

# EXECUTIVE SUMMARY

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This Draft Environmental Impact Report (Draft EIR) has been prepared pursuant to the requirements of the California Environmental Quality Act (CEQA, Public Resources Code sections 21000 et. seq.) with respect to the proposed Remedial Action Plan (RAP) (“the project” or “Responsible Party’s (RP’s) Proposed Remedy”) for the former Kast Property (also referred to as the “site”). Upon approval of the RAP, the remediation activities would be implemented by Equilon Enterprises LLC, doing business as Shell Oil Products U.S. (“Shell” or RP). In accordance with CEQA Guidelines section 15123, this Executive Summary of the EIR includes a brief description of the RP’s Proposed Remedy; identification of significant impacts and proposed mitigation measures; key issues of controversy and issues to be resolved; and choices among alternatives that would potentially reduce or avoid impacts.

## 1. PROPOSED PROJECT

### Background and Purpose of the RAP

The RAP describes the proposed remediation plan for the Carousel Tract located in the southern portion of the City of Carson, California. Historically, prior to development of many existing residential uses, the local project vicinity was primarily an industrial area inclusive of numerous oil refinery and other chemical-related facilities, many of which have documented hazardous materials releases. The site was developed in 1923 by Shell Company of California with three concrete oil storage reservoirs and was used as an active oil storage facility until the 1950s, when the site was used only on a standby reserve basis. In 1966, the oil storage reservoirs were removed from the site. Construction of existing on-site homes as part of the Carousel Tract began in 1967 and was completed by the early 1970s. The site has remained residential since that time and includes 285 single-family residences.

In 2008, environmental investigations were conducted in connection with an adjacent industrial chemical facility (former Turco Products Facility). During those investigations, contamination by petroleum hydrocarbons at sample locations was discovered within the site. The Department of Toxic Substances Control (DTSC) communicated these findings to the Los Angeles Regional Water Quality Control Board [Regional Board] in March 2008, and in April 2008 the Regional Board sent an inquiry to Shell regarding the status of any environmental investigations at the site. This inquiry was followed by the Regional Board’s California Water Code (CWC) Section 13267 Order to Conduct an Environmental Investigation at the former Kast Property issued to Shell Oil Company (Shell) on May 8, 2008. Shell conducted a series of extensive site multimedia sampling and investigations, pilot studies, and other environmental evaluations of the site in response to that Order and subsequent 13267 Orders issued on October 1, 2008 and November 18, 2009, Section 13304 Order dated October 15, 2009, and Cleanup and Abatement Order R4-2011-0046 (CAO) dated March 11, 2011, as amended. All of the investigations have occurred under Regional Board approval and oversight, following work plans reviewed and approved by the Regional Board. Results of the investigations show that the site has been impacted with petroleum hydrocarbons associated with former crude oil storage during the period prior to residential redevelopment. In addition to hydrocarbon-related impacts, impacts are also locally present from chlorinated solvents related to offsite sources. Because of the impacted soils by petroleum hydrocarbons, methane gas also occurs beneath the site, although at non-hazardous levels in the shallow subsurface.

Shell prepared a RAP and Feasibility Study (FS) in March 2014 and submitted it to the Regional Board in accordance with the CAO and in response to the Regional Board letter dated January 23, 2014 directing Shell to submit a RAP and Human Health Risk Assessment (HHRA) pursuant to California Water Code Section 13304. The Regional Board reviewed the RAP, FS, and HHRA and in a letter dated April 30, 2014 provided comments and directives to Shell on these documents. On June 30, 2014 Shell submitted a revised RAP, FS, and HHRA addressing the comments and directives contained in the Regional Board's April 30, 2014 letter. In October 2014 Addenda to the RAP, FS, and HHRA were submitted to the Regional Board. The RAP, FS and HHRA are the basis for the EIR.

The FS dated June 2014 evaluates remedial action alternatives for the site and presents the rationale for selecting a preferred alternative.<sup>1</sup> Of the alternatives analyzed in the FS, the "preferred alternative" for remediation of the site includes:

- Excavation of site soils from both landscaped areas and beneath residential hardscape to a depth of five (5) feet below ground surface (bgs) and targeted excavation to 10 feet bgs where warranted and feasible (details provided in subsection 5 below);
- Soil vapor extraction (SVE)/bioventing;
- Sub-slab vapor mitigation;
- Removal of light non-aqueous phase liquid (LNAPL); and
- Monitored natural attenuation (MNA) to address groundwater.

The RAP has been prepared to summarize the remedial alternative evaluation process and identify and describe the proposed actions for treatment of impacted soil and other media at the site. As such, the preferred alternative proposed by Shell in the RAP is the "project" being evaluated in this EIR. The underlying purpose of the proposed RAP is to remediate the site consistent with the Regional Board's CAO R4-2011-0046 dated March 11, 2011, as amended, and applicable laws and policies. The CAO requires Shell to prepare a RAP, that at a minimum, will attain cleanup goals that are based on residential (i.e., unrestricted) land use, that will achieve applicable water quality objectives set forth in the Regional Board's Water Quality Control Plan, that will comply with State Water Resources Control Board (State Water Board) Resolution 68-16 ("Statement of Policy with Respect to Maintaining High Quality of Waters in California", i.e., the State's "Anti-degradation Policy"), and that will comply with State Water Board Resolution 92-49 ("Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304). In accordance with the provisions of the CAO and as required by Section 15124(b) of the CEQA Guidelines, the below listed objectives for the proposed RAP have been established. The objectives will aid decision makers in their review of the project and environmental impacts, and alternatives.

