brought by DTSC solely to enforce this Consent Decree; the Defendant, however, expressly reserves all other rights and defenses with respect to any such proceeding or any other cause of action or proceeding.

C. Nothing in this Consent Decree is intended or shall be construed to limit the rights of Plaintiffs or Defendant with respect to claims arising out of or relating to the deposit, release or disposal of hazardous substances at any location other than the Site subject to this Decree.

D. Nothing in this Consent Decree shall constitute or be construed as a release or covenant not to sue regarding any claim or cause of action against any person as defined in Section 101(21) of CERCLA or H&SC § 25319, other than Plaintiffs, and ARC and its parents, subsidiaries and current affiliates, including without limitation BP America, Inc., for any liability it may have arising out of or relating to the Site. DTSC retains all of its legal and equitable rights against all persons, except as otherwise provided in this Decree. The legal and equitable rights retained by DTSC include, but are not limited to, the right to compel any person, other than the Defendant, to take response actions for hazardous substance contamination at the Site and to seek reimbursement against such persons for any past, present or future costs incurred by DTSC with respect to the Site.

E. Limitations on Covenants Not to Sue. Notwithstanding any other provision of this Decree, DTSC reserves the right to assert, and any covenants not to sue in this Decree shall not apply with respect to, the following:

1. Any claim based on a failure by ARC to meet the obligations of this Consent Decree.

2. Claims based on the liability of ARC arising from the past, present, or future disposal of Waste Materials at disposal sites other than the Site.

3. Claims based on Defendant's disposal of any hazardous substances, pollutant, or contaminant at the Site in the future;

4. Claims based on liability for Waste Materials removed from the Site.

5. Claims based on future overt acts by Defendant that cause the exacerbation of the hazardous conditions existing at the Site.

6. Claims based on liability for any violations of federal or state law which occur during implementation of the Work.

7. Claims based on Defendant's acquisition of an ownership interest in the Site in the future.

8. Claims based on response, remedial or cleanup measures that are undertaken or costs that are incurred at the Site after the approval of the RAP, unless Defendant has completed such measures or incurred such costs with the approval of DTSC within the scope of this Consent Decree.

10. Claims based on the response actions undertaken or costs incurred in order to implement the RAP or any other legally appropriate future response or remedial action for the Site, unless Defendant has completed such actions or incurred such costs within the scope of this Consent Decree.

11. Claims based on damages to Natural Resources.

F. This Decree does not address any liability that the Defendant may have to implement any unperformed element of the remedy that is identified for the Site in the RAP. Notwithstanding any other provision of this Decree, DTSC expressly retains and reserves the right to institute proceedings

in this action or in a new action, or to take other administrative or judicial action, necessary to compel the Defendant and its parents, subsidiaries and affiliates, to:

1. implement any remedial, response or cleanup activity that is identified for the Site in the final RAP and that ARC has not implemented pursuant to this Decree;
2. implement any remedial or response action, other than the Work, where such action is necessary to protect human health or the environment.
3. implement any portion of the final remedy for the Site that ARC has not implemented pursuant to the terms of this Decree; or
4. pay any unrecovered costs that are not inconsistent with the NCP which are associated with (i) the implementation of the RAP or the final remedy for the Site or (ii) activities or costs that are beyond the scope of this Decree.

G. The parties recognize and acknowledge that the settlement embodied in this Decree is only a partial resolution of the claims raised in the Complaint. The Defendant hereby waives any defenses of res judicata, collateral estoppel, equitable estoppel, laches and claim-splitting based on the existence of this Decree, only with respect to DTSC's rights to pursue subsequent litigation regarding the alleged responsibility of the Defendant for any Site work and costs not covered by this Decree.

H. Except as provided in the Covenants Not to Sue set forth above, nothing in this Decree shall be deemed to limit the response authority of the Plaintiffs under H&SC § 25358.3 or under any other response authority.

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J. Except as otherwise provided in this Decree, Plaintiffs and Defendant expressly reserve all rights and defenses that they may have.

XIII. CONTRIBUTION PROTECTION

With regard to claims for contribution against Defendant for matters addressed in this Consent Decree, the Parties agree, and the Court finds as follows:

A. This Consent Decree constitutes a judicially approved settlement within the meaning of CERCLA § 113(f)(2) 42 U.S.C.§ 9613(f)(2).

B. This Consent Decree requires that Defendant pay certain costs and undertake certain response actions at the Site. Accordingly, except as provided in Section XII (Reservation of Rights), upon fulfillment of the obligations imposed upon them by this Decree, the Defendant will have resolved its liability to Plaintiffs for the following matters, as they are defined in this Decree:

1. Plaintiffs' Past Response Costs, paid and unpaid, pursuant to the terms specified in this Decree,
2. Plaintiffs' Work Oversight Costs, and
3. The Work.