1. Implement a RAP that complies with the CAO and meets the media-specific (i.e. soil, soil vapor, and groundwater) Remedial Action Objectives (RAOs) developed for the site.
2. Maintain the residential land use of the site and avoid permanently displacing residents from their homes or physically dividing the established Carousel Tract community.
3. Minimize short-term disruption to residents.

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<sup>1</sup> *Feasibility Study Report, Former Kast Property, Carson California, prepared by Geosyntec Consultants, March 10, 2014.*

4. Allow residents the long-term ability to safely and efficiently make improvements requiring excavation or penetration into shallow site soils (i.e., landscaping, hardscape, gardening, etc.) on their properties.
5. Limit or minimize environmental impacts associated with the cleanup activities.

The RAP is available for public review and comment and may be revised, as necessary, following receipt of the public comments. Upon approval of the RAP, the remediation activities would be implemented by the RP.

## Project Components

The RAP consists of the following multi-media components to remediate the site. The following provides a brief overview and each of the components is described in further detail below.

- Excavation of soil would be conducted at impacted residential properties where RAOs are not met under existing conditions. Excavation would be conducted in both landscaped and hardscaped areas of residential yards, excluding beneath City sidewalks and houses, to a depth of five (5) feet bgs and targeted excavation where practicable to 10 feet bgs at properties where significant hydrocarbon mass in soil can be reduced. The excavation would also remove residual concrete slabs if encountered in excavations. Following excavation, hardscape and landscaping would be restored to like conditions.
- SVE/bioventing would be used to address petroleum hydrocarbons, VOCs, and methane in soil and soil vapor and to promote degradation of residual hydrocarbon concentrations where RAOs are not met following soil excavation activities. A SVE system with SVE wells in City streets and on residential properties would be installed and operated. Bioventing in concert with SVE would be used to increase oxygen levels in subsurface soils and promote microbial activity and degradation of longer-chain petroleum hydrocarbons. Bioventing would be integral with SVE via cyclical operation of SVE wells. After installation and startup of the SVE/bioventing system, periodic monitoring of the SVE/bioventing system would be conducted. Results of the monitoring and analyses, in conjunction with measured flow rates, field readings and time of operation, would be used to estimate the mass of VOCs removed from the subsurface, degradation of longer-chain hydrocarbons, and as a basis for optimizing and eventual shutdown of SVE operations and switching from the SVE/bioventing to bioventing mode of operations.
- Sub-slab vapor mitigation would be implemented at properties where RAOs for soil vapor would not be met based on potential exposure due to vapor intrusion of petroleum hydrocarbons or chlorinated ethenes (e.g. PCE and TCE) from soil vapor to indoor air, and where detected methane concentrations in sub-slab soil vapor probe samples exceed the upper methane site-specific cleanup goal (SSCG). In addition, the RP would install a sub-slab mitigation system at any residence at which a homeowner requests such a system.
- LNAPL recovery would continue from wells MW-3 and MW-12 on a monthly basis, and if LNAPL is detected in other wells, monthly LNAPL recovery would be initiated on these wells if they have an LNAPL thickness of greater than 0.5 feet to the extent technologically and economically feasible.
- Groundwater Source Reduction and Monitored Natural Attenuation – Chemicals of concern (COCs) in groundwater would be reduced to the extent technologically and economically feasible via source

reduction and MNA. If, based on a 5-year review following initiation of SVE system operation, groundwater plumes are not stable or declining and site COCs in groundwater do not show a reduction in concentration, an evaluation of additional groundwater treatment technologies would be conducted and implemented as needed.

For soil less than 5 feet bgs and sub-slab soil vapor, potential exposures would be addressed in the short term. Deeper soil, soil vapor, and groundwater risk reduction would be implemented over a longer period of time through SVE/bioventing and MNA. SVE/bioventing would be installed after the excavation of the soils, but before final backfill and re-landscaping for properties where both activities are scheduled to occur.

There are 12 properties for which access has not been granted and the required sampling has been completed at 86 percent of the residences including two rounds of indoor air sampling as of October 17, 2014. If access is granted to these properties during implementation of the RAP, sampling would be conducted, and the results would be analyzed consistent with the approach described above to determine what remedial measures, if any, would be taken. These additional properties are assumed to require remedial actions so as to provide a conservative or worse-case analysis of environmental impacts. While the remedial actions for these properties are still to be determined, the description of the RAP's components will not materially change by these determinations. Since these properties are included in the analyses, should all or a portion of these properties require remedial actions, the associated environmental impacts would not change.

Impacted soil would be excavated from 219 residential properties where results of the previous site assessments indicate that RAOs and the more stringent of the health risk-based or leaching to groundwater criteria are not met under existing conditions. Soils would be excavated to a depth of 5 feet bgs at 219 properties (410 yards) with targeted excavated to 10 feet bgs at 97 of the properties, including the 12 properties for which no soils data exist, at selected yards (146 yards). Excavation would occur from both landscaped areas and areas currently covered by hardscape, including walkways, driveways, patio areas, and hardscape associated with landscaping. In general, the lateral extent of the excavation would be up to the back of the City sidewalk and up to the houses, subject to required setback distances.

On average, a conservative estimate of approximately 611 cubic yards (CY) of soils would be excavated from each of the 122 properties identified for 5 foot excavation, and approximately 867 CY from each of the 97 properties identified for targeted 10-foot excavation. Approximately 161,700 CY plus a 10 percent contingency of 16,170 CY for a total of 177,870 CY of soils would be removed from residential excavations. This estimate assumes that soils would be excavated to a depth of 5 feet from the front, side, and back yards of each property; targeted deeper excavation to 10 feet would occur only in front and/or back yards of identified properties. During the preparation of the Property-Specific Remediation Plans (PSRPs), the specific excavation areas for each property would be identified. In some cases, the volume of soil to be excavated for each property would be less or more than the average value.

Implementation of remediation activities would potentially commence in Fall 2015 and would be implemented in phases of eight properties. Based on approximately eight to ten weeks to complete a cluster of eight properties, with some overlapping of remediation activities, the suite of residential remedial construction activities including excavation, installation of SVE/bioventing well and piping, backfill, installation of sub-slab vapor mitigation, and site restoration, implementation of the RAP is estimated to take approximately six years. This estimate of time needed to complete these activities is dependent upon

obtaining access to the properties in a timely manner and does not include loss of time due to inclement weather or other delays that might occur outside of the RPs control.

### **Expedited Implementation Option**

Based on experience in the field during the initial implementation of the RAP, it is possible that the number of properties being remediated at one time could be increased. This would only occur if it is feasible and determined to be safe for residents and workers. Under the Expedited Implementation Option, the number being actively remediated could be incrementally increased with up to 16 properties active at one time, compared to up to 8 properties under the base remedy. Given the overlap in activity with the clusters there could be up to 32 properties in some stage of remediation or restoration at one time. The Expedited Implementation Option would result in an increase in the number of workers and number of properties active at one time on the site, which would reduce the overall time frame necessary for the implementation of the RAP. This approach would not modify the construction hours but rather the amount of activity occurring at one time on the site. As with the RP's Proposed Remedy (Base Remedy), remediation would begin in 2015. However, with the concentrated effort, it is anticipated that the remediation would be completed in 2019 within an approximately four-year time frame.

## **2. KEY ISSUES OF CONTROVERSEY AND ISSUES TO BE RESOLVED**

The following summarizes the key potential environmental issues raised in response to the Notice of Preparation (NOP) and during the EIR public scoping process (the numerical reference in parenthesis is the EIR section in which the analysis is provided). The NOP comments are contained in Appendix A of this EIR.

### General

- The extent of potential excavation and other remedial activities (refer to Chapter 2, *Project Description*, of this EIR).
- The ability of residents within the Carousel Tract to move and/or occupy their homes during the short-term remediation activities, as well during the long-term following the active remediation activities (refer to Chapter 2, *Project Description*, Section 5.4, *Hazardous Materials*, and Chapter 7, *Other Mandatory CEQA Considerations*, of this EIR).
- The ability of the City of Carson to conduct plan review and inspection services associated with permits to be issued by the City, including but not limited to the Building and Safety Division, Engineering Division, and Public Works Division (refer to Chapter 2, *Project Description*, and Chapter 7, *Other Mandatory CEQA Considerations*, of this EIR).

### Aesthetics

- The potential for vacant or abandoned properties creating a blighted condition (refer to Chapter 7, *Other Mandatory CEQA Considerations*, of this EIR).

### Air Quality

- The potential for air quality impacts during all phases (short- and long-term) of the proposed remediation activities in both the “local” and “regional” project vicinities (refer to Section 5.1, *Air Quality*, of this EIR).
- The potential for odor impacts during the activities remediation activities (refer to Section 5.1, *Air Quality*, of this EIR).

### Cultural Resources

- The potential for impacts to previously unknown cultural resources, including archaeological and Native American resources (refer to Chapter 7, *Other Mandatory CEQA Considerations*, of this EIR).

### Hazardous Materials

- Health effects to the public and the environment from emissions or other contaminant (especially on sensitive receptors) during the active remediation activities from sources related to excavation and grading, operation of equipment, mobile emissions, etc. (refer to Section 5.1, *Air Quality*, Section 5.4, *Hazardous Materials*, and Section 5.5, *Hydrology and Water Quality*, and of this EIR).

### Public Services and Utilities

- Ability to maintain basic public services and utilities within the Carousel Tract during the remediation activities, acknowledging that some properties will be vacant during the remediation activities (refer to Chapter 2, *Project Description*, and Chapter 7, *Other Mandatory CEQA Considerations*, of this EIR).

### Schools

- The potential for air quality, dust, construction vehicle traffic, noise, water quality and other impacts to nearby schools (“sensitive receptors”), namely William Middle School, as well as Broad Avenue Elementary School and Banning High School (refer to Section 5.1, *Air Quality*, Section 5.4, *Hazardous Materials*, Section 5.5, *Hydrology and Water Quality*, Section 5.6, *Noise and Vibration*, and Section 5.7, *Traffic and Circulation*, of this EIR).
- Integration of construction traffic plans and haul routes with Los Angeles Unified School District (LAUSD) Safe School Plans for the protection of student-pedestrians in the project vicinity (refer to Section 5.7, *Traffic and Circulation*, of this EIR).

## **3. SUMMARY OF ENVIRONMENTAL IMPACTS**

This section provides a summary of impacts, mitigation measures, and impacts after implementation of the mitigation measures associated with implementation of the RAP. The summary is provided by environmental issue area below in **Table ES-1, Summary of Project Impacts and Mitigation Measures**. Please refer to Chapter 2, *Project Description*, for a list of the Project Design Features (PDFs) that would be implemented by the project relative to each environmental issue area. The PDFs, in many cases, would serve to reduce the extent of the project’s potential for environmental impacts.