C. The Defendant is entitled to the Contribution Protection provided by CERCLA § 113(f)(2), 42. U.S.C. Section 9613(f)(2), for the Matters Addressed in this Consent Decree.

D. Nothing in this Section shall limit the Plaintiffs' rights to seek cost recovery from, or take enforcement or other legal or administrative action against, any person or entity other than ARC, its parents, subsidiaries and current affiliates.

XIV. FORCE MAJEURE

ARC shall cause all Work to be performed within the time limits set forth in this Decree unless an extension is approved or performance is

delayed by events that constitute an event of force majeure. For purposes of this Decree, an event of force majeure is an event arising from circumstances beyond the control of ARC that delays performance of any obligation under this Decree, provided that ARC has undertaken all appropriate planning and prevention measures to avoid any foreseeable circumstances. Increases in cost of performing the Work specified in this Decree shall not be considered circumstances beyond the control of ARC. For purposes of this Decree, events which constitute a force majeure shall include, without limitation, events such as acts of God, war, civil commotion, unusually severe weather, labor difficulties, shortages of labor, materials or equipment, government moratorium, delays in obtaining necessary permits due to action or inaction by third parties, earthquake, fire, flood or other casualty. In addition, any unavoidable delay in obtaining the right of access for ARC to the Site or any off-Site area shall also constitute an event of force majeure. Delay caused by an event of force majeure shall be deemed not to be a violation of this Decree, and this delay shall not be counted in determining the time during which such work shall be completed, or such act performed, whether such time be designated by a fixed date, a fixed time or a reasonable time, and such time shall be deemed to be extended for the effective period of delay equal to the actual days lost attributable to the effect of the event of force majeure. ARC shall notify DTSC in writing immediately after the occurrence of the force majeure event. Such notification shall describe the anticipated length of the delay, the cause or causes of the delay, the measures taken and to be taken by ARC to minimize the delay and the timetable by which these measures will be implemented. If DTSC does not agree that the delay is attributable to a force majeure, then the matter may be subject to the dispute resolution procedures set forth in Section IX of this Decree (Dispute Resolution).

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XV. NO ADMISSION OF LIABILITY

The actions undertaken by ARC in accordance with this Consent Decree do not constitute an admission of liability for any purpose by Defendant, nor do they constitute a waiver of any rights or claims that ARC may have against any other party or person, except as otherwise provided in this Consent Decree with respect to claims against the Plaintiffs.

XVI. CLAIMS AGAINST OTHER PERSONS

Nothing in this Consent Decree shall in any way constitute a waiver or release of any claims and rights that Plaintiffs or the Defendant have or may have against any potentially responsible party for the Site, and Plaintiffs and Defendant reserve any and all rights they have or may have against any prior owner and/or operators of the Site, and/or any other potentially responsible parties.

XV. FUTURE SETTLEMENTS

DTSC agrees that it will notify ARC of negotiations with any other party that is potentially liable for the cleanup of the contamination at the Site and that it will permit ARC to participate in such negotiations to the extent that the negotiations may lead to a proposed consent decree or settlement agreement that may adversely affect the rights of ARC to recover response costs or obtain contribution for costs that ARC incurs pursuant to this Decree. As part of this process, DTSC nonetheless reserves the right to meet and negotiate in confidence with any other potentially responsible party.

Plaintiffs and ARC agree that any funds received by Plaintiffs from any other persons as a result of any administrative consent order, consent decree, or similar settlement with respect to the Site, shall be used, at DTSC's discretion, only for the following purposes: (1) to pay for any past or future costs that DTSC has incurred or will incur with respect to the Site, including, without limitation, any response, removal, remedial or oversight costs; (2) to

pay for attorneys fees and costs of litigation that DTSC has incurred or may incur with respect to the Site; (3) to fund cleanup work needed at the Site that has not been successfully undertaken by ARC, and/or (4) to fund, to the extent permitted by law, an interest-bearing, site-specific account, which shall be used to pay for cleanup work at the Site that is not inconsistent with the NCP, including, without limitation, the implementation of the final remedy for the Site. Without limiting DTSC's discretion to determine the allocation of future settlement proceeds, it is expressly understood that DTSC retains the right to give priority to the payment of its own unpaid Past Response Costs when allocating any such settlement proceeds.