Section 15126.2(b) of the CEQA Guidelines requires that an EIR describe significant environmental impacts that cannot be avoided, including those effects that can be mitigated but not reduced to a less than significant level. As shown in Table ES-1 and as analyzed in Section 5.6, *Noise and Vibration*, even with the incorporation of all project design features and mitigation measures to reduce noise and vibration impacts of the RP's Proposed Remedy and Expedited Implementation Option, noise and vibration impacts would remain significant and unavoidable.

#### **4. ALTERNATIVES**

The CEQA Guidelines section 15126.6 requires an EIR to “describe a range of reasonable alternatives to the project, or to the location of the project, which will feasibly attain most of the basic objectives of the project but will avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.” The CEQA Guidelines direct that selection of alternatives be guided by a “rule of reason” that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice.

Chapter 3, *Description of Alternatives*, provides a description of the alternatives evaluated in this EIR. As discussed therein, the alternatives analysis includes the following three alternatives: Alternative 1, No Project; Alternative 2, Excavation Beneath Landscape and Hardscape to 10 Feet; and Alternative 3, No Excavation Beneath Hardscape –5 Feet with Targeted 10 Feet. The analysis of each alternative is provided in each technical section contained in Chapter 5. Chapter 6, *Comparison of Alternatives*, provides a summary comparison of the alternatives relative to the RP's Proposed Remedy.

##### **Alternative 1 – No Project Alternative**

Alternative 1, the No Project Alternative, is the baseline alternative because it represents a continuation of existing conditions. No Project Alternative would mean that the RAP is not implemented at the site. No excavation would occur and no SVE wells and SVE/bioventing system or sub-slab mitigation would be installed. Monitoring of the site and LNAPL recovery would continue. All existing site features, such as residences, landscaping, hardscape, fences, patios, and ancillary structures would remain. No relocation of residents would occur. In other words, the residential subdivision would remain as it currently exists today without remediation of site impacts.

##### **Alternative 2 - Excavation Beneath Landscape and Hardscape to 10 Feet Alternative**

Alternative 2 would include the same remedial technologies as the RP's Proposed Remedy, but would involve the excavation of soils to a depth of 10 feet bgs at 241 residential properties, compared to 5 feet with targeted excavation to 10 feet bgs at 219 residential properties under the RP's Proposed Remedy. An additional 22 properties would be excavated because, while these properties meet RAOs from 0 to 5 feet, they do not meet RAOs from 1 to 10 feet. Similar to the RP's Proposed Remedy, sub-slab vapor mitigation system would be installed at approximately 28 houses and SVE/bioventing units would be installed at 236 properties. This alternative is estimated to take approximately 8.4 years, compared to the approximately 6-year time frame under the RP's Proposed Remedy.

Excavations to 10 feet bgs would require geotechnical investigations to support excavation design and establishment of necessary setbacks from buildings. In some areas, a limited access bucket auger drilling rig

would be used in conjunction with conventional excavation equipment. Conventional excavation using slot-trenching as necessary to protect structures or other features and open bulk excavation with appropriate sloping, setbacks, and/or shoring would be used where possible as the preferred excavation method. Auger excavation using a limited access rig would allow work in relatively tight spaces adjacent to structures to remove a column of soil.

Alternative 2 would require excavation of approximately 274,700 CY of impacted soils from the residential properties and approximately 43,900 CY of impacted soils from other areas on the site. Total excavation of impacted soil would be approximately 318,600 CY, compared to a total of approximately 186,695 CY under the RP's Proposed Remedy. An equivalent volume of clean fill would be imported to the site. As with the RP's Proposed Remedy, under Alternative 2, excavation would occur around utilities, including water and gas, which are located about 3 to 3.5 feet inside the sidewalks in the front yards of approximately one-half of the properties in the Carousel Tract. These water pipes are of asbestos-cement (transite) construction and would need to be avoided during excavation. Where it is possible to excavate to 10 feet in back yards, a long-reach excavator would be used. The overhead power lines would potentially need to be removed due to the potential for the excavator to hit the overhead utility lines, which could create an electrocution hazard for workers. The overhead power lines would be restored upon completion of the excavation.

### **Alternative 3 – No Excavation Beneath Hardscape – 5 Feet With Targeted 10 Feet Alternative**

Alternative 3 would include the same remedial technologies as the RP's Proposed Remedy, but would not remove hardscape, such as sidewalks, patios, and driveways, nor excavate in those areas. As with the RP's Proposed Remedy, under Alternative 3, 219 properties would be excavated to 5 feet at the front and back yards. Of these 219 properties, 97 would be excavated from 5-10 feet, but only at selected front and back yards. Alternative 3 is estimated to take approximately four years, compared to the approximately six-year time frame for the RP's Proposed Remedy.

Alternative 3 would involve the excavation of approximately 83,930 CY, including a 10 percent excavation contingency.<sup>2</sup> With the addition of 8,100 CY of street trenching debris and 725 CY of well installation debris, total excavated materials would be 92,755 CY, compared to a total of approximately 186,695 CY under the RP's Proposed Remedy. An equivalent volume of clean fill would be imported to the site. As with the RP's Proposed Remedy, excavation under Alternative 3 would occur around utilities, including water and gas. Activity under Alternative 3 would be generally similar to the RP's Proposed Remedy and, as with the RP's Proposed Remedy, has the potential to increase noise levels associated with the use of heavy-duty construction equipment above existing levels. However, because concrete saws, jack hammers, and other equipment to remove hardscape would not be utilized during the residential property excavation phase, construction activity noise levels would be reduced by approximately 10 dBA during the residential remediation phase compared to the RP's Proposed Remedy. Remedial activities would also occur for a fewer number of days overall as a result of less excavated material. Similar to the RP's Proposed Remedy, peak noise impacts under Alternative 3 are predicted to result during the street trenching phase. Noise resulting from this phase would exceed the significance threshold of 65 dBA,  $L_{eq}$  at noise-sensitive receptor locations.