XVIII. FULL AND COMPLETE DECREE

This Consent Decree supersedes any and all prior agreements, either oral or in writing, between Plaintiffs, on the one hand, and the Defendant, on the other hand, with respect to the Site. This Decree contains all of the covenants and agreements between Plaintiffs on the one hand and the Defendant on the other, with respect to the Site, and Plaintiffs and the Defendant acknowledge that no representation, inducement, promise or agreement has been made by or on behalf of any of the Parties except those covenants and agreements embodied in this Decree. No agreement, statement or promise not contained in this Decree shall be valid or binding as between Plaintiffs on the one hand, and Defendant on the other, unless the agreement is in writing, signed by the party to be bound and, where appropriate, approved by the Court.

XIX. PUBLIC COMMENT

This Decree shall be subject to a public comment period of not less than 30 days. Notice of the proposed Decree shall be published in the California Regulatory Notice Register. If DTSC receives comments that disclose facts or considerations indicating that this Decree is inappropriate,

improper or inadequate, then DTSC may (i) withdraw its consent to this Decree, or (ii) seek to modify this Decree with the consent of the Defendants.

XX. NOTICE TO THE UNITED STATES AND US E.P.A.

Within 10 days of the day that this Decree is signed by the Parties, DTSC will serve copies of this Decree and the Complaint on the Administrator of U.S. EPA, the Attorney General of the United States and the offices of U.S.EPA, Region IX.

XXI. EFFECTIVE DATE

The Effective Date of this Decree is the date upon which the Court enters an order approving this Decree.

XXII. RETENTION OF JURISDICTION

Notwithstanding any dismissal of this action, this Court retains jurisdiction over both the subject matter of and the parties to this Decree for the purposes of enabling any of the Parties to apply to this Court at any time for such further order or relief as may be necessary or appropriate for (1) Dispute Resolution in accordance with Section IX of this Decree; (2) to effectuate the terms of this Decree or (3) to enforce compliance with this Decree. In the event this action is dismissed, the Court may reopen this matter in order to effectuate any of the terms of this Decree.

XXIII. MISCELLANEOUS

A. Each undersigned representative of DTSC and the Defendant certifies that he or she is fully authorized to enter into the terms and conditions of this Decree and to execute and legally bind such Party to this Decree.

B. This Decree shall be binding upon, and inure to the benefit of (1) ARC and its corporate predecessors, successors, current affiliates and assignees, and (2) DTSC and any successor agencies of the State of California, including any agencies that succeed to (i) DTSC's authority pursuant to the

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HSAA, or (ii) DTSC's authority as lead agency of the State of California with respect to the Site.

C. This Decree is entered into and shall be construed and interpreted in accordance with the laws of the State of California.

D. ARC shall identify, on the attached signature page, the name and address of an agent who is authorized to receive notice on behalf of the ARC with respect to all matters arising under or relating to this Decree. ARC hereby agrees to receive notice in that manner.

DATED: November 2, 2004

United States District Judge

FOR PLAINTIFFS, THE CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCE CONTROL AND THE STATE ACCOUNTS:

SCANNED

Dated June 21, 2004

Thomas Cota
Chief, Southern California Cleanup Operations Branch
Cypress Office
Department of Toxic Substances Control

FOR DEFENDANT, ATLANTIC RICHFIELD COMPANY:

Dated: June 16, 2004

By: Mark E. Bollard

Its: MANAGER - U.S. WEST COAST Region

Name and Address of person authorized to receive notice on behalf of ARC pursuant to this Decree:

Mike McAnulty / Deborah Felt
6 Centerpointe Dr.
La Palma, CA 90623

Exhibit "A"

Legal Description

Legal Description
Gardena Sumps Facility Property

1. Cooper Property: Los Angeles County Parcel Number 6106-036-034. In the McDonald Tract of the San Pedro Rancho. 3.03 acres, less a 0.04 acre slope easement, for a net lot size of 2.99 acres. Commencing 666.86 feet east from the northwest corner of Lot 101, going east for 345.76 feet, with an approximate 0.04 acre slope easement for approximately the last half of this distance. At the end of that easement, going south and 1° 40' to the west for 412.68 feet, west 283.72 feet, north 100 feet, west 37.51 feet, and north 310.38 feet.

2. Haack Property: Los Angeles County Parcel Number 6106-036-035. 1450 West Artesia Boulevard, Gardena, California. McDonald Tract of the San Pedro Rancho. 2.58 more or less acres. Commencing east 304.37 feet and south 25 feet from the northwest corner of Lot 101, then south 310.38 feet, then east 362.49 feet, then north to southern line of Artesia Boulevard, then west thereon 362.49 feet to the beginning part of Lot 101.