<sup>2</sup> This number includes 76,300 CY at the residential properties plus a 10 percent contingency of 7,630 CY for unforeseen circumstances for a total of 83,930 CY of impacted soil.

Therefore, as with the RP's Proposed Remedy, excavation activity related noise at adjacent residential uses, would be significant and unavoidable.

Residents immediately adjacent to a property with active remedial activity would experience vibration velocities in excess of the human annoyance threshold from the mini excavator. As with the RP's Proposed Remedy, impacts associated with vibration would be lessened, but would still remain significant under this Alternative.

### **Environmentally Superior Alternative**

Section 15126.6(e)(2) of the *CEQA Guidelines* indicates that "If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives."

A comparative summary of the environmental impacts anticipated under each alternative with the environmental impacts associated with the project is provided in Table 6-1 of Chapter 6, *Comparison of Alternatives*, in this EIR. In addition, a comparative summary of the ability of the project and the Alternatives to meet the stated objectives of the project is summarized in Table 6-2 of Chapter 6 of this EIR.

Table ES-1

## Summary of Project Impacts and Mitigation Measures

Project Impact	Mitigation Measures	Level of Significance After Mitigation
<b>Air Quality</b>		
<p><b>Impact Statement AIR-1:</b> Implementation of the RAP and the Expedited Implementation Option would utilize equipment meeting stringent emission standards and would be consistent with the applicable growth projections and control strategies in the AQMP. Projects that are consistent with the applicable growth projections and control strategies used in the development of the AQMP would not jeopardize attainment of the air quality levels identified in the AQMP, even if they exceed the SCAQMD's project-level recommended thresholds. Therefore, short-term and long-term impacts associated with implementation of the RAP and the Expedited Implementation Option would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be less than significant.</p>	<p>With the implementation of existing regulations and project design features, the RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to emission standards. Therefore, no mitigation measures would be necessary.</p>	<p>Less than Significant</p>
<p><b>Impact Statement AIR-2:</b> Implementation of the RAP and the Expedited Implementation Option would result in short-term emissions that would not exceed the significance threshold with regard to regional emissions. Implementation of the RAP would not result in long-term emissions that exceed the significance threshold with regard to regional emissions. Thus, implementation of the RAP and the Expedited Implementation Option would not violate air quality standards or contribute substantially to an existing or projected air quality violation and impacts related to short-term and long-term regional emissions would be less than significant.</p>	<p>With the implementation of existing regulations and project design features, the RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to short or long-term emissions. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>
<p><b>Impact Statement AIR-3:</b> Short-term emissions associated with implementation of the RAP and the Expedited Implementation Option would not exceed the thresholds of significance and would not result in a cumulatively considerable net increase of a criteria pollutant for which the region is nonattainment. Long-term emissions associated with implementation of the RAP would not exceed the thresholds of significance and would not result in a cumulatively considerable net increase of a criteria pollutant for which the region is nonattainment. Thus, short-term and long-term impacts would be less than significant.</p>	<p>With the implementation of existing regulations and project design features, the RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to a cumulatively considerable net increase of a criteria pollutant. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>

Table ES-1 (Continued)

## Summary of Project Impacts and Mitigation Measures

Project Impact	Mitigation Measures	Level of Significance After Mitigation
<p><b>Impact Statement AIR-4:</b> Implementation of the RAP and the Expedited Implementation Option is predicted to result in short-term emissions that would not exceed the significance threshold with regard to localized emissions of NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>. Implementation of the RAP would not result in long-term emissions that exceed the significance threshold with regard to localized emissions. In addition, implementation of the RAP would not contribute to the formation of CO hotspots and would result in less than significant long-term impacts with respect to CO hotspots. Thus, implementation of the RAP and the Expedited Implementation Option would not expose sensitive receptors to substantial pollutant concentrations and impacts would be less than significant in the short-term and long-term.</p>	<p>With the implementation of existing regulations and project design features, the RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to localized NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>
<p><b>Impact Statement AIR-5:</b> Implementation of the RAP and the Expedited Implementation Option would not create objectionable odors affecting a substantial number of people. The potential for short-term odors would be limited and minimized through compliance with SCAQMD Rule 1166 and the use of vapor and odor control measures as described in PDF AQ-8. The potential for long-term odors would be limited and minimized through the installation of a SVE and bioventing system and SSD system. Thus, implementation of the remediation activities would have a less than significant impact.</p>	<p>With the implementation of existing regulations and project design features, the RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to objectionable odors. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>
<p><b>Impact Statement AIR-6:</b> Implementation of the RAP and the Expedited Implementation Option would be consistent with applicable policies in the City of Carson General Plan Air Quality element. Thus, implementation of the RAP and the Expedited Implementation Option would have a less than significant impact.</p>	<p>The RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to applicable policies of the General Plan Air Quality Element. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>

Table ES-1 (Continued)

Summary of Project Impacts and Mitigation Measures

Project Impact	Mitigation Measures	Level of Significance After Mitigation
<b>Geology and Soils</b>		
<p><b>Impact Statement GEO-1:</b> The project site is not located within a liquefaction-prone area and underlying soils are in a dense state or sufficiently compacted to reduce acceleration effects. Excavations would be setback from buildings and would not affect underlying geologic structures or soils beneath building foundations. Protective support would be provided for any encountered utility lines. Thus, the RP's Proposed Remedy and the Expedited Implementation Option would not increase the exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury or death, involving strong seismic ground shaking or seismic-related ground failure, including liquefaction. The impact of the RP's Proposed Remedy with respect to these geologic hazards would be less than significant. The Expedited Implementation Option, which would increase the intensity of activity on the site, would also result in a less than significant impact with respect to these geologic hazards.</p>	<p>The RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to the risk of loss, injury or death, involving strong seismic ground shaking or seismic-related ground failure, including liquefaction. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>
<p><b>Impact Statement GEO-2:</b> The excavation of the project site would not expose or alter underlying geologic units. Surface soil would be removed to 5 to 10 feet bgs and would be replaced with appropriately compacted backfill. Observation during grading and testing for required compaction and safety of structures due to any slippage or settlement of the completed grading, would ensure that conditions in approved engineering reports are implemented. With implementation of Building Code requirements and project design features RP's Proposed Remedy and the Expedited Implementation Option would not cause on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. Therefore, the impact of the RP's Proposed Remedy with respect to these geologic hazards would be less than significant. The Expedited Implementation Option would also result in a less than significant impact with respect to these geologic hazards.</p>	<p>The RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to landslide, lateral spreading, subsidence, liquefaction, or collapse. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>

Table ES-1 (Continued)

## Summary of Project Impacts and Mitigation Measures

Project Impact	Mitigation Measures	Level of Significance After Mitigation
<p><b>Impact Statement GEO-3:</b> With the implementation of Code-required best management practices for excavation and backfill activities, and immediate loading and covering of cut materials, the RP's Proposed Remedy would not result in substantial soil erosion. In addition, the removal of COC-containing soil would not constitute the substantial loss of top soil. Therefore, the impact with respect to erosion and loss of top soil would be less than significant. The Expedited Implementation Option would also result in a less than significant impact with respect to erosion and loss of top soil.</p>	<p>The RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to loss of top soil. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>
<p><b>Impact Statement GEO-4:</b> The RP's Proposed Remedy and the Expedited Implementation Option would not remove existing soils under residential buildings or garages and, thus, would not change existing conditions with respect to soils currently supporting habitable structures. Expansive soils do not naturally occur on the project site and expansive soils would not be imported to the project site. Because the RP's Proposed Remedy and the Expedited Implementation Option would not change the existing soils under habitable structures, it would not cause a change in expansiveness of existing materials that would increase risks to life or property. The impact of the RP's Proposed Remedy and the Expedited Implementation Option with respect to expansive soils would be less than significant.</p>	<p>The RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to expansive soil. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>
<p><b>Greenhouse Gas Emissions</b></p>		
<p><b>Impact Statement GHG-1:</b> Implementation of the RAP and the Expedited Implementation Option would result in short-term GHG emissions that would not exceed the significance threshold. Implementation of the RAP would not result in long-term emissions that exceed the significance threshold. Thus, implementation of the RAP would not generate GHG emissions, either directly or indirectly, that would have a significant impact on the environment and impacts related to short-term and long-term GHG emissions would be less than significant.</p>	<p>The RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to short-term and long-term GHG emissions. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>

Table ES-1 (Continued)

## Summary of Project Impacts and Mitigation Measures

Project Impact	Mitigation Measures	Level of Significance After Mitigation
<p><b>Impact Statement GHG-2:</b> Implementation of the RAP and the Expedited Implementation Option would incorporate GHG reduction strategies that would be consistent with applicable GHG reduction plans. Therefore, implementation of the RAP and the Expedited Implementation Option would not conflict with plans for reducing GHG emissions and impacts relative to this threshold would be less than significant.</p>	<p>The RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to consistency with applicable GHG reduction plans. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>
<b>Hazardous Materials</b>		
<p><b>Impact Statement HAZ-1:</b> Unmitigated impacts due to on-site remediation activities would result in a less than significant impact. The incremental lifetime increase in cancer risk due to implementation of the RAP would not exceed the one in one million threshold at nearby sensitive receptors. The Expedited Implementation Option would also result in a less than significant impact.</p>	<p>The RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to an incremental increase in cumulative lifetime potential cancer risk from exposure to project-related TACs and COCs emitted as a direct result of implementation of the RAP. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>
<p><b>Impact Statement HAZ-2:</b> The RAP is intended to reduce long-term risk from potential exposure to COCs in soil, soil vapor, and indoor air. As documented in the HHRA, risks to residences and onsite construction and utility workers post-implementation of the RAP under the RP's Proposed Remedy and the Expedited Implementation Option, would be below thresholds. Therefore, implementation of the RAP and the Expedited Implementation Option would result in less than significant impacts.</p>	<p>The RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to an incremental increase in cumulative lifetime potential cancer risk from long-term exposure to TACs and COCs post-implementation of the RAP. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>
<p><b>Impact Statement HAZ-3:</b> On-site remediation activities would result in less than significant impacts with regard to chronic and acute non-cancer risk with incorporation of PDFs. Therefore, mitigation measures would not be required. The Expedited Implementation Option would also result in a less than significant impact.</p>	<p>The RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to chronic and acute non-cancer risks as a direct result of implementation of the RAP. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>

Table ES-1 (Continued)

## Summary of Project Impacts and Mitigation Measures

Project Impact	Mitigation Measures	Level of Significance After Mitigation
<p><b>Impact Statement HAZ-4:</b> Impacts due to on-site remediation activities would result in a less than significant impact with regard to methane concentrations. The Expedited Implementation Option would also result in a less than significant impact. Therefore, mitigation measures would not be required.</p>	<p>The RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to methane concentrations as a direct result of implementation of the RAP. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>
<p><b>Impact Statement HAZ-5:</b> Implementation of the RAP and the Expedited Implementation Option would result in an acceptable level of risk regarding accidental release through the routine transport, use, or disposal of hazardous materials. Therefore, mitigation measures would not be required.</p>	<p>The RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to the risk of accidental release through the routine transport, use, or disposal of hazardous materials as a direct result of implementation of the RAP. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>
<p><b>Impact Statement HAZ-6:</b> Implementation of the RAP and the Expedited Implementation Option would result in an acceptable level of risk regarding reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Therefore, mitigation measures would not be required.</p>	<p>The RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to the risk of reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment as a direct result of implementation of the RAP. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>
<p><b>Impact Statement HAZ-7:</b> Hazardous emissions would be emitted [A1] during the implementation of the RAP and the Expedited Implementation Option, but would result in less than significant potential health risks. Long-term use of SVE would control potential emissions from impacted materials remaining on-site long-term. Therefore, the project would result in a less than significant impact with regard to release or handling of hazardous materials within one-quarter mile of a school.</p>	<p>The RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to health risks as a direct result of implementation of the RAP. Long-term use of SVE would control potential emissions from impacted materials remaining on site long-term. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>

Table ES-1 (Continued)

## Summary of Project Impacts and Mitigation Measures

Project Impact	Mitigation Measures	Level of Significance After Mitigation
<b>Hydrology and Water Quality</b>		
<p><b>Impact Statement H/WQ-1:</b> Compliance with regulatory requirements and dust control would ensure that potential surface water quality impacts associated with short-term grading activities would be adequately addressed and would meet California Water Code (CWC) requirements. As such, short-term impacts would be less than significant. Also, because the RAP would result in the removal of COC-containing soil as feasible and residual soil would be biovented to reduce COCs, the potential for discharges to surface water would be reduced. The RAP would not create pollution, contamination or nuisance as defined in Section 13050 of the CWC or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or Water Quality Control Plan for the receiving water. The Expedited Implementation Option, which would increase the intensity of activity on the site, would also result in a less than significant impact with respect to surface water quality. Therefore, impacts to surface water quality from the RP's Proposed Remedy and the Expedited Implementation Option would be less than significant.</p>	<p>The RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to the creation of pollution, contamination or nuisance, as defined under the CWC or cause regulatory standards to be violated. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>
<p><b>Impact Statement H/WQ-2:</b> Implementation of Project Design Features that would require that contaminated soil be covered and removed from the site during excavation and the monitoring and management of the groundwater plume, would ensure that the RP's Proposed Remedy would not affect the rate or change the direction of movement of existing COCs or expand the area affected by COCs. The Expedited Implementation Option would also result in a less than significant impact with respect to groundwater quality. Therefore, impacts related to short- and long-term management of the groundwater plume from the RP's Proposed Remedy and the Expedited Implementation Option would be less than significant.</p>	<p>With implementation of PDFs, the RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to the rate or direction of movement of existing COCs, or expansion of the area affected by COCs. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>

Table ES-1 (Continued)

## Summary of Project Impacts and Mitigation Measures

Project Impact	Mitigation Measures	Level of Significance After Mitigation
<p><b>Impact Statement H/WQ-3:</b> Compliance with regulations and dust control would ensure that potential groundwater quality impacts associated with short-term grading activities would be adequately addressed and would not have a significant impact on groundwater quality. With the implementation of long-term Project Design Features to reduce LNAPL, to provide continuous groundwater monitoring, and to return the Shallow Zone and the Gage Aquifer to background levels, the RP's Proposed Remedy and the Expedited Implementation Option would reduce COCs in groundwater. Because the RAP (with or without the Expedited Implementation Option) would not create pollution, contamination or nuisance as defined in Section 13050 of the CWC or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or Water Quality Control Plan for the receiving water, long-term groundwater quality impacts would be less than significant.</p>	<p>With implementation of PDFs, the RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to pollution, contamination or nuisance, as defined in Section 13050 of the CWC, or cause regulatory standards to be violated. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>
<b>Noise</b>		
<p><b>Impact Statement NOISE-1:</b> Impacts due to noise from on-site construction activity during the implementation of the RAP and the Expedited Implementation Option would be significant. Maximum noise associated with the project would exceed the significance threshold of 65 dBA <math>L_{eq}</math> at nearby on-site and off-site residential uses located in the City of Carson. However, maximum noise from on-site construction activity during the implementation of the RAP and the Expedited Implementation Option would not exceed the significance threshold of 75 dBA <math>L_{eq}</math> at nearby off-site residential uses located in the City of Los Angeles. Impacts due to noise from on-site construction activity would be less than significant at off-site residential uses located in the City of Los Angeles.</p>	<p>Noise from short-term remediation activities has the potential to result in significant noise impacts at sensitive receptors located in the City of Carson (single-family residential uses). Thus, the following mitigation measures are required to minimize construction-related noise impacts:</p> <p><b>MM NOISE-1:</b> Residents of properties shall be offered relocation for the duration of nearby active remediation activities which may create ambient noise levels at their property in excess of 75 dBA, Leq. for 20 days or less or in excess of 65 dBA, Leq. for 21 days or longer. Based on the analyses presented in this EIR, this shall apply to residences located within approximately 90 feet of street trenching or 130 feet from an edge of residential</p>	<p>Significant and Unavoidable:: MM NOISE-1 would offer relocation for residents of properties that would experience noise levels in excess of the specified levels due to nearby active remediation activities. MM NOISE-2 would provide temporary noise barriers that would reduce construction noise, but not below threshold levels. If relocation were accepted, exposure to high noise levels would be reduced to a less than significant level. However, because relocation is voluntary, residents may choose to remain and potentially be exposed to noise levels in excess of the thresholds. Thus, the short term noise impact is conservatively assumed to remain significant and</p>

Table ES-1 (Continued)

## Summary of Project Impacts and Mitigation Measures

Project Impact	Mitigation Measures	Level of Significance After Mitigation
	<p>remediation (i.e. a cluster of 4 to 8 homes); these distances may be revised by the Regional Board upon completion of additional monitoring and analysis which could be performed under the direction of an independent acoustician during the implementation of the RAP. Appendix F-8 includes 75 dBA and 65 dBA contours showing the impacted properties surrounding a hypothetical 8-property cluster.</p> <p><b>MM NOISE-2:</b> To the maximum extent feasible, the project shall provide noise blanket/temporary noise barriers between the active areas and occupied residential units during street trenching.</p>	unavoidable, even with implementation of the Mitigation Measures.
<p><b>Impact Statement NOISE-2:</b> Construction impacts from off-site construction traffic during the implementation of the RAP and the Expedited Implementation Option would be less than significant. Sound levels would not increase ambient noise levels at residential uses along the haul route by 5 dBA or more. Ambient noise impacts would be less than significant.</p>	<p>With implementation of PDFs, the RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to increase in ambient levels along haul routes. No mitigation measures would be necessary.</p>	Less than Significant
<p><b>Impact Statement NOISE-3:</b> Implementation of the RAP and the Expedited Implementation Option would include stationary mechanical noise sources that may increase long-term noise levels adjacent to noise-sensitive receptors in the project vicinity. However, with the implementation of the recommended mitigation measure the noise generation would not exceed established thresholds. Therefore, long-term impacts from stationary mechanical noise sources would be mitigated to a less than significant level.</p>	<p>The RP's Proposed Remedy and the Expedited Implementation Option would result in potentially significant impacts related to stationary mechanical noise sources. Therefore, MM NOISE-3 is recommended</p> <p><b>.MM NOISE-3:</b> The RP shall retain the services of a qualified acoustical engineer with expertise in design of sound isolations to ensure the</p>	Less than Significant with Mitigation: Long-term impacts would be reduced to less than significant levels through the implementation of MM NOISE-3.

Table ES-1 (Continued)

## Summary of Project Impacts and Mitigation Measures

Project Impact	Mitigation Measures	Level of Significance After Mitigation
	mechanical fans and/or other related mechanical components to SVE/bioventing system installed for long-term use is designed (i.e., installation of building enclosure) so as to meet the City's exterior noise limits (55 dBA).	
<p><b>Impact Statement VIB-1</b> Implementation of the RAP and the Expedited Implementation Option would result in sporadic, temporary vibration effects adjacent to the project area, which would exceed established thresholds. Therefore, vibration impacts would be significant and mitigation is proposed.</p>	<p>In addition to implementation of mitigation measures related to noise, the following mitigation measure is required to minimize construction-related vibration impacts:</p> <p><b>MM VIB-1:</b> Residents of properties located within 60 feet of the use of jack hammers shall be offered relocation for the duration of jack hammer use.</p>	<p>Significant and Unavoidable: MM VIB-1 would reduce human annoyance vibration impacts to a less than significant level. However, since relocation is voluntary, residents may choose to remain and be potentially exposed to vibration levels in excess of the thresholds. Thus, the impact is conservatively assumed to remain significant and unavoidable even with implementation of the mitigation measure.</p>
<b>Transportation/Traffic</b>		
<p><b>Impact Statement TRAF-1:</b> The RP's Proposed Remedy and Expedited Implementation Option would not exceed threshold standards related to V/C ratios at any of the study intersections. Therefore, the RP's Proposed Remedy and the Expedited Implementation Option would have a less than significant impact with respect to intersection service levels.</p>	<p>The RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to V/C ratios at study intersections. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>
<p><b>Impact Statement TRAF-2:</b> The RP's Proposed Remedy and Expedited Implementation Option would not exceed threshold standards related to CMP facilities because they do not exceed minimum volumes of peak traffic at any CMP arterial or freeway monitoring stations to warrant analysis under the CMP. In addition, the RP's Proposed Remedy and Expedited Implementation Option would not adversely impact ridership or operation of transit lines in</p>	<p>The RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to CMP arterial or freeway monitoring stations or CMP transit service levels. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>

**Table ES-1 (Continued)**

**Summary of Project Impacts and Mitigation Measures**

Project Impact	Mitigation Measures	Level of Significance After Mitigation
the area. Therefore, impacts related to CMP service levels would be less than significant.		
<b>Utilities (Solid Waste)</b>		
<p><b>Impact Statement SW-1:</b> Excavated soils would be cleaned and re-used; construction waste and inert debris would be recycled through a permitted IDEFO or similar recycling process; and green waste would be mulched and re-used. Adequate treatment and re-use and recycling capacities exist to accommodate maximum daily waste exports under the project and the Expedited Implementation Option. Because waste generated by ground clearing and excavation would be diverted from landfills, the RP's Proposed Remedy and the Expedited Implementation Option would have a less than significant impact with respect to the permitted capacity of disposal facilities.</p>	<p>The RP's Proposed Remedy and the Expedited Implementation Option would not result in significant impacts related to permitted capacity of disposal facilities. No mitigation measures would be necessary.</p>	<p>Less than Significant</p>