Exhibit "B"

Summary of Estimated Work Oversight Costs

Exhibit "B"
Estimate of Work Oversight Costs

Title	Branch Chief	Project Manager	Supervisor	Toxicology	Geology	Industrial Hygiene	HQ Engring	Public Particip	HQ CEQA	Legal	Clerical
Classification	Sup HSS II	HSS	HSSI	Staff Toxicologist	Eng Geol.	Assoc IH	HSE	PPS	AEP	Staff Counsel	WPT
TASK: Consent Order Prep./Negotiation	40	40	40							40	
Scoping Documents: HSP/SAP/QAP		20	10	20	20						
Review and comment on existing data and Preliminary Endangerment Assessment (PEA) equivalent documents and provide general project oversight.		40	10								10
Remedial Investigation/ Feasibility Study (RI/FS)											
Workplan	4	40	16	10	50	10					
Implementation/Treat. Study		60	20		60		40				
Report	4	60	16	10	80		20				
Risk Assessment		12	6	60							
Public Participation								60			
CEQA	4	40	16						40		
Removal Action Workplan											
Implement Removal Action											
Design											
Remedial Action Plan (RAP)	16	40	30	20	36		8	40		10	10
Certification											
Deed Restriction											
Operation & Maint											
Total No. Hours/Class	68	352	164	120	246	10	68	100	40	50	20
Hourly Rate/Class	144	108	125	140	114	104	111	101	101	144	56
Cost/Class	$9,792	$38,016	$20,500	$16,800	$28,044	$1,040	$7,548	$10,100	$4,040	$7,200	$1,120
Grand Total Cost	$144,200										

APPENDIX B

Statement of Reasons

STATEMENT OF REASONS FOR
GARDENA SUMPS REMEDIAL ACTION PLAN

Pursuant to California Health and Safety Code (HSC), section 25356.1(d), the California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control (DTSC) has prepared this Statement of Reasons as part of the Final Remedial Action Plan (RAP) for the Gardena Sumps Site at 1440-1450 Artesia Boulevard, Gardena VA, 90247 (DTSC Site No. 401218.)

The RAP presents a summary of the Remedial Investigation (RI) and Feasibility Study (FS) to address waste oily sludge from refinery and drilling activities disposed in the sumps in the 1940's. Chemical components of the waste sludge included: Arsenic, hexavalent chromium, naphthalene, and the benzo(a)pyrene in soils; benzene and hydrogen sulfide in air; and Dibenz(a,h)anthracene in groundwater. The RAP summarizes the results of a risk assessment performed to determine the potential risks to public health and the environment associated with those chemicals listed above. The RAP also provides a discussion of the remedial alternatives that were evaluated in the FS, which developed and compared various remedial alternatives for the Site based on the CERCLA nine-criteria. The recommended remedial alternative (Alternative 2A – Capping with selective excavation) meets the objectives of protecting public health and the environment and is consistent with the City of Gardena's Master Plan.

The RAP's proposed remedial activities for Alternative 2A include:

1. Excavation of soil-sludge mixture in the Haack Rework Area, and site grading for excavated areas;
2. Consolidation of excavated soil-sludge mixture materials onto the existing sumps;
4. Grading and installation of a cap over the Cooper North and Cooper South sumps, including the following layers:
    a. Stabilization layer
    b. Foundation layer
    c. Low hydraulic conductivity layer
    d. Erosion resistance layer
5. Installation of a retaining wall system along the north side of the Haack sump;
6. Installation of a vapor control and monitoring system;
7. Installation and/or relocate groundwater monitoring wells and system; and
8. Installation of vegetation and site restoration.

A land use covenant will be placed on the property restricting its future use and development. Long-term inspection and maintenance of the cap and groundwater monitoring are expected for the Site.

The DTSC believes that the attached RAP complies with the law as specified in California Health and Safety Code, section 25356.1. Section 25356.1(e) requires that RAPs "shall include a statement of reasons setting forth the basis for the removal and remedial actions selected." The statement of reasons "shall also include an evaluation of the consistency of the removal and remedial actions

proposed by the plan with the federal regulations and factors specified in subdivision (d)..." Subdivision (d) specifies six factors against which the remedial alternatives in the RAP must be evaluated. The proposed remedial action is consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (the National Contingency Plan, "NCP"), the federal Superfund regulations. The attached RAP addresses these factors in detail. A brief summary of each factor follows. The statement of reasons also includes the preliminary Nonbinding Allocation of Responsibility (NBAR) as required by HSC section 25356.1(e).

1. **Health and Safety Risks - Section 25356.1(d)(1)**

The following chemicals were identified as primary risk drivers because they are the most ubiquitous chemicals throughout the Site:

- Arsenic, hexavalent chromium, naphthalene, and the benzo(a)pyrene in soils;
- Benzene and hydrogen sulfide in air; and
- Dibenz(a,h)anthracene in groundwater.

The results of the human health risk assessment indicate exposures to on-Site soils and sludge may potentially exceed target risk goals for all potential receptor scenarios evaluated: commercial/industrial worker, construction worker, hypothetical future on-Site/current off-Site resident, and trespasser.

The primary remedial action objectives to mitigate these health risks include:

- Prevent ingestion/direct contact with sludge and/or soil having 10-5 to 10-6 excess cancer risk from carcinogenic constituents as represented by arsenic, hexavalent chromium, naphthalene, and the PAHs;
- Prevent dermal contact with shallow groundwater having 10-5 excess cancer risk from carcinogenic PAHs as represented by dibenz(a,h)anthracene;
- Prevent dermal contact with low pH, PAH containing sludge;
- Prevent inhalation of VOCs, as represented by benzene, posing excess cancer risk levels of 10-5 to 10-6; and
- Prevent explosive risks associated with methane.

These potential threats are addressed by the recommended response actions and will be controlled by eliminating exposure pathways through proper containment, monitoring, and institutional controls as described in this RAP

2. **Beneficial Uses of the Site Resources** - Section 25356.1(d)(2)

The proposed remedial actions at the Site are based on the approved Feasibility Study and is consistent with the City of Gardena's Master Plan (TPC, 2006). The City Master Plan designates the Site to be developed as commercial property with a mix of commercial buildings and parking and incorporating curbs, gutters, light poles, and utilities. The FS's Alternative 2A accommodates these features.

3. Effect of the Remedial Actions on Groundwater Resources

Based on the results from historical investigations and the extensive field work performed as part of the Revised Draft Remedial Investigation Report (Stantec, 2008) and the Addendum to the Revised Draft Report (Stantec, 2010b), the current conceptual site model suggests that the undisturbed sludge at the Site does not pose a threat to surface water and does not pose a threat to shallow zone or deeper zone groundwater quality throughout much of the Site.

Immediately beneath the Site, there are two hydraulic groundwater zones within the Bellflower Aquiclude: Zone A (upper) and Zone B (lower), which are approximately 15 to 25 and 75 to 80 ft bgs, respectively. Shallow groundwater is impacted (lower pH, total & dissolved metals) south of the Haack sump; however, these impacts are not detected in samples collected downgradient of the sumps. The proposed remedial action will further prevent water infiltration into the sludge, and potential leaching of contaminants into the groundwater. Long-term groundwater monitoring will continue for the foreseeable future.

4. Site-Specific Characteristics - Section 25356.1(d)(4)

Chemicals in soil and groundwater beneath the site have been extensively characterized. No commingling of contaminants is expected as the sludge are stable and contained within the sumps.

The transport mechanisms analysis in the RI human health risk assessment provided the potential for offsite migration. The exposures mechanisms included wind, erosion and dust; volatilization to indoor and ambient air; and leaching to groundwater.

a. Air: Based on the RI, the undisturbed sludge at the Site does not pose a substantive threat to the air quality in the immediate vicinity of the Site. Additional capping from the proposed remedial action would further isolate the sludge from temperature fluctuations above approximately 100 °F, and would further minimize this potential impact.

b. Soil: The undisturbed sludge does not pose a threat to further contamination of soil surrounding the sludge by leaching of constituents of potential concern from the sludge due to the sumps' natural clay lining.

c. Groundwater: The undisturbed sludge at the Site does not pose a threat to surface water and does not pose a threat to shallow (Zone A) or deeper (Zone B) groundwater quality with the natural clay lining surrounding the sumps.

5. Cost-Effectiveness of Alternative Remedial Action Measures - Section 25356.1(d)(5)

Potential applicable technologies for site remediation were screened based on effectiveness, implementability, and cost. The remedial alternatives determined to be most applicable to the Site including a no action alternative, are identified below:

- Alternative 1 – No action.
- Alternative 2A – Capping with selective excavation.
- Alternative 3 – Capping with selective excavation and stabilization/neutralization.
- Alternative 4 – Excavation with off-Site disposal.

The purpose of the evaluation of relative performance of the alternatives is to select a preferred remedial alternative that will be most suitable for the Site, based on the CERCLA guidance document (USEPA, 1988). In the comparative analysis and evaluation, the remedial alternatives are weighed against each of the nine criteria in the CERCLA guidance document, and comparisons between alternatives are made to assist in screening out inferior alternatives and selecting a preferred alternative.

As part of the Balance Criteria, a cost analysis was performed with the results indicated that:

- Alternative 2A has the lowest capital cost of approximately $6MM
- Alternative 3 has capital costs ranging from approximately $11MM to $13MM while Alternative 4 capital costs range from approximately $28MM to $29MM.
- Alternatives 2A and 3 have identical net present value O&M costs of approximately $5MM. Alternative 4 has the lowest net present value O&M cost of approximately $120K.
- Alternative 2A has the lowest combined remedial cost.

6. Potential Environmental Impacts of Remedial Actions – Section 25356.1(d)(6)

All potential impacts will be mitigated under the proposed remedial alternative. The proposed remedial alternative will not create any significant environmental impacts. Because of this, a Negative Declaration was proposed pursuant to the California Environmental Quality Act (CEQA) for the recommended remedial alternative. As Lead Agency under the California Environmental Quality Act (CEQA), DTSC approved the above-described project on June 17, 2022, and has made the following determinations:

1. The project will not have a significant effect on the environment.

2. A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.

3. Mitigation measures were not made a condition of project approval.

4. A Statement of Overriding Considerations was not adopted for this project.

5. Findings were made pursuant to the provisions of CEQA by DTSC.

A CEQA Initial Study was performed for the Gardena Sumps Site which discussed potential environmental impacts of the recommended remedial alternative, as well as actions that will be taken to reduce or eliminate these potential environmental impacts during implementation. The CEQA Initial Study made the following findings:

a. The project does not have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.

b. The project does not have impacts that are individually limited but cumulatively considerable. (“Cumulatively considerable” means that the incremental effects of an

individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

c. The project does not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly.

The CEQA Environmental Study Checklist and Negative Declaration were filed with the State of California https://ceqanet.opr.ca.gov/ on February 14, 2022, for a 30-day public comment period, ending March 18, 2022. No comment was received.

APPENDIX C

Responsiveness Summary

Department of Toxic Substances Control

Jared Blumenfeld
Secretary for
Environmental Protection

Meredith Williams, Ph.D.
Director
5796 Corporate Avenue
Cypress, California 90630

Gavin Newsom
Governor

RESPONSE TO PUBLIC COMMENTS
March 31, 2022

PUBLIC COMMENT ON THE PROPOSED REMEDIAL ACTIONS FOR THE GARDENA SUMPS SITES, 1440-1450 ARTESIA BOULEVARDS, GARDENA, CA 90247 (DTSC SITE NO. 401218)

INTRODUCTION

In January 2022, the California Department of Toxic Substances Control (DTSC) issued a public notice starting a 30-day public comment period on the Draft Remedial Action Plan (RAP) and the California Environmental Quality Act (CEQA) analysis for the Gardena sumps (Site) in the City of Gardena, CA. The Public Comment Period ran from January 31,2022 to March 2, 2022, with an online community meeting on February 16, 2022.

SITE HISTORY

The Site is located at 1440-1450 West Artesia Boulevard, in the southwest corner of the Artesia Boulevard and Normandie Avenue intersection, in the City of Gardena, Los Angeles County, California. Generally, the Site is bordered to the south by the Los Angeles County Department of Public Works (LACDPW) Dominguez Flood Channel, to the east by the Southern Pacific Railroad right-of-way and Normandie Avenue, to the west by commercial properties, and to the north by Artesia Boulevard, although a small portion of Artesia Boulevard is included within the Site.

The Site, shown on Figures 1 through 4 below, is approximately 6.48 acres of mixed-use development (i.e., residential and commercial) and primarily consists of two properties, the Cooper property and the Haack property. The Cooper property is made up of two large sumps (referred to as the "Cooper North" and "Cooper South" sumps). The Haack property holds one modified sump (referred to as the "Haack sump") and the "Haack Rework Area," which is a reworked and mixed sludge-soil area south of the Haack sump. The Haack Rework Area encroaches onto the extreme northern portions of the two easternmost residential lots. Commercial property is located west of the Haack sump, and four residential properties are located south of the commercial property and the Haack sump.

The site was developed as a clay mine during the 1920s by the Moneta Brick Company. Clay mining resulted in excavations that were reportedly used for oil sludge disposal beginning in approximately 1940. By September 1946, the Haack, Cooper South and Cooper North Sumps had been filled with sludge, and vegetation had reclaimed the Haack Rework Area.

By December 1951, the western part of the Haack Sump had been covered with dirt and was converted into a parking lot. On October 1, 1952, the northern-most strip of the Site property was sold to the State of California for a highway easement. By early 1956, Artesia Boulevard (Highway 91) had been constructed, with the southern part of the roadway encroaching into the Haack Sump northern berm. By January 1958, the Dominguez Channel had been reconstructed and extended eastward south of the Site.

By November 1962, the bluff on the Haack Property had been excavated southward to expand the Haack parking lot, although the eastern part of the Haack property contained sludge immediately west of the Cooper North Sump. The Haack Rework Area appeared altered and may have received soil cover from excavation activities that occurred immediately north of the Haack Rework Area. The future Cooper property was unchanged even after it was sold to Thomas Cooper in December 1977.

Currently, the two Cooper sumps are capped by a geosynthetic liner that was installed by OHM Corporation (OHM) in July 1993 as part of the DTSC's environmental program at the Site. An additional geosynthetic liner was installed over the original liner in August 2013. The Haack Sump has been covered by asphalt and a concrete slab. Currently the Haack property is leased to various tenants who operate small businesses, including a U-Haul rental agency, a metal fabricating, sand blasting and painting company, and an auto body repair shop. Three buildings and numerous small trailer-type storage structures are present on the Haack property. Information about the Site is available at the local library: Gardena Mayme Dear Library, located at 1731 W Gardena Blvd, Gardena, CA 90247 or online at:
https://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=19490135

PROPOSED REMEDIAL ACTIONS

Based on the approved Feasibility Study, the remedial actions would involve excavating contaminated soils at select areas, constructing a cover using multiple engineered geosynthetic covers, which will also eliminate the need for a retaining wall next to Artesia Boulevard. The finished remedial actions will be able to accommodate the City of Gardena's request that the Site can be used as a practical commercial property in accordance with the City's master development plan. The remedial actions are designed to effectively mitigate the risk from ingestion, inhalation, and dermal contact with on-Site contaminated soils for both future non-residential and residential occupants of buildings on Site, and future landscapers and utility workers. In addition, the remedial actions would effectively mitigate the risk from dermal contact with Site groundwater through construction of a cap and institutional controls (i.e., restrictions on land use as a residence, day care center for

children, long-term care hospital, or a traditional public or private school for persons less than 21 years of age, without DTSC consent; required long-term monitoring and inspection).
Individual components of the overall remedial action involve the following activities:
1. Excavating approximately 200 cubic yards of degraded and soil-sludge mixture (Haack Rework Area);
2. consolidating excavated degraded and soil-sludge mixture materials on site;
3. grading at excavated areas;
4. grading and installing a cap over the Cooper North and Cooper South sumps;
5. installing a retaining wall system along the north side of the Haack sump;
6. installing a vapor control and monitoring system;
7. installing and operating a groundwater monitoring system; and
8. restoring vegetation and the overall Site conditions.

PUBLIC OUTREACH PROGRAM

As part of DTSC's public outreach effort, DTSC initiated a survey to gauge community interest in August 2021 with letters mailed to residents and businesses within 1/4 miles of the Site. A Community Update and Public Notice for the public comment period were mailed in January 2022 again to residents and businesses along with community leaders and representatives. Additionally, a Public Notice was published in the Gardena Valley Newspaper on January 27, 2022

PUBLIC COMMENTS

DTSC received two comments: a letter from California Department of Transportation (Caltrans) and a letter from the City of Gardena. Copies of the comments are included in Attachment 1.

Caltrans comment:

> *"The proposed remedial actions would not affect public roadways in the long-term because these activities would not substantially affect the overall circulation system. The Proposed Project would add some traffic to roadways during the 4-month construction period due to delivery of materials and supplies to the Site, removal of wastes from the Site, and workers traveling to and from the Site. The Proposed Project would not have any long-term effects on congestion levels.*
>
> *The proposed project would not result in any potentially significant impacts. Mitigation measures would not be necessary beyond those actions incorporated as part of the Proposed Project to ensure that potential impacts would remain at a less-than-significant level.*
>
> *Any transportation of heavy construction equipment and/or materials which requires use of oversized-transport vehicles on State highways will need a Caltrans transportation permit. We recommend large size truck trips be limited to off-peak commute periods."*

Response to Caltrans letter: We will include provisions in the Remedial Design and Implementation Plan to address any potential traffic issues with a traffic control plan to ensure that the appropriate highway permits will be obtained for oversize-transport vehicle, along with applicable local permits during the construction period.

City of Gardena Comment:

> *The City [of Gardena] is pleased that DTSC will require the Site's remediation under the RAP. As you know, the City has long aimed to have this site properly remediated to make it safe for human health and the environment and allow the redevelopment of the property for its highest and best uses. This site has long been underutilized and a source of concern for the safety and well-being of our residents.*
>
> *With these considerations in mind, the City supports the RAP so long as it is revised to clarify that it will be designed and implemented in a manner that accommodates the development and operation of an industrial, office/retail and self-storage project that the InSite Property Group ("InSite") has proposed to build on the Site (the "Project"). Please see the attached Site Plan that depicts the Project. InSite has acquired parcels comprising portions of the Site and is under contract to buy the balance of the Site. It seeks the City's approval of entitlements, including a lot line adjustment, a specific plan amendment, a zone change and a zone code amendment, which the City has begun to review under its local zoning and land use regulations and CEQA. DTSC's recent presentation of the RAP at a Community Meeting described a: development on the Site that differed from the Project. We ask that the RAP reference the Project and include the Site Plan and clarify that it will be designed and implemented to allow the development and use of the Project.*
>
> *The City requests a meeting before DTSC approves the RAP amongst DTSC, Atlantic Richfield Company and InSite to discuss how best to coordinate the eff01is of these entities to achieve the Site's successful remediation and redevelopment. If you could provide us with available meeting dates, we would be appreciative.*

Response to City of Gardena letter: DTSC arranged a meeting with Atlantic Richfield Company (ARC) and the City to review the proposed remedial action plan on March 10, 2022. DTSC and ARC confirm that the Site will be remediated to accommodate Alternative 2A as described in the Feasibility Study. DTSC deemed that the current proposed site redevelopment by InSite is consistent with Alternative 2A

redevelopment. ARC indicated in the meeting that it has collaborated with InSite on the proposed remedial action plan, and that they will provide due consideration to input that InSite and the City may have during the remedial design and implementation phase that would not affect the protectiveness of the remedial actions and conditioned upon InSite's agreement to reimburse ARC for any incremental costs associated with site improvements and modifications beyond those that are related Alternative 2A.

POINT OF CONTACT

Questions or comments about this project can be directed to:

Mr. Nick Ta
Project Manager
Senior Environmental Scientist
5796 Corporate Ave
Cypress, CA 90630
(714) 484-5381
nicholas.ta@dtsc.ca.gov

APPENDIX D

Final CEQA Documents

CALIFORNIA ENVIRONMENTAL QUALITY ACT
NOTICE OF DETERMINATION

To: Office of Planning and Research
State Clearinghouse
P.O. Box 3044, 1400 Tenth Street, Room 212
Sacramento, CA 95812-3044

From: Department of Toxic Substances Control
Site Mitigation and Restoration Program
5796 Corporate Avenue
Cypress, CA 90630

Subject: FILING OF NOTICE OF DETERMINATION IN COMPLIANCE WITH SECTION 21108 OR 21152 OF THE PUBLIC RESOURCES CODE

Project Title: Draft Final Remedial Action Plan, Gardena Sumps

State Clearinghouse No.: 2022020305

Project Location: Southwest corner of Artesia Boulevard and Normandie Avenue, Gardena, California 90248

County: Los Angeles

Project Description: The Department of Toxic Substances Control (DTSC), pursuant to authority granted under Chapter 6.8, Division 20, section 25300 et seq approved a Remedial Action Plan (RAP) for the Gardena Sumps Site (Site). The Site is approximately 6.48 acres of mixed-use development (i.e., residential and commercial) and primarily consists of two properties, the Cooper property and the Haack property. The Cooper property comprises two large sumps (referred to as the "Cooper North" and "Cooper South" sumps). The Haack property contains one modified sump (referred to as the "Haack sump") and the "Haack Rework Area," which was a mixed sludge-soil area south of the Haack sump. The Haack Rework Area encroaches onto the extreme northern portions of the two easternmost residential lots. Commercial property is located west of the Haack sump, and four residential properties are located south of the commercial property and the Haack sump.

The RAP proposes excavating the Haack Rework Area and a portion of sludge overflow along the eastern perimeter of the Cooper Sumps and consolidating the materials above the Cooper North and South Sumps. A multi-layer, engineered geosynthetic cap consisting of a stabilization layer, foundation layer, low-hydraulic conductivity layer, and erosion resistance layer would be constructed above the sumps. A vapor control and monitoring system would be installed beneath the cap and around the sumps, and existing groundwater monitoring and long-term inspection and maintenance would continue at the Site.

Activities associated with the remedial actions would occur over an approximately 23-week period.

As Lead Agency under the California Environmental Quality Act (CEQA), DTSC approved the above-described project on June 17, 2022, and has made the following determinations:

1. The project will not have a significant effect on the environment.
2. A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures were not made a condition of project approval.
4. A Statement of Overriding Considerations was not adopted for this project.
5. Findings were made pursuant to the provisions of CEQA by DTSC.

This is to certify that the final environmental document and the record of project approval are available to the public at the following locations:

DTSC File Room
Site Mitigation and Restoration Program
5796 Corporate Avenue
Cypress, CA 90630
(714) 484-5300 (call for appointment)

DTSC website:
https://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=19490135

Nicholas Ta	Project Manager	714-484-5381
Contact Person Name	Contact Person Title	Phone #

Branch Chief Signature	June 17, 2022
	Date

A. Edward Morelan, PG, CEG	Branch Chief	714-484-3544
Branch Chief Name	Branch Chief Title	Phone #

TO BE COMPLETED BY OPR ONLY

Date Received for Filing and Posting at OPR: