# EXCAVATED SOIL MANAGEMENT PLAN
# SAN DIEGO INTERNATIONAL AIRPORT
# SAN DIEGO, CALIFORNIA 92101
# KLEINFELDER PROJECT NO. 20202318.004A

**SEPTEMBER 22, 2023**

A Report Prepared for:

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**EXCAVATED SOIL MANAGEMENT PLAN**
**SAN DIEGO INTERNATIONAL AIRPORT**
**SAN DIEGO, CALIFORNIA 92101**

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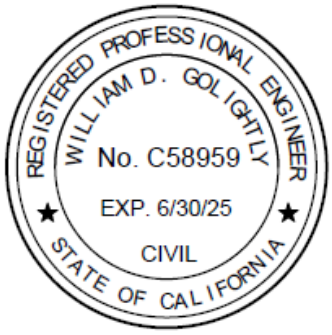


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## ACRONYMS

| | |
|---|---|
| ADP | Airport Development Plan |
| BMP | Best Management Practices |
| CASQA | California Stormwater Quality Association |
| CCR | California Code of Regulations |
| $Cr^{6+}$ | Hexavalent Chromium |
| ESMP | Excavated Soil Management Plan |
| FOD | Foreign Object Debris |
| GD | General Dynamics |
| NTC | Naval Training Center |
| PCBs | Polychlorinated Biphenyls |
| PFAS | Per- and Polyfluoroalkyl Substances |
| PPE | Personal Protective Equipment |
| SDCRAA | San Diego County Regional Airport Authority |
| SDIA | San Diego International Airport |
| SSHASP | Site-Specific Health and Safety Plan |
| TBE | To Be Established |
| TDY | Teledyne Ryan |
| TPH | total Petroleum Hydrocarbons |
| UST | Underground Storage Tank |
| VOCs | Volatile Organic Compounds |

# 1 INTRODUCTION

Kleinfelder, Inc., (Kleinfelder) has prepared this Excavated Soil Management Plan (ESMP) on behalf of the San Diego County Regional Airport Authority (SDCRAA or Airport Authority) to provide construction contractors with the guidance and procedures to appropriately handle, manage and dispose of impacted soil, impacted mixed debris (that is, rock/asphalt/concrete mixed with impacted soil), and burn ash encountered during excavation activities at the San Diego International Airport (SDIA), San Diego, California (Site). This ESMP presents the project background information; waste profiles; regulatory requirements; and excavated material handling, disposal and documentation requirements. This ESMP is considered a living document. The ESMP, wastes, and waste profiles described within are subject to change.

Suggested soil management specifications, for use in contract documents, are also included as an appendix to this ESMP (Appendix A). These specifications contain technical and procedural steps to assist Airport Authority Project Managers and construction contractors in achieving best practice environmental management for the excavation, management and disposal or re-use of soil, mixed debris, and burn ash during construction projects at the SDIA. The primary objective of the specifications and this ESMP is to support the uninterrupted construction at the SDIA while properly excavating, handling, stockpiling and disposing/re-using soil from areas planned for excavation.

## 1.1 BACKGROUND

Operations and activities at the SDIA are generally considered to be commercial and industrial. The SDIA encompasses areas that have previously been used for waste disposal and/or have been subject to chemical releases that were/are subject to regulatory oversight. Previous environmental investigations at the SDIA have identified soil and other materials impacted by chemicals that may pose a risk to human health and the environment. The previous investigations generally indicate that impacted soils at the SDIA can be characterized as “non-hazardous municipal solid waste.” A summary of these investigations and the findings is provided in Appendix B. As such, the Airport Authority has determined that all excavated materials generated during construction activities that cannot be reused on the SDIA, and therefore must be exported off-Site, will be disposed at an off-Site appropriate disposal facility under existing waste profiles. The minimum standard for an “appropriate disposal facility” is a permitted Class III Municipal Solid Waste Landfill in San Diego County. Exported soils will be disposed at the Republic Services,

Otay Landfill in Chula Vista, California (Otay Landfill), except as otherwise specified in this document.

The Airport Authority has characterized on-Site burn ash material as a California-hazardous waste. Burn ash is known to be present within profile Area 6; but may also be present elsewhere at the SDIA. Burn ash encountered during excavation activities cannot be reused on-Site and must be disposed of at Republic Services, Copper Mountain Landfill in Wellton, Arizona (Copper Mountain Landfill). There is a potential to encounter soils at the SDIA that would be characterized as a RCRA hazardous waste. Any such material characterized as hazardous waste exported from the SDIA must be disposed of at a properly permitted facility.

The Airport Authority has also determined that soil within the former Fire Fighting Training Area (Area 9) has been impacted with per- and polyfluoroalkyl substances (PFAS). Soil excavated from the Fire Fighting Training Area (Area 9), or other PFAS-impacted areas at the SDIA, may be reused on-Site, within the area of original excavation, to the extent feasible. Any excess soils that are not or cannot be reused within Area 9 must be disposed of at the Copper Mountain Landfill under the established waste profile.

The Airport Authority Zero Waste Plan (SDCRAA, 2020) requires Contractors to reuse or recycle all rock and/or concrete and/or asphalt either on or off airport property, except for locations the Airport Authority has identified where concrete or asphalt are known to be impacted. In those instances where rock and/or concrete and/or asphalt is found to be impacted or has become commingled with impacted soil, it is considered “mixed debris.” Mixed debris that cannot be reused on the SDIA shall be disposed of at Otay Landfill under the appropriate waste profile, except for mixed debris from the Fire Fighting Training Area (Area 9) or other PFAS-impacted areas at the SDIA. Any excess mixed debris that are not or cannot be reused within the Fire Fighting Training Area (Area 9), or other PFAS-impacted areas at the SDIA, and within the area of original excavation, must be disposed of at the Copper Mountain Landfill under the established waste profile. Contractors are required to prevent the commingling of rock and/or concrete and/or asphalt with impacted soil to the extent possible, thereby minimizing the amount of mixed debris generated.

This ESMP includes the following sections:

- Section 2 of this ESMP provides an overview of the impacted areas within the SDIA and the associated waste profiles.
- Section 3 provides an overview of regulatory requirements.

- Section 4 includes worker health and safety and dust and vapor control measures.
- Section 5 describes on-Site management and handling of soil and material, including soil with mixed debris and burn ash.
- Section 6 covers erosion control, stormwater pollution prevention, and decontamination of equipment.
- Section 7 covers loading, transport and disposal of material and soil as well as preparation of waste manifests.
- Section 8 provides details on waste manifest tracking and final disposal documentation.

## 2 PREVIOUS INVESTIGATIONS

Environmental investigations have been performed within the following areas of SDIA (Figure 1):

- Former General Dynamics (GD) Lindbergh Field Plant
- Northside Airport Support Facilities
- Former Jimsair Aviation Services
- Terminal 1 & Adjacent Apron
- Former Teledyne Ryan Facility (TDY)
- South Side Terminal 1 Replacement and Support Facilities
- Terminal 2 Parking Plaza (Former Rental Car Fueling Facilities)
- Fire Fighting Training Area (Area 9)

Details of these investigations are included in Appendix A.

Based on the results of prior environmental investigations and associated remedial activities, the Airport Authority has established waste profiles with Otay and Copper Mountain Landfills for these impacted geographic regions of the SDIA (profile areas). The Airport Authority intends that soils excavated within the profile areas be reused within the SDIA to the extent possible. Excess soil that cannot be reused shall be disposed at Otay Landfill under the appropriate existing waste profile (Table 1). Soil and mixed debris within the Fire Fighting Training Area (Profile Area 9) is impacted with PFAS and may be reused on-Site, only within the area of excavation, to the extent feasible. Any excess soil or mixed debris that cannot be reused within the original excavation area must be disposed of at the Copper Mountain Landfill under the established waste profile.

Burn ash cannot be reused on-Site and must also be disposed of at the Copper Mountain Landfill. Figure 1 shows the geographic extent of each profile area. Table 1 below includes the waste profile information associated with each profile area.

## Table 1

## Waste Profile Information

| Profile Area | Material and Site | Profile Number | Name of Waste on Profile |
|---|---|---|---|
| **Disposal Site - Otay Landfill** | | | |
| 1 | Soil – GD | 45311319664 | Soil w/ some TPH $Cr^{6+}$ Cr PCB & VOCs - GD |
| | Mixed Debris - GD | 4531164008 | Impacted asphalt, concrete, large rocks or impacted soil mixed with asphalt, concrete or large rocks |
| 2 | Soil - TDY | 4531140814 | Soil with some petroleum hydrocarbons, heavy metals and PCBs |
| 2 | Mixed Debris - TDY | 4531164008 | Impacted asphalt, concrete, large rocks or impacted soil mixed with asphalt, concrete or large rocks |
| 3 | Soil – NTC | 45311219896 | NTC soil from Spruance Road |
| 4 | Soil - Rental Car Facilities | 45311114932 | Contaminated soil - rental car USTs |
| 7 | Mixed Debris - Airfield | 4531164008 | Impacted asphalt, concrete, large rocks or impacted soil mixed with asphalt, concrete or large rocks |
| | Soil - Airfield | TBE | Unknown contaminated soil |
| 8a | Mixed Debris - Landside | 4531164008 | Impacted asphalt, concrete, large rocks or impacted soil mixed with asphalt, concrete or large rocks |
| | Soil with Mixed Debris- Landside | TBE | |
| | Soil - Landside | TBE | |
| 8b | Mixed Debris - Landside | 4531164008 | Impacted asphalt, concrete, large rocks or impacted soil mixed with asphalt, concrete or large rocks |
| | Soil with Mixed Debris- Landside | 45312130949 | Soil with **less than** 10% mixed debris |
| | Soil with Mixed Debris- Landside | 45312130953 | Soil with **greater than** 10% mixed debris |
| | Soil - Landside | 45312130948 | Unknown contaminated soil) |

**Table 1 (continued)**
**Waste Profile Information**

| Profile Area | Material and Site | Profile Number | Name of Waste on Profile |
|---|---|---|---|
| 10 | Mixed Debris - ADP | 4531164008 | Impacted asphalt, concrete, large rocks or impacted soil mixed with asphalt, concrete or large rocks |
| | Soil with Mixed Debris - ADP | 45312130949 | Soil with **less than** 10% mixed debris |
| | Soil with Mixed Debris - ADP | 45312130953 | Soil with **greater than** 10% mixed debris |
| | Soil - ADP | 45312130948 | Unknown contaminated soil |
| **Disposal Site - Copper Mountain Landfill** | | | |
| 6 | Burn Ash – NTC Burnsite | 41331410350 | Soil with California-hazardous levels of lead |
| 9 | Soil - Fire Fighting Training Area | 41332216650 | Soil w/PFAS |
| | Mixed Debris - Fire Fighting Training Area | 41332216657 | Soil w/PFAS & Debris |
| **ADP Landside Construction Street Sweeping** | | | |
| All ADP Landside Construction Areas | Street Sweeping Debris | 45312133796 | ADP Landside Street Sweeping Debris |

Notes:
$Cr^{6+}$ - hexavalent chromium
TBE – to be established
ADP – Airport Development Plan
NTC – Naval Training Center
PFAS - Per- and polyfluoroalkyl substances
Facility TPH – total petroleum hydrocarbons
PCBs – polychlorinated biphenyls
UST – underground storage tank
VOCs – volatile organic compounds
Cr - chromium
GD – General Dynamics
TDY – Teledyne Ryan

Profiles designated as TBE (to be established) above will be updated in this document as the information is made available.

# 3 REGULATORY REQUIREMENTS

Handling, storing, transporting, and disposing of impacted wastes (soil and mixed debris) are subject to federal, state, and local regulations. The appropriate procedures are based on whether the waste is defined as hazardous or non-hazardous. With the exception of burn ash from Area 6 or anywhere else encountered on-Site, and PFAS-impacted soil and mixed debris from Area 9, the wastes generated within the SDIA are generally expected to be non-hazardous. Burn ash shall be managed as a California-hazardous waste. Although PFAS compounds are not currently regulated as hazardous waste, specific PFAS compounds, perfluoro-octanoic acid (PFOA) and perfluoro-octanesulfonic acid (PFOS), are proposed hazardous substances under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and reproductive toxins and carcinogens under California Proposition 65. Therefore, PFAS-impacted soil and mixed debris excavated from Area 9 may be reused on-Site, only within the area of original excavation, to the extent feasible. Any excess soil or mixed debris that cannot be reused on-Site, within the area of original excavation, must be disposed of at the Copper Mountain Landfill under the established waste profile.

Regulations applicable to the management of hazardous wastes in California are found in Title 22 of the California Code of Regulations (CCR), Division 4.5:

- Sections 66262.10-66262.89: Standards Applicable to Generators of Hazardous Waste
- Sections 66263.10-66263.50: Standards Applicable to Transporters of Hazardous Waste

These sections contain information regarding the manifesting, transporting and record keeping requirements for hazardous wastes.

Regardless of whether a waste is hazardous or non-hazardous, records shall be maintained regarding its transportation and ultimate disposition. For hazardous wastes, a Hazardous Waste Manifest must be completed. The manifest describes the waste and/or includes the listed waste number and identifies its hazardous constituents. Copies of the Hazardous Waste Manifests are kept by the generator, the transporter, the disposal facility, and (in California) the State. Thus, hazardous wastes can be tracked from “the cradle to the grave.” For non-hazardous wastes, a Bill-of-Lading or a Non-hazardous Waste Manifest may be used. The generator, the transporter, and the disposal facility typically keep copies of these documents. However, there is no obligation to forward a copy to the State. Excavation and handling of wastes within the profile areas shall be performed by an appropriately trained Contractor. Additional details on waste manifesting and documentation are provided in Section 8.

# 4 WORKER HEALTH AND SAFETY

## 4.1 WORKER HEALTH AND SAFETY

Each contractor shall prepare and implement a site-specific health and safety plan (SSHASP) appropriate for the anticipated construction activities pursuant to the Airport Authority Construction Safety Manual (SDCRAA, 2020) and the requirements of California Code of Regulations (CCR) Title 8 Section 5192 addressing safety precautions to be exercised when working in areas where potentially impacted material may be encountered. Excavated material on the SDIA is expected to be considered non-hazardous waste, except for burn ash and PFAS-impacted soil and mixed debris. These precautions should include, but should not be limited to the following:

a. Appropriate worker training;
b. Engineering controls to manage potential hazards;
c. Use of appropriate Personal Protective Equipment (PPE) (typically Level D, e.g., gloves, hard hat, safety glasses, steel toed boots, etc.);
d. Decontamination procedures for personnel (e.g., washing face/hands);
e. Decontamination for equipment utilized in soil disturbing, handling and transportation activities; and,
f. Emergency response procedures.

The monitoring and exposure standards included in the SSHASP shall be based on CCR Title 8, Section 5155, Airborne Contaminants. Contractors shall maintain a copy of the SSHASP on-Site at all times, conduct daily tailgate meetings to review the SSHASP and potential site hazards and maintain documentation sufficient to demonstrate conformance with CCR Title 8 Section 5192, Hazardous Waste Operations and Emergency Response.

The Contractor shall monitor Site conditions and must notify the Airport Authority if changed conditions warrant additional health and safety measures. The SSHASP must be updated to reflect changing site conditions.

# 5 MATERIAL HANDLING AND MANAGEMENT

The following sections describe the procedures for handling and management of excavated soil, burn ash, and mixed debris during construction activities. General reuse standards for excavated soil are also provided.

## 5.1 DUST AND VAPOR CONTROL MEASURES

All construction and soil disturbing activities shall be performed in a manner so as to reduce the amount of dust and vapors generated. Dust and vapor control measures shall be implemented as necessary to minimize these emissions. The utilization of dust suppression methods shall be conducted by spraying water mist during excavation, handling, stockpiling, and loading of soil and mixed debris. It may be necessary to periodically spray areas of exposed soil throughout the workday, particularly when windy conditions are present. Soil stockpiles or containers not being actively worked, shall be appropriately covered or stabilized using proper BMPs. Vehicles and heavy equipment used for loading and the transportation of soil will operate and move at speeds that will minimize dust generating airborne particulates. During loading and soil transfer operations, soil will be dropped at minimal safe distances to reduce visible dust emissions. If possible, temporary soil stockpiles should be placed in areas shielded from prevailing winds. It may be necessary to suspend dust generating activities if continual visible dust is being generated until the issues are resolved. Additionally, if wind speeds exceed 25 miles per hour, soil disturbing, loading and hauling activities shall be halted until wind speeds dictate it is feasible to proceed. Excavated material placed on the airport apron could be considered Foreign Object Debris (FOD) and may not be left on the apron unless it is covered, and the cover secured to the ground.

## 5.2 MANAGEMENT OF EXCAVATED SOIL

The Airport Authority intends for soil excavated within the profile areas to be reused within the SDIA to the extent possible. Except for PFAS-impacted soil within Area 9 and burn ash from within profile Area 6 (or if encountered elsewhere) , excess soil that cannot be reused shall be disposed of at Otay Landfill under the appropriate existing waste profile (Table 1). Excess PFAS-impacted soil within Area 9 that cannot be reused within the area of original excavation, and burn ash impacted soils shall be disposed of at the Copper Mountain Landfill. Excavated soil that may be ultimately disposed off-Site must be tracked while stockpiled or containerized on the SDIA to ensure the appropriate waste profile is used when transported off-Site. The Airport Authority envisions two options for tracking excavated soils. These include:

- Excavated soil is stockpiled within the respective profile area from where it was removed. As reuse opportunities are identified, the stockpile soil is transported to the reuse location as needed. Any soil remaining in the profile area that has not been reused shall transported off-Site under the appropriate waste profile.
- Excavated soil is transported to a designated stockpile area. The stockpile area will be organized and managed so that soils from different profile areas are segregated and the source areas for each stockpile is known at all times. As reuse opportunities are identified, the stockpile soil is transported to the reuse location as needed. Excess soil remaining in the stockpile area will be disposed under the appropriate waste profile.

Alternate methods for managing excavated soil may be proposed for Airport Authority approval.

Soil mixed with cement may need to be disposed of under a separate waste profile. Notify the Airport Authority if this type of material is generated.

## 5.3 MANAGEMENT OF BURN ASH

Burn ash excavated from Profile Area 6 or any other areas cannot be reused on-Site. Burn ash may be temporarily stored on-Site in roll-off bins or drums, but must be managed as a California-hazardous waste in accordance with applicable sections of CCR 66262. If material appearing to be burn ash outside of Profile Area 6 is encountered, the Contractor shall stop work and contact the Airport Authority immediately for further direction.

## 5.4 MANAGEMENT OF MIXED DEBRIS

In support of the SDCRAA Zero Waste Plan (SDCRAA, 2020) the Airport Authority requests that Contractors look for opportunities to reuse or recycle all rock, asphalt, and concrete within the SDIA or off-Site. Mixed debris (rock, concrete and asphalt commingled with impacted soil) may be stockpiled within the area of generation or transported and managed in a designated stockpile area as described in Section 5.2. Mixed debris (as defined herein) not reused or recycled on the SDIA or off-Site shall be disposed at Otay Landfill under the appropriate existing waste profile (Table 1), except for mixed debris generated in Area 9 which must be disposed of in Copper Mountain Landfill.

## 5.5 REUSE STANDARDS SOIL

Soil excavated from the profile areas (Figure 1) may contain chemical constituents that may pose a risk to human health and the environment if not properly managed and placed for reuse. The

following general standards apply to all soil removed from the profile areas and reused within the SDIA.

- Soil shall not be placed at any location that is within 5 feet of groundwater.
- Reused soil shall be covered by road base, concrete, asphalt or at least 2 feet of clean fill.
- Reusing soil to backfill trenches containing utilities should be avoided, but such use is not prohibited if approved in advance by the Airport Authority.

## 5.6 MANAGEMENT OF PFAS-IMPACTED SOIL AND MIXED DEBRIS

PFAS-impacted soil and mixed debris excavated from Profile Area 9 may be reused on-Site, within the area of original excavation, to the extent feasible. Any excess soil and mixed debris that cannot be reused on-Site, within the area of original excavation, must be disposed of at the Copper Mountain Landfill under the established waste profile. PFAS-impacted mixed debris must not be recycled on or off-Site. PFAS-impacted soil and mixed debris to be disposed of off-Site may be temporarily stored in properly maintained stockpiles that are appropriately placed on visqueen and covered or stabilized using proper BMPs, roll-off bins or drums, and must be managed separately from other materials.

# 6 EROSION CONTROL AND STROMWATER POLLUTION PREVENTION

Contractors shall be responsible for implementing stormwater pollution prevention best management practices (BMPs) necessary to prevent water and wind erosion and sediment transport from construction sites and stockpiled excavated soil, mixed debris and burn ash. In addition, Contractors shall comply with the requirements of the SAN Storm Water Management Plan (SDCRAA, 2022). Minimum BMPs for all SDIA construction sites are provided in Section 5 of the SAN Stormwater Management Plan. Additional recommended BMPs can be found in the 2019 California Stormwater Quality Association (CASQA) Construction BMP handbook. Minimum BMPs for excavation and soil stockpiles shall include, but not be limited to the following:

a. Placement of secure covers over stockpiles at the end of each day;
b. Utilizing straw wattles, silt fences and sandbags as appropriate to prevent transport of sediment in runoff; and,
c. Constructing berms around stockpiles and the boundaries of the construction activity to provide perimeter runoff control.

## 6.1 EQUIPMENT DECONTAMINATION

Excavated material within SDIA is anticipated to be non-hazardous and equipment decontamination unnecessary. However, equipment and vehicles that come in contact with burn ash, PFAS-impacted soil and mixed debris within Area 9, and soil or mixed debris suspected of being impacted shall be inspected prior to leaving the work area and decontaminated to the extent necessary so as to not track impacted material off-Site. The Contractor is responsible for ensuring that vehicles and equipment that exit the work area will not track impacted material from the work area. All visible soil shall be removed from the exterior of the vehicle and vehicle tires by brushing and/or sweeping to prevent spreading of soil beyond the construction exclusion zone. All loose soil generated at the Site will be swept up to prevent a dust hazard and placed in the temporary stockpile or container location for the appropriate profile area. For ADP landside construction projects, street sweeper vehicles will be utilized to remove sediment tracked out onto roadways. The debris gathered and contained by the street sweeper vehicles must be disposed of under the existing waste profile for street sweeper debris generated from ADP landside construction projects (Waste Profile #45312133796).

# 7 MATERIAL DISPOSAL

## 7.1 LOADING, TRANSPORT AND DISPOSAL

Loading of all excavated material shall be done in a manner as to not generate visible dust and emissions (See Section 5.1). All excavated soil and mixed debris, that cannot be reused on the SDIA), shall be transported by an appropriately licensed waste hauler to the disposal facility corresponding to the profile area where the material was generated (Table 1, Figure 1). Excavated material, that cannot be reused on the SDIA, will require shipping documents acceptable to the receiving facility and in compliance with state and federal regulations. Each load must be accompanied by a signed waste manifest or bill-of-lading. Each load must be completely covered with a secured tarp or adequate covering. Each truck, trailer, semitrailer or container used for shipping waste shall be so designed and constructed, and its contents so limited, that under normal conditions of transportation, there shall be no release of materials from the truck to the environment.

## 7.2 PREPARATION OF WASTE MANIFESTS AND BILLS-OF-LADING

Before transporting the waste, the transporter shall review or complete the transporter information, as necessary, sign and date the Transporter of Waste section of the manifest acknowledging acceptance of the waste from the generator. The transporter shall have a manifest or bill-of-lading in the transporter's possession while transporting the waste and shall release the manifest to the owner or operator of the designated disposal facility accepting the waste.

# 8 DOCUMENTATION

This section presents the requirements for waste manifest tracking and final disposal documentation.

## 8.1 WASTE MANIFEST TRACKING

Waste manifest tracking is required to document waste disposal activities. Trucks shall be released from the work area only under the following conditions:

- Loads leaving the Site are logged by the Contractor with the truck and trailer number, driver and company names, departure date and time, manifest number, license plate numbers and any other pertinent project information for potential future inspection;
- Each load transported to the Otay Landfill or Copper Mountain Landfill is accompanied by a waste manifest or bill-of-lading;
- Each load is weighed and tared once arriving at the Otay Landfill or Copper Mountain Landfill; and,
- At the end of each day of waste being hauled off Site, the Contractor shall update Table 2 per each manifest tracked. The Airport Authority's waste disposal contractor (Ocean Blue) may provide information to assist the Contractor in completing Table 2.

## 8.2 FINAL DISPOSAL DOCUMENTATION

Contractor shall provide the Airport Authority with documentation demonstrating the successful disposal of each load of excavated material at the appropriate disposal facility. This documentation shall include:

- Copies of all disposal facility-signed waste manifests or bill-of-lading for each load;
- Log of each load's weight and tare weight; and a certificate from the disposal facility documenting acceptance for total quantity of impacted soil and other wastes disposed of; and,
- Table 2 (below) with the information updated for each day waste is hauled off-Site. Update and complete Table 2 per each waste manifest.

## Table 2

## Waste Tracking Table

| Date | Profile Area | Waste Hauler | License Plate | Driver Name or ID | Certificate of Disposal Received |
|---|---|---|---|---|---|
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## 9 LIMITATIONS

Contractor shall, at its own expense, obtain all necessary licenses and permits required for the performance of its work and comply with all laws, statutes, ordinances, rules, regulations and orders (“Laws”) of any governmental or quasi-governmental authority having jurisdiction overthe work or the performance thereof, including, but not limited to, those relating to health and safety, environmental, Contractor, source and origin of construction materials and services, code of conduct, wages, discrimination, and employment eligibility. Contractor shall promptly correct any violations of such Laws, statutes, ordinances, rules, regulations and orders committed by Contractor, its agents, servants and employees; and Contractor shall receive and respond to, and shall defend, indemnify and hold Kleinfelder and the Airport Authority and any of either entities’ agents, servants and employees from and against any loss, liability or expense arising from, any such violations and any citations, assessments, fines or penalties resulting therefrom. If any sampling or testing of materials is necessary for Contractor to perform its work in compliance with any Laws in effect at the time of the performance of its Work, Contractor shall conduct any and all sampling and/or testing at its sole cost and expense as necessary to comply with all Laws through the provision of its work.

## 10 REFERENCES

San Diego County Regional Airport Authority (SDCRAA), 2020. Construction Safety Manual for Airport Design & Construction, Version 3.05, January.

San Diego County Regional Airport Authority (SDCRAA), 2020. Zero Waste Plan: Pathways to Zero; Rethinking, Reducing, Reusing, and Recycling Material, July.

San Diego County Regional Airport Authority (SDCRAA), 2022. SAN Storm Water Management Plan, June 2015, Amended January 2022.

# FIGURES


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0 800 1,600 Feet

N

KLEINFELDER
Bright People. Right Solutions.

| | |
|---|---|
| PROJECT: | 20202318 |
| DRAWN: | JUNE 2022 |
| DRAWN BY: | RA |
| CHECKED BY: | JL |
| FILE NAME: | 20202318_Fig1.mxd |

# SDIA WASTE PROFILE AREAS EXCAVATED SOIL MANAGEMENT PLAN

SAN DIEGO COUNTY REGIONAL AIRPORT AUTHORITY
SAN DIEGO, CALIFORNIA

FIGURE
1

# APPENDIX A
# SUGGESTED SOIL MANAGEMENT SPECIFICATIONS

**SPECIAL PROVISIONS**

**DIVISION 1 – GENERAL REQUIREMENTS**

# SOIL MANAGEMENT

## PART 1 - GENERAL

### 1.1 GENERAL

A. Guidelines for Soil Management have been developed as part of the general requirements to this bid package. This specification includes technical and procedural steps to assist in achieving best practice environmental management for the excavation, management and disposal or re-use of soil, mixed debris, and burn ash during construction activities for the proposed [PROJECT NAME] construction at the San Diego International Airport (Airport) in San Diego, California.

### 1.2 OBJECTIVES

A. The primary objective is to support the uninterrupted construction at the Project Site while properly excavating, handling, stockpiling and disposing/re-using soil from areas planned for excavation.

B. Specific goals are to:

1. Facilitate construction operations and the project schedule by planning soil management in advance.
2. Provide for soil management and disposal in compliance with federal, state and/or local requirements, while minimizing liability.

### 1.3 DEFINITIONS

A. Soil - the unconsolidated material, composed of solid particles, produced by the disintegration of rocks, that may also include organic material.

B. Mixed debris – soil mixed with concrete or asphalt rubble.

C. Burn ash – the residual ash that results from the low temperature combustion of solid waste. At the Airport, burn ash is typically commingled with soil and appears as 1 to 3-foot thick discontinuous lenses of material that includes dark soil, melted glass or metal, and broken ceramics. Burn ash is known to be present on the west end of the runway below and around the Engineered Materials Arresting System (EMAS).

D. PFAS - per- and polyfluoroalkyl substances.

## 1.4 RELATED SECTIONS

A. Coordinate the work of this section with the work of other sections as required to properly execute the work and to allow minimal interruptions to the construction schedule. Other sections containing related work may include, but are not limited to the following:

1. Section – Health and Safety Plan
2. Section – Allowances
3. Section – Demolition
4. Section – Earth Moving

## 1.5 PERFORMANCE REQUIREMENTS

A. The following performance requirements apply:

1. Compliance with the procedures outlined in the Airport Authority Excavated Soil Management Plan (dated September 22, 2023) as updated, revised, or amended.
2. Compliance with requirements outlined in this Specification.
3. Compliance with federal, state and local requirements and guidelines that supersede the requirements outlined in this Specification.
4. The Contractor shall manage soil stockpiles to prevent discharge of soil to storm drains and to prevent fugitive dust emissions. This should include the use of cover for the stockpiles along with appropriate perimeter control best management plans (BMPs).
5. The Contractor shall screen excavated soil for visual and olfactory indicators of impacts. These indicators may include discoloration, the presence of debris such a glass or metal, petroleum or solvent odors or the presence of non-aqueous (water) free liquids. In addition, the Contractor shall use a photo-ionization detector (PID) with a 10.2 eV lamp to screen soil for the presence of volatile organic compounds (VOCs).
6. As directed by the Engineer, the Contractor shall segregate and stockpile potentially impacted soil separate from non-impacted soil.
7. The Engineer shall evaluate potentially impacted stockpiles for contamination. The Engineer shall determine if the soils shall be re-used on-Site or disposed.
8. The Contractor shall manage potentially impacted soil stockpiles to prevent spreading of potentially impacted soil on-Site, to prevent discharge of potentially impacted soil to storm drains and to prevent generation of windblown dust. This should include the use of high-density plastic sheeting used as the base for the stockpiles along with appropriate best management practices (BMPs).
9. With the exception of burn ash and PFAS-impacted soil and mixed debris from the Fire Fighting Training Area (Area 9), the Contractor shall load for transport,

properly transport, and dispose at the Republic Services Class III Otay Landfill (Landfill) in Chula Vista, California, any soil (whether potentially-impacted or not) that is surplus or that is identified by the Engineer to be unsuitable for use on-Site,

10. Unless otherwise agreed in writing by the Airport Authority, the Contractor shall load and properly transport burn ash (Area 6), and PFAS-impacted soil and mixed debris from the Fire Fighting Training Area (Area 9) to the Republic Services, Copper Mountain Landfill in Wellton, Arizona.
11. Materials loaded for transport to Otay Landfill shall not contain free liquids as would be determined by EPA Method 9095A (Paint Filter Liquids Test) and the percent moisture shall not exceed 50%.
12. Soil from the Project shall not be re-used at any other place outside Airport Property or disposed of at any other place other than the Landfill.

## 1.6 SUBMITTALS

A. The Contractor shall submit the following to the Engineer:

1. A copy of Contractor's Site-specific Health and Safety Plan (HSP), complying with 29CFR 1910.120.
2. Copies of the Contractor's or subcontractor's waste haulers licenses and certifications.

## 1.7 REGULATORY REQUIREMENTS

A. The Contractor shall comply with applicable federal, state, and local regulatory requirements which include, but are not limited to the following:

1. Dust and Emissions Control – Compliance with the San Diego Air Pollution Control District Fugitive Dust Regulations in Rule 55.
2. Stormwater Pollution Prevention – Compliance with the requirements of the project Stormwater Pollution Prevention Plan (SWPPP) and the California State Water Resources Control Board Construction General Permit Order No. 2009-0009-DWQ and/or the Municipal Stormwater Permit Order No. R9-2013-00-1 and amendments, as applicable.
3. Soil loading, transportation, and disposal in accordance with Title 22 California Code of Regulations (CCR) Sections 66263.10 through 66236.50, as applicable, and the procedures outlined in Part 2.

## 1.8 PERMITS AND FEES

A. The Airport Authority has contracted with the Landfill to set disposal fees for soil disposal as follows. These fees are currently guaranteed until March 31, 2024.

1. Soil only (whether contaminated or not) - $33 per ton.
2. Soil mixed with concrete or asphalt or other debris - $40 per ton.

## 1.9 QUALITY ASSURANCE

A pre-construction conference shall be conducted at the Site prior to the start of work. Representatives from trades related to the excavation of soil and management of soil stockpiles shall attend the conference. The requirements of the Excavated Soil Management Plan and this specification shall be reviewed during the pre-construction conference.

## 1.10 PROJECT CONDITIONS

A. Contractor shall review and reference previous investigations at the Site, and address areas of concern for the [PROJECT NAME], if applicable. [The following previous investigations should be reviewed to complete this section:

1. LIST AS NECESSARY. CONTACT PLANNING & ENVIRONMENTAL AFFAIRS DEPARTMENT FOR INFORMATION.]

## 1.11 PRODUCTS – NOT USED

## 1.12 MATERIALS – NOT USED

# PART 2 - EXECUTION

## 2.1 FIELD SCREENING OF EXCAVATED SOIL

A. The Contractor shall:

1. Use visual and olfactory observations to screen all excavated soil for indications of potential-impacts.
2. Use a PID to screen the excavated soil for VOCs.
3. Notify the Engineer whenever any potentially impacted soil is encountered.
4. Discontinue excavations in areas of potentially-impacted soil until otherwise directed by the Engineer.
5. Handle and stockpile potentially impacted soil as directed by the Engineer.
6. Daily field report of visual and olfactory observations and PID readings.

## 2.2 SOIL SEGREGATION AND STOCKPILING

A. Contractor shall comply with state and local guidelines and requirements for temporary stockpiling of soil. Compliance shall include, but is not limited to:

1. Project SWPPP and Construction General Permit and/or Municipal Stormwater Permit, as applicable.

B. Soil stockpile methods shall include, but not limited to the following:

1. Locating on-Site soil stockpiles a safe and sufficient distance from the excavation area and from stormwater drain inlets.
2. Covering of soil stockpiles.
3. Labeling/identifying soil stockpiles.
4. Documenting the source of soil in the stockpile.

C. Management of excavated soil, burn ash, PFAS-impacted soil and mixed debris shall be performed in accordance with Section 5.2 through 5.5 of the Excavated Soil Management Plan.

## 2.3 WASTE MANIFESTING

A. All loads of soil leaving the Airport shall be logged by Contractor with the truck and trailer number, driver and company name, departure date and time, manifest number and vehicle license plate.

B. Each load transported to the Landfill shall be accompanied by a waste manifest or bill of lading, as required by the Landfill. Manifests must be obtained at least 24-hours in advance from the Landfill.

C. An Airport Authority representative, designated by the Planning & Environmental Affairs Department, shall sign each manifest as the Generator of the waste. The representative must be notified at least 48 hours in advance of the scheduled transport.

## 2.4 SOIL TRANSPORT AND DISPOSAL AT THE OTAY AND COPPER MOUNTAIN LANDFILLS

A. Soil transport and disposal at the Landfill shall comply with the following:

1. All necessary measures to prevent the spilling, leaking or wind dispersal of soil from the vehicles during loading and transport of soil.
2. All soil loads leaving the Site shall be tarped.
3. All transport vehicles shall be inspection and decontamination to remove all loose soil and debris from the vehicle before leaving Airport Property.
4. The Contractor shall clean up all spills and leaks and materials removed from vehicles in the decontamination area promptly, including affected media, at no additional cost to the Airport Authority.

## 2.5 DOCUMENTATION

A. Contractor shall submit Daily Field Reports documenting observation of soil management to the Engineer at the end of every work week or when requested by the Engineer.

B. Contractor shall submit a record of soil stockpiles, including on-Site source of the soil and disposition of the soil re-used on-Site or disposed of at the Landfill to the Engineer at the end of each work week or when requested by the Engineer.

C. Contractor shall submit copies of the Landfill-signed waste manifest or bill-of-lading for each load, the load's weight and tare weight and certificate from the Landfill documenting acceptance of the total load to the Engineer at the end of each week or when requested by the Engineer.

## 2.6 SPECIFICATION REFERENCES

A. [LIST AS NECESSARY. CONTACT THE PLANNING & ENVIRONMENTAL AFFAIRS DEPARTMENT FOR INFORMATION.]

# PART 3 - MEASUREMENT AND PAYMENT

## 3.1 MEASUREMENT AND PAYMENT

**END OF SECTION**

# APPENDIX B
# HISTORICAL INVESTIGATIONS

# APPENDIX B
# HISTORICAL INVESTIGATIONS

The following sections summarize the historical operations and environmental investigations conducted within specific profile areas on the SDIA.

## PROFILE AREA 1 - FORMER GENERAL DYNAMICS LINDBERGH FIELD PLANT

From 1994 through 2003, General Dynamics (GD) performed various environmental site assessment and remediation activities with oversight by the San Diego County Department of Environmental Health (DEH) at the former GD Lindbergh Field Plant (LFP) facility as part of its decommissioning (Essentia, 2004).

In September 1997, Brown and Caldwell prepared a report on behalf of GD summarizing historical activities at the former GD LFP facility which led to various site investigations and remediation actions (Kleinfelder, 2009). The report also addressed remediation at several areas of concern (AOCs) at the Site performed by Brown and Caldwell to meet cleanup criteria protective of public health based on the proposed site reuse as Airport parking and the DEH subsequently issued “no further action” letters for each AOC.

### Haley & Aldrich Phase I Environmental Site Assessment

In 2008, Haley & Aldrich conducted a Phase I Environmental Site Assessment (ESA) at Lindbergh Field, on behalf of the Airport Authority (Haley & Aldrich, 2008) and identified several recognized environmental conditions (RECs) including:

- Chlorinated solvent impacts to groundwater from off-site and on-site sources;
- Polychlorinated biphenyls (PCBs) in sediments associated with the stormwater conveyance system; and
- Residual chemical impacts, including metals, petroleum hydrocarbon, and volatile organic compound (VOC) impacts that may be encountered in the subsurface by construction workers during site redevelopment activities.

### Kleinfelder Phase II ESA

In 2009, Kleinfelder conducted a Phase II ESA on behalf of the Airport Authority that identified AOCs based on an evaluation of historical activities and analytical results from soil, soil vapor, and groundwater samples. A combination of soil, soil vapor, and groundwater samples were

collected from 79 locations using direct-push technology (Kleinfelder, 2009). The following summarizes the analytical results and conclusions.

Soil Vapor

Soil vapor samples were collected and analyzed for VOCs. The maximum tetrachloroethene (PCE) concentration was reported at 33 micrograms per liter (µg/L) at 5 and 10 feet bgs (below ground surface). The maximum trichloroethene (TCE) concentration was reported at 44 µg/L at 5 feet bgs.

Kleinfelder concluded that chlorinated VOCs in soil vapor may be from residual VOCs in soil and/or groundwater and may cause an indoor vapor intrusion risk for workers at the future CONRAC facility (now known as the Rental Car Center).

Soil

Soil samples were collected and analyzed for metals, hexavalent chromium, total petroleum hydrocarbons (TPH), and PCBs. The highest total chromium and hexavalent chromium concentrations reported were 496 milligrams per kilogram (mg/kg) collected at 10 feet bgs and 7.6 mg/kg collected at 2 feet bgs, respectively. The highest TPH concentrations reported were from samples collected at 2 feet bgs, with the maximum concentration reported at 5,700 mg/kg. TPH concentrations typically decreased in samples collected at deeper depths. Kleinfelder concluded that the shallow TPH concentrations are indicative of minor surface spills from automobile or truck activity. PCB concentrations were reported ranging from 54 to 510 micrograms per kilogram (µg/kg) and were generally detected in shallow soil samples collected across the Site and could pose concerns for worker exposure during construction activities. Though soil samples were not analyzed for VOCs, it was further concluded that the presence of VOCs in soil vapor may be indicative of VOCs in soil, which could pose a source for vapor intrusion concerns for on-Site buildings. Metals, TPH, chromium and hexavalent chromium concentrations were generally detected in the vicinity of former Buildings 1, 2, and 49.

Groundwater

Groundwater samples were collected from 16 locations and analyzed for VOCs, 1,4-dioxane, and hexavalent chromium. Kleinfelder concluded that chlorinated VOCs were detected in the vicinity of former Buildings 1, 2, and 3 and could be contributing to the VOC concentrations detected in soil vapor and could also contribute to potential vapor intrusion concerns for on-Site buildings. Chlorinated VOCs in groundwater were likely associated with the known plumes, except for the

VOCs detected near Building 11 where Kleinfelder did not identify the source. The maximum hexavalent chromium concentration reported was 94 µg/L. The maximum 1,4-dioxane concentration reported was 15 µg/L. Kleinfelder recommended that if dewatering is necessary during redevelopment activities, it may be necessary to treat extracted groundwater prior to discharge and develop best management plans (BMPs) to reduce worker exposure to impacted groundwater.

Surface Material

The surface material at the former GD LFP facility includes unpaved areas, asphalt, concrete, and gravel (crushed concrete). Surface material samples were collected at 18 locations across the Site and analyzed for PCBs to evaluate PCB concentrations in surface soil and assess the current Site contribution of PCBs in the storm drain system. If the surface material was gravel, a sample was collected. If the surface material was asphalt or rock, a sample was collected just below the paving material. PCBs were detected at 12 locations above the detection limits at 0.5-foot bgs. The following Aroclors were detected:

- Aroclor 1016 was detected in one surficial sample at a concentration of 140 µg/kg;
- Aroclor 1248 was detected in two surficial samples at concentrations up to 140 µg/kg;
- Aroclor 1254 was detected in six surficial samples at concentrations up to 350 µg/kg; and
- Aroclor 1260 was detected in ten surficial samples at concentrations up to 330 µg/kg.

Kleinfelder concluded that PCBs were generally detected in shallow soil samples collected across the Site and could pose concerns for worker exposure during redevelopment activities.

**Kleinfelder Supplemental Phase II ESA**

Kleinfelder conducted a Supplemental Phase II ESA on behalf of the Airport Authority in 2010 to assess the nature and extent of constituents of concern (COCs) reported at the former GD LFP facility, the fixed- base operator (FBO) facility (operated by Landmark) and a parking lot for Solar Turbines employees. Kleinfelder also developed a conceptual Site model and conducted a human health risk assessment (HHRA) to address the presence of chemicals in soil and soil vapor under current and future land use. Additional soil, soil vapor, and groundwater samples were collected from 186 locations using direct-push technology targeting the AOCs identified in the Kleinfelder 2009 investigation (Kleinfelder, 2011). The following summarizes the analytical results. Section 1.1.2.4 summarizes the HHRA and conclusions.

Soil Vapor

One hundred and thirty-one soil vapor samples were collected at depths of 5 and 10 feet bgs (where possible) and analyzed for VOCs. PCE and TCE were the compounds detected at the highest concentrations in the soil vapor samples. The maximum PCE concentration was reported at 84,000 micrograms per cubic meter ([µg/$m^3$]; equivalent to 84 µg/L) at 10 feet bgs in GD049 in the former Building 3 area. The maximum TCE concentration was reported at 470,000 µg/$m^3$ (equivalent to 470 µg/L) at 10 feet bgs in GD078 in the former Building 1 area.

Soil

Two hundred and twenty-nine soil samples were collected from 2 to 10 feet bgs and analyzed for total chromium, hexavalent chromium, TPH, and VOCs. The highest total and hexavalent chromium concentrations reported were 417 and 46 mg/kg, respectively; both were collected from 10 feet bgs at GD020 in the former Building 1 area. The highest TPH concentrations reported were from samples collected at 2 feet bgs, with the maximum concentration reported at 1,100 mg/kg at GD044 in the former Building 2 area. VOC concentrations ranged from 1 to 30 µg/kg; the maximum VOC concentrations were detected in GD076 in the former Building 1 area.

Groundwater

Groundwater samples were not collected at the former GD LFP facility during Kleinfelder's Supplemental Phase II ESA.

Human Health Risk Assessment

Data from the Kleinfelder reports were used to prepare an HHRA as described in the Supplemental Phase II ESA report (Kleinfelder, 2011). Based on the results of the HHRA, Kleinfelder recommended that vapor mitigation measures be considered for future development and occupied spaces in the vicinity of detected soil vapors. In 2013, Haley & Aldrich collected additional soil vapor samples within and in proximity to the proposed building footprints to update the HHRA prepared by Kleinfelder. The finding and recommendations presented in the HHRA updated are described in the following section.

**Haley & Aldrich, Inc., Human Health Risk Assessment Update, Portions of NorthSide Development, Rental Car Center, SanPark2 and North Site Interior Roadway Projects**

Haley & Aldrich collected soil vapor samples from 11 locations at 5 feet bgs to address data gaps in the previous soil vapor dataset and prepared an HHRA update for portions of the North Side

Development. This area included the Rental Car Center, SANPark2, and the North Side Interior Roadway projects; and formerly contained operations of the GD LFP facility.

The HHRA update was prepared using more recent risk assessment guidance and toxicity values to incorporate and evaluate potential human health risks to on-Site receptors and further assess whether mitigation measures or remediation activities are warranted at the Site. Potential risks to human health were estimated for future on-Site human receptors potentially exposed to on-Site chemical impacts detected during the 2009 and 2010 Site investigation activities and the 2013 soil vapor sampling and analysis activities, assuming the planned North Side Development land uses. Future site receptors were identified and included the future on-Site commercial/industrial worker, construction worker, and subsurface maintenance and utility worker.

Based on the results of the HHRA update, Haley & Aldrich concluded that estimated human health risks are acceptable for each of the future on-Site receptors (i.e., estimated risks are less than or equal to the acceptable risk thresholds of 1.0 for total Hazard Index and $1 \times 10^{-5}$ for cumulative Incremental Lifetime Cancer Risk). The RWQCB and OEHHA reviewed the HHRA and granted no further action indicating that mitigation was not required (RWQCB, 2013).

## PROFILE AREAS 1 AND 9 - NORTH SIDE AIRPORT SUPPORT FACILITIES

The following investigations were conducted within Profile Areas 1 and 9. These investigations were not specific to these profile areas and are discussed comprehensively in the following sections. Additional investigations conducted specifically within Profile Area 9 are discussed below.

### Jet Fuel System (Above Ground Tanks and Pipeline)

The former aboveground fuel facility was located on the northeastern side of the Lindbergh Field. The former fuel facility included a fuel tank farm and a fuel dispensing area south of the main runway.

In 1994, Leighton and Associates prepared a Phase II ESA for the proposed aboveground fuel facility to establish baseline chemical levels in subsurface soil and groundwater prior to construction of the remote fueling facility and installing ASTs and fuel transfer pipelines (Leighton and Associates, 1994). Leighton and Associates noted that prior to the Phase II ESA, petroleum hydrocarbon and benzene concentrations from 21 monitoring wells off the Site were reported up to 100,000 µg/L and 16,000 µg/L, respectively, during previous investigations. The Phase II ESA included soil and groundwater sample collection; the following summarizes the results:

- Fifty-four soil samples were collected from 21 soil boring locations and analyzed for TPH, VOCs, SVOCs and metals. TPH concentrations were not detected in the 54 soil samples above 10 mg/kg. VOCs were not detected in 35 samples analyzed above laboratory detection limits. SVOCs were not detected in the 18 soil samples analyzed above laboratory detection limits.
- Metals were not detected above total threshold limit concentrations in the 20 samples analyzed.
- Groundwater samples were collected from each soil boring and six groundwater monitoring wells and analyzed for TPH, VOCs, SVOCs, and metals. TPH concentrations were not detected above the laboratory detection limit of 50 µg/L in any of the samples. Several VOCs were detected in areas near the proposed fuel facility but were below the established water quality goals. SVOCs were not detected above laboratory detection limits in the 10 soil samples analyzed. Six metals (arsenic, chromium, copper, lead, nickel, and zinc) were detected in 8 of the 9 samples analyzed and were above the water quality standards.

**Ninyo & Moore Phase II Environmental Site Assessment**

In 2000, Ninyo & Moore performed a Phase II Environmental Site Assessment on property proposed for transfer between the San Diego Unified Port District and the United States Marine Corps. This investigation included assessment of three parcels to be transferred from the Marine Corps to the Port District (Parcels 1, 2 and 3) and two parcels to be transferred by the Port District to the Marine Corps (Parcels 4a and 4b). Parcels 1 and 2 were rectangular parcels located adjacent to the northwest end of the runway and Parcel 3 was located at the west end of the runway. Parcels 4a and 4b were located at the northern end of Profile Area 9 (Parcel 4b) and extended north to the northwest end of the air cargo taxiway. Ninyo & Moore collected soil-vapor, soil, and groundwater samples for analytical testing for chemical constituents of potential concern specific to the parcels. The chemical constituents of potential concern were identified based on known environmental concerns, most of which were previously assessed or remediated.

Soil Vapor

Soil-vapor sampling was performed at 29 locations to screen areas where borings would be drilled to evaluate groundwater. The chemical constituents of potential concern detected were found to have low soil-vapor concentrations.

- Volatile organic compounds were detected at low levels in two locations on Parcel 1, which led to testing of groundwater at these locations.
- Volatile organic compounds were detected at low levels at seven locations in Parcels 4a and 4b. Groundwater samples were collected and tested for these compounds.

Soil

Ninety-one soil samples were analyzed and compared with risk-based levels of the USEPA Region 9 preliminary remediation goals for industrial/commercial exposure scenarios.

- Chromium was detected in one soil sample from Parcel 1, and in two soil samples from Parcel 3, at levels that slightly exceeded the residential preliminary remediation goal, but were less than the commercial/industrial preliminary remediation goal, the standard set for this area.
- PCBs were detected as Aroclor-1260 in seven samples collected from five locations in the vicinity of the former General Dynamics salvage yard (Parcel 4a), an area of a known unauthorized release of PCBs. Aroclor-1260 was found to exceed the USEPA Region 9 residential PRG in three soil samples collected in the vicinity of the salvage yard.

- Nine samples contained arsenic levels that exceeded the USEPA Region 9 residential preliminary remediation goal, three of which exceeded the site-specific residential preliminary remediation goal, and two of which exceeded the USEPA Region 9 industrial/commercial preliminary remediation goal.
- The soil results generally indicate levels of chemical constituents of potential concern below that which would cause an unreasonable risk to human health.

Groundwater

Groundwater sampling was performed at 17 locations to provide baseline data regarding groundwater conditions, to evaluate areas of known or suspected groundwater contamination for possible impact to the proposed transfer parcels, and to detect unknown plumes that might have been present.

- Nine VOCs were detected at low levels in seven locations in Parcels 4a and 4b. Six locations are clustered in the former General Dynamics salvage yard area, and are consistent with a dissolved-phase plume. One location was in the former fire-fighter training pit area. The low concentrations of volatile organic compounds were consistent with past fuel burning in this area.
- Tetrachloroethene was detected in one location approximately 400 feet northeast of Parcels 4a and 4b, near the edge of a previously assessed off-Site tetrachloroethene plume. Tetrachloroethene was not detected in other groundwater samples.
- One groundwater sample containing VOCs was collected near the former fire-fighter training pit (Parcel 4b, Areas 2 and 3). Components of fuel, benzene and three other VOCs, were detected in the dissolved phase. The results are consistent with the former use of this area for fire-fighter training, and with the residual impact of the known unauthorized release that has been remediated.
- The groundwater assessment conducted to evaluate the proximity of a solvent plume (previously identified as being located northeast of Parcel 4b) to Parcel 4b does not indicate an impact to the Site parcels.

Based on the analysis of the data, and intended Site use, Ninyo & Moore concluded that the parcels were appropriate for transfer between the San Diego Unified Port District and the U.S. Marine Corps.

**Group Delta Phase I and Phase II ESA**

In 2017, Group Delta conducted a Phase I ESA on behalf of the Airport Authority that identified AOCs, RECs, and Historical Recognized Environmental Conditions (HRECs) for the proposed Airport Support Facilities North area located north of Taxiway C (Group Delta, 2017). The conditions identified included:

- Hazardous materials pipeline that runs east-west adjacent to Taxiway C and travels north to the fuel tank farm;
- Two above ground storage tanks (ASTs) containing jet fuel located north of the CRDC that connects to transmission lines that go to filling stations approximately 2,000 feet to the southwest;
- Hazardous materials storage disposal container northeast of the CRDC;
- Asphalt and concrete staining observed throughout, including beneath jet engines in the FedEx processing and distribution area and vehicle maintenance area;
- Previously detected PCBs in the sediment within the storm water conveyance system and PCBs formerly detected in soil above California Environmental Protection Agency (Cal/EPA) California Human Health Screening Levels (CHHSLs) in the northeast portion of the North Side Support Facilities.
- Groundwater chlorinated solvent plume with concentrations above California Department of Public Health (CDPH) Maximum Contaminant Levels (MCLs) resulting in the presence of VOCs in soil gas above industrial CHHSLs beneath former Building 1 of the former General Dynamics/Convair facility and the Baron Blakeslee/Honeywell facility and potential impacts related to former releases in the vicinity of the General Dynamics/Convair salvage yard and former fire-fighting training pits; and
- Impacted soil with TPH and VOCs in the vicinity of the FedEx Facilities Sorting Area.

Group Delta Phase II ESA

Group Delta conducted a Phase II ESA on behalf of the Airport Authority in support of planned redevelopment activities the North Side Support Facilities. A total of 52 soil borings were advanced and 153 soil and 14 groundwater samples were collected in August 2017 (Group Delta, 2018). Sampling locations were selected to target AOCs, RECs, and HRECs identified in the Phase I ESA as well as for general characterization of the proposed development area.

Soil samples were analyzed for TPH, VOCs, and Title 22 metals. Select soil samples were also analyzed for SVOCs, PCBs, and or Jet Fuel A. The results of the investigation were as follows:

- TPH gas range organics (GRO) were not detected at concentrations above laboratory reporting limits, TPH diesel range organics (DRO) were detected up to 650 mg/kg, and TPH motor oil range organics (MRO) were reported up to 900 mg/kg.
- Jet Fuel A was reported in one sample with a concentration of 39 mg/kg.
- Metals were reported at concentrations below EPA Industrial Regional Screening Levels (RSLs) and Department of Toxic Substances Control (DTSC) Human and Ecological Risk Office (HERO) modified screening levels (DTSC-SLs) with the exception of arsenic. All metals were detected at concentrations below the Site-Specific background concentrations developed by Geosyntec for the Former TDY property located on the south side of the airport.
- VOCs and SVOCs were not detected above laboratory reporting limits.
- PCBs were detected in three of 90 samples analyzed and had a maximum concentration of 0.033 mg/kg.

Groundwater samples were collected and analyzed for TPH, VOCs, SVOCs, PCBs, Title 22 metals, and select samples for Jet Fuel A. The results of the investigation were as follows:

- TPH GRO was detected in one groundwater sample at a concentration of 7.3 milligrams per liter (mg/L), TPH DRO was detected in four samples with a maximum concentration of
- 0.23 mg/L, and TPH MRO was not detected above the reporting limit.
- Jet Fuel A was reported in one of three samples with a concentration of 0.17 mg/L.
- Metals were reported at concentrations below their respective MCL with the exception of arsenic, chromium, lead and nickel.
- Four VOCs were reported above their respective MCL. Maximum detected concentrations included: 1,1-dichlorethene (1,1-DCE) at 13 µg/L, cis-1,2-dichloroethene (cDCE) at 50 µg/L, trans-1,2-dichloroethene (tDCE) at 11 µg/L, and vinyl chloride at 44 µg/L.
- SVOCs were not detected above laboratory reporting limits.
- PCBs were not detected above laboratory reporting limits.

Soil vapor was not investigated during this sampling program; however, Group Delta conducted a supplemental investigation that included collecting additional soil, groundwater and soil vapor samples in the north side of the airport described below.

Group Delta Supplemental Site Investigation Report

Group Delta conducted a Supplemental Site Investigation (SSI) on behalf of the Airport Authority in support of planned redevelopment activities the North Side Support Facilities. A total of 57 soil borings were advanced and 113 soil, 35 groundwater, and 19 soil gas samples were collected in August and November 2018 (Group Delta, 2019). Sampling locations were selected based on the results of the Phase II ESA completed in 2017 to further delineate potential impacts to soil and groundwater and estimate the potential human health risks associated with potential vapor intrusion into the planned future buildings.

Soil samples were analyzed for TPH, Jet Fuel A, VOCs, and/or PCBs. The results of the investigation were as follows:

- TPH GRO were not detected above laboratory reporting limits, TPH DRO were detected up to 610 mg/kg, and TPH MRO were reported up to 2,100 mg/kg.
- Jet Fuel A was detected up to a maximum concentration of 180 mg/kg.
- VOCs were not detected above laboratory reporting limits.
- PCBs were detected in one sample analyzed and had a maximum concentration of 0.036 mg/kg.

Groundwater samples were collected and analyzed for TPH, Jet Fuel A, perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA), VOCs, and/or 1,4-dixone. The results of the investigation were as follows:

- TPH GRO was detected in one groundwater sample at a concentration of 1.2 mg/L, TPH DRO was detected in 13 samples at a maximum concentration of 1.3 mg/L, and TPH MRO was detected in three samples at a maximum concentration of 2.2 mg/L.
- Jet Fuel A was reported in one of three samples with a concentration of 0.17 mg/L.
- PFOA and PFOS were detected in the three samples analyzed, above their respective 2018 Notification Level established by the California SWRCB. PFOA was detected at a maximum concentration of 48,000 nanograms per liter (ng/L) and PFOS at a maximum concentration of 44,000 ng/L. The Notification Levels for PFOA and PFOS are 14 ng/L and 13 ng/L, respectively.
- 1,4-Dioxane was detected at a maximum concentration of 520 µg/L.
- Sixteen VOCs were reported above their respective laboratory reporting limits. Maximum detected concentrations included: 1,1-dichloroethane at 3.1 ug/L, 1,1-dichloroethene at

15ug/L, cDCE at 16 µg/L, tDCE at 11 µg/L, 1,4-dichlorobenzene at 1.4 ug/L, 1,2-dichloropropane at 3 ug/L, benzene at 1.4 µg/L, toluene at 1.2 ug/L, TCE at 1.54 ug/L, vinyl chloride at 130 µg/L, isopropylbenzene at 15 ug/L, n-propylbenzene at 7.8 ug/L, naphthalene at 11 ug/L, sec- butylbenzene at 1.3 ug/L, methyl tert butyl ether at 1.1 ug/L, and tert-butyl alcohol at 29 ug/L.

Soil gas samples were collected and analyzed for VOCs and TPH GRO. The results of the investigation are as follows:

- TPH GRO was not detected in the samples collected.

Five VOCs were detected, and the maximum concentrations were: cis-1,2-DCE at 0.20 µg/L, styrene at 0.040 J µg/L, toluene at 0.12 µg/L, TCE at 1.8 µg/L, and PCE at 0.97 µg/L. A screening level vapor intrusion (VI) health risk assessment (HRA) was conducted for the cargo facilities area and relocated FMD site using the soil gas data obtained during this investigation. Contaminants of interest were not detected in soil gas samples collected in the relocated airport fueling area and screening level calculations were not performed for that area. DTSC's Johnson and Ettinger Model (December 2014) was used for the VI HRA which estimates indoor air concentrations from subsurface vapor migration into indoor air. The screening level VI HRA provides a summary of the potential human health risks to future Site receptors, including future Site workers, from possible exposures to on-Site chemical impacts based on anticipated future Site development and use for commercial purposes.

Based on this screening level HRA, the estimated VI health risks are likely acceptable for future on-Site workers in the areas of the relocated Airport Fueling Operations, the Cargo Facilities area, and the FMD relocated site (Group Delta, 2019).

Based on the results of the SII, Group Delta recommended the following:

- Groundwater monitoring wells to be installed to evaluate the natural attenuation of 1,4-dioxane and VOCs.
- Additional investigations for the delineation of PFOA and PFOS in groundwater.
- Preparation of an Environmental Work Plan for the new development areas.
- If the storm water conveyance system is modified, removed, or cleaned out in the future, sediment should be analyzed for PCBs.

## PROFILE AREA 2 - FORMER TELEDYNE RYAN FACILITY

The former Teledyne Ryan (TRA) facility was located on approximately 44 acres in the southern portion of the Airport, along Harbor Drive. Teledyne Ryan Industries (TDY) and its predecessors have conducted aerospace/aircraft manufacturing and related research and development operations since 1939, when the Ryan Aeronautical Corporation facility was constructed. Products manufactured at the Site included aircraft, aircraft and helicopter parts, target drones, and unmanned reconnaissance aircraft. Operations at the Site ceased in mid-2000 and TDY vacated the Site in November 2002.

TDY conducted a Site-wide HHRA and developed risk-based concentrations (RBCs) to identify Site areas that may warrant remediation based on future land use. TDY used the RBCs to screen the areas of potential concern (AOPC) using the calculated RBC for each compound and for each exposure scenario. AOPCs where COCs in soil, soil gas, or groundwater exceeded any RBC were considered an AOC. Through this process, TDY conducted a feasibility study for 14 AOCs and implemented the recommended remedial option (i.e., enhanced in-situ bioremediation, targeted excavation, and in-situ reduction by emulsified vegetable oil). The identified COCs included VOCs, PCBs, hexavalent chromium, TPH and light-non-aqueous phase liquid LNAPL).

The former TRA facility was demolished from 2010 to 2012 and soil samples were collected from areas where environmental screening indicated the presence of a new potential environmental concern (NPEC) (Haley & Aldrich, 2011). If sample results exceeded the soil cleanup goal in the NPEC area, the area was identified as an AOC. Interim remedial action (i.e., targeted excavation) was conducted at 17 AOCs during demolition including the Former Explosives Area, Building 158, Building 102, Western Building 120, Building 120 West, Building 120 South, Building 120 Test Pit 1 Area, Building 222/228, Former Water Tank Area, Catch Basin 145, Catch Basin 151, Monitor Well B120-MW2, Building 180, Building 120 and 130 EISB Treatment Areas (Geosyntec, 2012). Confirmation samples were collected and analyzed for the identified COC(s) driving the remediation. The constituents from each area met the respective cleanup levels established by the SDRWQCB in the Cleanup and Abatement Order (CAO) (RWQCB, 2011). TDY, as required by the CAO, will prepare a post-remediation risk assessment and cleanup and abatement completion report that provided the maximum concentrations remaining at the TRA facility. As stated above, the soil remaining at the Site meets the following soil cleanup levels listed in the CAO:

- Total PCBs: 1 mg/kg;
- 1,2,4-trimethylbenzene: 11 mg/kg;

- Cis-1,2-dichlorethene: 11 mg/kg;
- Naphthalene: 17 mg/kg;
- PCE: 6 mg/kg;
- TCE: 25 mg/kg;
- Vinyl chloride: 0.49 mg/kg;
- Dibenzo(1,h)anthracene: 0.49 mg/kg;
- TPH aliphatic (C5-C8): 8,500 mg/kg;
- TPH aliphatic (C9-C18): 21,000 mg/kg;
- TPH aromatic (C9-C18): 6,200 mg/kg;
- TPH aromatic (C≥19): 6,400 mg/kg;
- Hexavalent chromium: 35 mg/kg; and
- Total chromium: <2,500 mg/kg.

Soil gas sampling identified three areas with VOC concentrations exceeding Site cleanup goals. Because of the imminent redevelopment plans (parking lot construction), soil vapor extraction (SVE) system piping was installed to allow future management of the residual vapor concentrations. The system operated for approximately three weeks in the former Building 131 area and three weeks in the former Building 152/156 area. Asymptotic VOC extraction trends were quickly established within each area, with minimal observed rebound in soil gas concentrations. Soil gas confirmation results demonstrate that the SVE treatment areas in Buildings 131, 156, and 152 met the previously established remedial goals for soil gas (Geosyntec, 2013a). The following maximum concentrations in confirmation samples were reported:

- 2-butanone: 0.021 µg/L;
- Acetone: 0.066 µg/L;
- Chloroform: 0.013 µg/L;
- cis-1,2-dichloroethene: 0.079 µg/L;
- trans-1,2-dichloroethene: 0.0038 µg/L;
- 1,4,-dichlorbenzene: 0.014 µg/L;
- PCE: 10 µg/L; and
- TCE: 1 µg/L.

VOC concentrations in soil gas in Complex C/D also required remediation which was performed by excavation and on-Site treatment. Three excavations were conducted, removing approximately 5,700 banked cubic yards of soil (Geosyntec, 2013b). Excavated soil was placed in stockpiles and evaluated in the field by soil gas samples and screening with a PID. Sample locations that exceeded the soil gas criteria were removed and disposed off-Site. Confirmation soil gas samples were collected which showed that the remedial goals were met (Geosyntec, 2013b). The following maximum concentrations in confirmation soil gas samples were reported:

- 1,1,1-trichloroethane: 1.5 µg/L;
- 2-butanone: 0.066 µg/L;
- Acetone: 0.45 µg/L;
- Benzene: 0.019 µg/L;
- cis-1,2-dichloroethene: 0.36 µg/L
- chloroethane: 0.035 µg/L;
- chloroform: 0.014 µg/L;
- o-xylene: 0.015 µg/L;
- p/m-xylene: 0.047 µg/L;
- trans-1,2-dichloroethene: 0.040 µg/L;
- PCE: 21 µg/L
- Toluene: 0.067 µg/L; and
- TCE: 8.4 µg/L.

TRA was remediated to an industrial cleanup standard, not an unrestricted residential standard; residual chemical impacts may therefore be present in soil, soil vapor, and groundwater beneath the Site, and in sediments in the storm drain systems. The RWQCB issued closure for this Site in a letter dated 13 February 2015 for its current land use; the letter indicated that the Site may require reevaluation to assess whether future land use changes may pose an unacceptable risk to human health. The Airport Authority redeveloped this property to use as interim parking.

## PROFILE AREAS 3 AND 6 - FORMER NAVAL TRAINING CENTER LANDFILL

The former Naval Training Center (NTC) provided training for both officers and enlisted personnel and covered 500 acres in the western portion of the Airport. Base operations included vehicle maintenance, machining, metal plating, electronics, fire fighting schools, and wood treatment. Generated wastes included waste oil, paint waste, thinners, solvents, pesticides, fuels, dental amalgam, photo processing waste, PCBs, and wood treatment wastes. Any wastes not burned for fire training exercises were disposed of in the NTC landfill. The inactive NTC landfill is comprised of approximately 52 acres of vacant land located within the eastern portion of the former NTC site.

The United States Marine Corps (USMC) operated a municipal landfill at the Site between 1950 and 1971. The waste was generally considered municipal solid waste (MSW) and consisted of a combination of household, commercial, and to a lesser extent, industrial wastes. The USMC facility reportedly did not generate large quantities of hazardous wastes. It appears that wastes initially were disposed in the northern portion of the landfill site and that these wastes were burned. Burned waste material (also called burn ash) is known to extend to the north of what was considered the NTC Landfill site boundary.

The Airport Authority, the Port of San Diego, and the Navy began conducting investigations of the NTC Landfill in 1998. These investigations have assessed the chemical make-up of the landfill materials and the size of the landfill. These investigations also revealed the possible presence of a number of COCs. These include:

- Volatile and semi-volatile organic compounds;
- Petroleum hydrocarbons (gasoline and fuel oils);
- Landfill gas (from the decomposition of organic materials);
- Metals;
- Dioxins (in the burn ash materials);
- Pesticides; and
- PCBs.

In 2007, Ninyo & Moore prepared a Clean Closure Plan for the former landfill (Ninyo & Moore, 2007). The plan proposed the removal of buried waste, including burned refuse/ash and municipal solid waste, and returning the Site to the original grade with on-Site soil and clean import soil. After the fill was placed, visual screening was conducted, and confirmation samples collected to comply

with clean closure requirements. The plan did not remove the burned waste beneath the airport runway/apron, or the construction debris fill in the southern portion of the Site. Groundwater and landfill gas monitoring indicated that the waste does not pose a threat the water quality and the landfill gas is not migrating off-Site. The Clean Closure Plan was implemented by the Airport Authority from January 2008 to June 2009 and approximately 278,254 tons or 241,710 cubic yards of municipal solid waste, soil, and burn ash were removed from the Site (The Bodhi Group, 2012). A clean closure report for the Former NTC landfill was submitted to the RWQCB in 2012 by the Bodhi Group.

The analytical results of 30 burn ash samples collected prior to conduction the NTC Landfill Remediation Project, and which likely represent the concentrations found in the burn ash remaining on airport property to the north of the former landfill site boundary, showed the following:

- Total recoverable petroleum hydrocarbons (TRPH) concentrations in samples collected in the burned waste ranged from not detected to approximately 350 mg/kg;
- Lead exceeded its total threshold limit concentration (TTLC) of 1,000 mg/kg in approximately 25% of the samples analyzed and concentrations were measured as high as approximately 2,580 mg/kg;
- Zinc exceeded its TTLC of 5,000 mg/kg in approximately 20% of the samples analyzed and concentrations were measured as high as approximately 16,000 mg/kg;
- Nickel exceeded its TTLC of 2,000 mg/kg in 1 of the 30 samples analyzed at 3,170 mg/kg;
- Cadmium and total chromium did not exceed their respective TTLCs of 100 and 2,500 mg/kg, respectively, and the concentrations of cadmium and chromium were measured as high as approximately 15 and 200 mg/kg, respectively;
- Polynuclear aromatic hydrocarbons (PAHs) were not detected in the five burned waste samples analyzed for PAHs. The PCB Aroclor-1254 was detected at a concentration of 320 µg/kg in 1 of the 5 burned waste samples analyzed;
- Dioxin/furan was reported in pico-grams per gram (pg/g) of Toxic Equivalents (TEQ) of the most toxic form, 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD), in the three samples analyzed at concentrations that ranged from 9.06 to 75.7 pg/g TEQ 2,3,7,8-TCDD (For comparative purposes, the TTLC of 2,3,7,8-TCDD is 100 pg/g); and
- Pesticides were not detected in the burned waste samples analyzed.

Remaining impacts to groundwater from MSW, burn ash, and demolition debris are minimal and landfill gas is generally absent (Authority, 2014). In 2014, a Supplemental Final Construction

Quality Assurance Report and Certification of Clean Closure was prepared for the Airport Authority (SCS Engineers, 2014).

The Airport Authority redeveloped the Site to support airport-related facilities, including an aircraft apron, terminal building, a roadway, and additional parking.

In a 2018 letter to the Airport Authority, the RWQCB finds that further maintenance and monitoring of the residual burn-ash wastes in the western terminal area (Parcel E) are not warranted and was terminated from enrollment in General Orders Nos. R9-2012-0001 and R9-2012-0001. Additionally, the RWQCB finds the northern most portion of the NTC/MCRD landfill (Parcel A) meets the criteria for General Order No. R9-2012-0003 for maintenance purposes and was enrolled in that General Order and terminated from General Orders Nos. R9-2012-0001 and R9-2012-0001 (RWQCB, 2018).

## PROFILE AREA 4 - TERMINAL 2 PARKING PLAZA (FORMER RENTAL CAR FUELING FACILITIES)

A former Avis car rental facility, a former Hertz car rental facility, and a former National car rental facility were previously located in the southern portion of the Site, on the north side of Harbor Drive. Historical operations include vehicle maintenance, refueling with on-Site UST systems, and routine car rental activities.

The former rental car facilities no longer operate at this area, and the area has been redeveloped as a multi-level parking structure known as Terminal 2 Parking Plaza. There are no active USTs in this area. The former facilities and past site activities are further described below.

### Former Avis Rental Car Facility

In 1990, two USTs were removed from the former Avis site and impacted soil was excavated and transported off-site (Groundwater and Environmental Services [GES], 2008). In 1995, two more UST systems were removed, and confirmation soil sampling indicated elevated concentrations of gasoline hydrocarbons in locations beneath the removed USTs. Site assessment activities continued through 2004 with the installation of six groundwater monitoring wells and the reinstallation of one well. In 2006, Avis submitted a Corrective Action Plan (CAP) recommending natural attenuation as the remedial alternative. On 15 August 2008, the DEH issued a letter confirming the completion of site investigation and corrective actions associated with an unauthorized release from USTs at the former Avis Car Rental facility (H05991-003) based on the condition that the current use of the property remained as a parking lot. The DEH also required that any contaminated soil and/or groundwater excavated as part of any subsurface construction work must be managed in accordance with the legal requirements at that time (DEH, 2008).

### Former Hertz Rental Car Facility

In 1987, a release of 6,000 gallons of gasoline product from an existing 20,000-gallon UST was reported at the former Hertz site (GES, 2008). Free product was detected in monitoring wells up to a maximum thickness of 4.38 feet. Assessment indicated that the free product plume and dissolved-phased groundwater were limited to the vicinity of the former UST and in the northeast direction of the Site in the direction of plume migration. A dual vapor extraction system was installed, and free product has not been detected in monitoring wells since 1995. The DEH issued a “no further action” letter in 2000 based on the stable plume and evidence of natural attenuation.

**Former National Rental Car Facility**

In 1995, three gasoline UST systems were removed from the former National site. Approximately 1,200 cubic yards of petroleum hydrocarbon-impacted soil was excavated and transported off-site.

Confirmation samples were collected from the sidewalls and bottom of the excavation areas and petroleum hydrocarbons as gasoline (TPHg) and benzene concentrations were reported as high as 14,000 and 11.3 mg/kg, respectively.

In 1995, four groundwater monitoring wells were installed to investigate these potential impacts to soil and groundwater. Three wells were installed at the former National site and one was installed on the former Avis property. Initial groundwater sampling reported TPHg and benzene concentrations up to 170,000 and 13,000 µg/L, respectively.

In 2008, GES prepared a CAP for the former National facility. GES collected 53 soil samples from depths ranging from 5 to 17 feet bgs. The sample locations were limited to areas around former USTs and were selected based on the most recent subsurface soil results from the installation of nine borings in 1996. The following summarizes the results:

- The highest TPHg concentration was detected beneath the former eastern UST at 14,000 mg/kg;
- The highest benzene concentration was detected south of the former Avis fuel dispensers at 91.1 mg/kg;
- The highest MTBE concentration was detected southwest of the former Avis fuel dispensers at 3.8 mg/kg;
- LNAPL was detected in a sample located southwest of the former Avis fuel dispensers; and
- GES estimated 299 pounds of petroleum hydrocarbon impact existed over a soil volume of approximately 1,000 cubic yards.
- Based on these results and a review of historical site assessment, a CAP recommended natural attenuation/site closure as the remedial alternative to address impacted soil and groundwater. In 2009, the DEH approved the CAP.

On 7 August 2009, the DEH issued a letter confirming the completion of site investigation and corrective actions associated with an unauthorized release from USTs at the former National Car Rental facility (H12084-001) based on the condition that the current use of the property remained

as a parking lot and airport roadway. The DEH also required that any contaminated soil and/or groundwater excavated as part of any subsurface construction work must be managed in accordance with the legal requirements at that time (DEH, 2009).

## PROFILE AREA 7 - FORMER FIXED-BASED OPERATOR (FORMER JIMSAIR AVIATION SERVICES)

Jimsair Aviation Services, Inc., (Jimsair), located at the eastern portion of the Airport is comprised of approximately 6.25 acres and used for aircraft services as an FBO including airport parking, refueling, minor maintenance, and passenger and cargo transport. The northwestern portion of the property is sub-leased to DHL/Airborne Express for cargo transport.

### Haley & Aldrich Phase I ESA

During the 2008 Phase I ESA at Lindbergh Field conducted by Haley & Aldrich (Haley & Aldrich, 2008), several RECs were identified, including:

- Potential soil and groundwater impacts from a former 1,000-gallon waste oil underground storage tank (UST), reportedly removed in 1985;
- Potential soil and groundwater impacts from a former Stoddard solvent UST;
- Concrete staining located at a hazardous waste storage area in the automotive maintenance building;
- Concrete and asphalt staining at fueling truck parking areas historically used for fuel truck parking for more than 20 years. One of the fuel trucks was a 4,000-gallon stationary tanker for aviation gas;
- Surface staining around a waste oil aboveground storage tank (AST) in the automotive maintenance building;
- Surface staining around the perimeter of the maintenance building where historically solvents have been used to clean automobile parts;
- Historical use of the trench drain and interceptor in Hanger 3. The drain was historically used to collect wash water from aircrafts prior to Jimsair changing to dry cleaning of aircrafts. The trench drain discharges to an interceptor that reportedly discharges to the City of San Diego sanitary sewer system; and
- General historical operations. The Jimsair property had at least a 60-year history of aircraft and vehicle maintenance and fueling, therefore it is likely that releases have occurred that have potentially impacted soil and groundwater.

**Ninyo & Moore Phase II ESA**

Ninyo & Moore conducted a Phase II ESA in 2008 based on the RECs identified during Haley & Aldrich's Phase I (Ninyo & Moore, 2008). The assessment focused on potential soil and groundwater impacts associated with the hazardous chemical storage and use on Site. The following summarizes the results and conclusions.

Shallow Soil

Four shallow soil samples were collected from the automotive maintenance building and fuel truck staging area and analyzed for TPH and VOCs. TPH concentrations were reported up to 3,000 mg/kg. With the exception of toluene (concentrations ranging from 5.6 to 6.3 µg/kg), VOCs were not detected above the laboratory reporting limits.

Deep Soil

Fifteen deep soil samples were collected at or near groundwater throughout the Site and analyzed for TPH, VOCs, and polynuclear aromatic hydrocarbons (PAHs). TPH was reported at concentrations up to 1,300 mg/kg in one boring; all other soil samples contained TPH concentrations less than 10 mg/kg.

With the exception of toluene (concentrations ranging from 5.0 to 6.6 µg/kg), VOCs were not detected above laboratory reporting limits. PAHs were not detected above laboratory reporting limits, with the exception of indeno(1,2,3-c,d)pyrene (concentrations ranging from 12 to 13 µg/kg) and acenaphthene (17 µg/kg).

Groundwater

Fifteen groundwater samples were collected and analyzed for TPH, VOCs, and PAHs. TPH concentrations were reported up to 11,000 µg/L. VOCs were detected in one boring at the following low concentrations: methyl tertiary butyl ether ([MTBE]; 2.1 µg/L), n-butylbenzene (5.3 µg/L), carbon disulfide (3.9 µg/L), and 1,2,4-trimethylethylene (2.2 µg/L). The following PAHs were detected: naphthalene (ranging from 1.7 to 4,300 µg/L) in five borings, acenaphthene (430 µg/L) in one boring, fluorene (320 µg/L) in one boring, phenanthrene (540 µg/L) in one boring, benzo(g,h,i)perylene (ranging from 1.2 to 520 µg/L) in three borings, and dibenzo(a,h)anthracene (240 µg/L) in one boring.

## Geosyntec Soil and Groundwater Investigation

Geosyntec Consultants (Geosyntec) completed a soil and groundwater investigation in 2008 at the Jimsair facility based on the findings of their Phase I ESA completed in March 2008 (Geosyntec, 2008). Geosyntec advanced five borings with direct-push drilling methods to approximately 10 feet bgs to collect soil samples at the following locations: two borings near the 15,000-gallon UST in the fuel transfer area; one boring in the fuel truck staging area; and two borings in the vehicle maintenance building. Samples were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) by United States Environmental Protection Agency (EPA) Method 8020 and TPH by EPA Method 8015M. The following summarizes the results.

Fuel Transfer Area

Two soil borings were advanced near the 15,000-gallon UST in the fuel transfer area. Four samples were collected from each boring at depths ranging from 1 to 10 feet bgs. BTEX was not detected above laboratory reporting limits, with the exception of xylenes detected at 0.024 mg/kg in one sample at 1- foot bgs. TPH was detected in both 1-foot bgs samples at 770 mg/kg and 76 mg/kg.

Fuel Truck Staging Area

One soil boring was advanced near the fuel truck staging area based on possible surface staining identified in Geosyntec's Phase I ESA. Four samples were collected at depths ranging from 1 to 10 feet bgs. BTEX was not detected above laboratory reporting limits and TPH was not detected with the exception of the 1-foot bgs sample (120 mg/kg).

Vehicle Maintenance Building

Two soil borings were advanced near the vehicle maintenance building. Four samples were collected from each boring at depths ranging from 1 to 10 feet bgs. BTEX was not detected above laboratory reporting limits. TPH was detected at 5.5 mg/kg in one boring at 4 feet bgs and at 600 mg/kg, 1600 mg/kg, and 610 mg/kg at 1.5 feet bgs, 6.5 feet bgs, and 10 feet bgs, respectively, in one boring.

## Additional Soil and Groundwater Investigation

Based on the findings above, five additional borings were advanced near the vehicle maintenance area, upgradient of historical sources, and downgradient of former gasoline, waste oil, and solvent USTs. Soil samples were collected and analyzed for BTEX and TPH; groundwater samples were

collected and analyzed for TPH and VOCs by EPA Method 8260. BTEX was not detected in the soil samples, with the exception of xylene detected at 0.020 mg/kg and 0.021 mg/kg at 3 and 8.5 feet bgs, respectively, near the vehicle maintenance building. TPH was not detected with the exception of a sample collected at 8 feet bgs near the vehicle maintenance building (5.1 mg/kg).

TPH in the carbon range C11 to C28 were detected in groundwater samples ranging from 0.086 to 230 µg/L, but no TPH concentrations was detected above 500 µg/L in the additional borings, with the exception of a reported TPH concentration of 820 µg/L detected near the vehicle maintenance building. This sample also had reported concentrations of benzene (17 µg/L), ethylbenzene (1.3 µg/L), naphthalene (170 µg/L) and 1,2,4-trimethylbenzene (2.0 µg/L). No other VOCs were detected in the groundwater samples collected.

**Kleinfelder Human Health Risk Assessment**

Kleinfelder conducted an HHRA for this site in 2010 and 2013 and recommended that a vapor barrier beneath the hangar. The vapor barrier was constructed and was routinely monitored and sampled. In January 2019, the FBO submitted a request to discontinue vapor monitoring and sampling; this is pending approval of the RWQCB.

## PROFILE AREA 8 – TERMINALS 1 AND 2 PARKING PLAZAS

### Profile Area 8a – Terminal 2 Parking Plaza

### Haley & Aldrich Soil, Groundwater, and Soil Vapor Investigation and Human Health Risk

In 2015, Haley & Aldrich performed a soil, groundwater and soil vapor investigation in the area of the planned Terminal 2 Parking Plaza. The investigation included eight soil borings to 15 feet bgs and soil samples were analyzed for TPH, VOCs, and lead. Additionally, select samples were analyzed for soil property information. Eight temporary wells were constructed to a total depth of 20 feet bgs to access groundwater conditions and/or the presence of free product. Groundwater samples were analyzed for TPH, VOCs, and lead. Soil vapor probes were installed at approximately 3 and 6 feet bgs within 23 soil borings (Haley & Aldrich, 2015).

Soil samples were analyzed for TPH, VOCs, and lead. The results of the investigation were as follows:

- TPH was reported at a maximum concentration of 5,500 mg/kg.
- Fifteen gasoline-related VOCs were reported above the detection limit.

Lead was reported at a maximum concentration of 9.4 mg/kg. Groundwater samples were analyzed for TPH, VOCs, and lead. The results of the investigation were as follows:

- TPH was reported at a maximum concentration of 41.5 mg/L.
- Fifteen gasoline-related VOCs were reported above the detection limit.
- Lead was reported at a maximum concentration of 0.0058 mg/L.

Soil vapor samples were analyzed for VOCs. The results of the investigation were as follows:

- Thirteen gasoline-related VOCs were reported above the detection limit.

Based on the data collected during the 2015 investigation described above, Haley & Aldrich conducted an HHRA. The HHRA was prepared following EPA, DTSC, and OEHHA published risk assessment guidance to estimate potential human health risks to on-Site receptors from exposure to Site impacts and further assess whether mitigation measures or remediation activities are warranted at the Site for the planned redevelopment activities. Potential risks to human health were estimated for future on-Site human receptors potentially exposed to on-Site chemical

impacts detected during the June 2015 Site investigation activities, assuming the planned Terminal 2 Parking Plaza land use.

Based on the results of the HHRA, mitigation is not warranted to protect the on-Site receptors (during construction and after redevelopment) due to contact with soil or inhalation of vapors in air (both indoor and outdoor); and mitigation is warranted to protect the construction worker due to contact with groundwater in the western portion of the Site. Since the area with elevated concentrations is not well defined, mitigation should be implemented in the western portion of the Site.

If groundwater is encountered during Site redevelopment activities in the western portion of the Site, dewatering activities should be conducted in a manner that prevents groundwater from ponding in the excavation to mitigate the potential construction worker exposure to elevated chemical concentrations in groundwater.

**Profile Area 8b – Terminal 1 Parking Plaza**

**AMEC Phase II ESA**

AMEC conducted a Phase II ESA on behalf of the Airport Authority in support of planned redevelopment activities at the Southside T1RP & Support Facilities (AMEC, 2018). The Phase II ESA was conducted within portions of Profile Areas 8b and 10 (AMEC, 2018). Within Area 8b, AMEC advanced three soil borings and collected soil samples from each soil boring at 2, 5, and 8 feet bgs. The soil samples were analyzed for TPH as gasoline and diesel. TPH as gasoline was not detected in any of the soil samples. TPH as diesel was detected at 16 mg/kg in one soil sample collected from 5 feet bgs. The results of the Phase II ESA conducted within Profile Area 10 is described below in the Profile Area 10 section of this report.

**Kleinfelder Soil Vapor Investigation**

In April 2021, as part of a soil vapor investigation for the new Terminal 1 development, Kleinfelder collected soil samples at 1 to 1.5 feet bgs and at 4 feet bgs from four soil borings located within Profile Area 8b (Kleinfelder, 2021). The soil samples were analyzed for TPH as gasoline and diesel. TPH as gasoline was not detected in any of the soil samples. TPH as diesel was detected up to 4.7 mg/kg at 1 foot bgs and up to 8.3 mg/kg at 4 feet bgs.

## PROFILE AREA 9 – FIRE FIGHTING TRAINING AREA

### Woodward-Clyde Site Assessment Former Fuel Facility

In 1987, Woodward-Clyde conducted a site assessment near the former fuel facility, in the area of two burn pits used for fire-fighter training. During training activities, waste hydrocarbon fuels were ignited and extinguished in the pits, warranting remediation. The RWQCB issued a site closure notice in 1989.

### Wood Environment & Infrastructure Solutions Per- and Polyfluoroalkyl Substances (PFAS) Investigation

On March 20, 2019, the California State Water Resources Control Board issued Order WQ 2019-0005-DWQ requiring the Airport Authority to investigate the presence of PFAS in soil and groundwater on the SDIA. Wood identified the following areas on the SDIA that released PFAS to land in the form of aqueous film-forming foam (AFFF): Former Fire Fighting Training Area, Former and Current AFFF Testing Area, and the Remote Fueling Facility. On August 26 and 27, 2019 and October 8, 2019, Wood advanced 12 direct push borings in these areas and collected three soil samples from each boring (from 0 to 0.5 feet below ground surface [bgs], 5 feet bgs, and 8 feet bgs) and one groundwater sample from each boring (from approximately 8 to 12 feet bgs).

The following concentration ranges were detected in soil and groundwater:

*Former Fire Fighting Training Area* – In groundwater, perfluorooctanoic acid (PFOA) concentrations ranged from 17,500 J nanograms per liter (ng/L) to 59,200 J ng/L, perfluorooctane sulfonate (PFOS) concentrations ranged from 18,015 J ng/L to 65,160 J ng/L, and perfluorobutanesulfonic acid (PFBS) concentrations ranged from 1,540 J ng/L to 47,000 J ng/L. In soil, PFOA concentrations ranged from less than the laboratory detection limit to 0.806 milligrams per kilogram (mg/kg), PFOS concentrations ranged from 0.00261 J mg/kg to 0.237 mg/kg, and PFBS concentrations ranged from 0.000955 J mg/kg to 0.0304 mg/kg.

*Former AFFF Testing Area* – In groundwater, PFOA concentrations ranged from 137 ng/L to 4,820 J ng/L, PFOS concentrations ranged from 68.3 ng/L to 502 ng/L, and PFBS concentrations ranged from 33 ng/L to 610 J ng/L. In soil, PFOA concentrations ranged from less than the laboratory detection limit to 0.00588 mg/kg, PFOS concentrations ranged from less than the laboratory detection limit to 0.0477 mg/kg, and PFBS concentrations ranged from less than the laboratory detection limit to 0.00106 J mg/kg.

Current AFFF Testing Area – In groundwater, PFOA concentrations ranged from 524 ng/L to 59,700 ng/L, PFOS concentrations ranged from 29.2 J ng/L to 1,950 J ng/L, and PFBS concentrations ranged from 86.7 ng/L to 46,500 J ng/L. In soil, PFOA concentrations ranged from less than the laboratory detection limit to 0.0387 mg/kg, PFOS concentrations ranged from less than the laboratory detection limit to 0.145 mg/kg, and PFBS concentrations ranged from less than the laboratory detection limit to 0.00147 J mg/kg.

*Remote Fueling Facility* – In groundwater, PFOA concentrations ranged from 12.3 ng/L to 20.4 ng/L, PFOS concentrations ranged from less than the laboratory detection limit to 22.6 ng/L, and PFBS concentrations ranged from 4.99 J ng/L to 14.9 ng/L. In soil, PFAS concentrations were not detected above the laboratory detection limits.

**Kleinfelder Supplemental PFAS Investigation**

On behalf of the San Diego County Regional Airport Authority (Airport Authority) and SAN Fuel Company LLC, Kleinfelder performed a Supplemental PFAS Investigation at the San Diego International Airport (SDIA) in which soil, asphalt, concrete, and groundwater samples were collected and analyzed for per- and polyfluoroalkyl substances (PFAS).

*Direct Push Soil Sampling* - On March 14 and 15, 2022, seventeen soil borings were advanced using the direct-push drill rig. Three of the borings were located in areas with a concrete surface, therefore, these locations were initially cored. Following surface coring, each soil boring was advanced to 5 feet below ground surface (bgs) using a hand auger. Soil samples were collected from the hand auger from the first 0.5-foot interval of soil accessible beneath the asphalt or concrete and from approximately 4.5 to 5 feet bgs. The soil borings were advanced to 8 feet bgs or to the depth that groundwater was first encountered, whichever was shallower. Continuous soil cores were collected from borings by inserting a PFAS-free acetate liner within a hollow split-spoon sample tube attached to the drill rod. One soil sample was collected from the acetate liner, above the groundwater table.

*Asphalt and Concrete Sampling* - Five asphalt samples and three concrete samples were collected by Kleinfelder from the surface of select borings.

*Groundwater Monitoring Well Installation and Sampling* - From April 4 through April 15, 2022, Kleinfelder oversaw the installation of 14 permanent groundwater monitoring wells (MW-1 through MW-11 and MW-13 through MW-15 [MW-12 was an existing groundwater monitoring well]). The groundwater monitoring wells were installed using a hollow-stem auger drill rig. Additional soil samples were collected from five of the monitoring well borings at 0.5 foot and 5 feet bgs using a

hand auger and at a depth just above the groundwater table. The groundwater monitoring wells were developed at least 48 hours after well construction and were sampled a minimum of 72 hours after the completion of well development. Prior to sampling, the wells were purged at a rate below 350 milliliters per minute. The wells were purged until field measured parameters stabilized (including pH, temperature, turbidity, electrical conductivity, oxidation reduction potential, and dissolved oxygen). After purging, groundwater samples were collected with the peristaltic pump directly into laboratory-supplied PFAS-free containers.

*Analytical Results* - The soil, asphalt, concrete, and groundwater samples were analyzed for PFAS. The groundwater samples were analyzed for PFAS and general chemistry parameters including carbonate, bicarbonate, hydroxide as $CaCO_3$, total alkalinity, chloride, nitrate as nitrogen, sulfate as $SO_4$, total dissolved solids, calcium, magnesium, potassium, and sodium.

1. *Soil and Asphalt/Concrete* - Of the 66 soil samples collected, 50 soil samples had detectable concentrations of PFOA and 56 soil samples had detectable concentrations of PFOS. Of the eight asphalt/concrete samples collected, four asphalt/concrete samples had detectable concentrations of PFOA and six asphalt/concrete samples had detectable concentrations of PFOS. The highest concentrations of PFOA and PFOS were detected at boring TW08-N, which was located to the north of the current Aircraft Rescue and Firefighting (ARFF) Testing Area. PFOA was detected up to 491 nanograms per gram (ng/g) at 5 feet bgs, and PFOS was detected up to 1,850 ng/g at 0.5 foot bgs in the soil samples collected from boring TW08-N. In comparison to the San Francisco Bay RWQCB ESL for Leaching to Groundwater – Aquatic Habitat scenario, each detection of PFOA and PFOS exceeded the ESL of 0.00042 ng/g and 0.00029 ng/g, respectively.

2. *Groundwater* - Of the 15 groundwater monitoring wells sampled, all 15 wells had detectable concentrations of PFOA and 12 wells had detectable concentrations of PFOS. PFOA concentrations ranged from 5.04 nanograms per liter (ng/L) in MW-13 to 117,000 ng/L in MW-4. PFOS concentrations ranged from not detected above the laboratory method detection limits in MW-9, MW-10, and MW-14 to 7,350 ng/L in MW-7. The highest PFOA and PFOS concentrations in groundwater were generally detected in monitoring wells located directly downgradient from the Former Firefighting Area, Former ARFF Testing Area, and ARFF Station. PFOA and PFAS concentrations in groundwater generally decrease towards the southern portion of the airport. Additionally, PFOA and PFOS were also detected in monitoring wells located upgradient from known PFAS sources on the airport (MW-1 and MW-3), which may indicate an off-Site source and/or other PFAS sources on the airport. PFOA and PFOS concentrations or detection limits

exceeded the seafood ingestion ESLs of 0.022 ng/L and 0.0047 ng/L, respectively, in all monitoring wells. Additionally, PFOA exceeded the ecotoxicity ESL of 4,400 ng/L in two monitoring wells (MW-2 and MW-4), and PFOS exceeded the ecotoxicity ESL of 75 ng/L in five monitoring wells (MW-2, MW-4, MW-6, MW-7, and MW-8). These results are generally consistent with the Initial PFAS Investigation.

For more details on this investigation, refer to the "Technical Memorandum – Soil, Asphalt, Concrete, and Groundwater PFAS Results Supplemental PFAS Investigation" (Kleinfelder, 2022).

## PROFILE AREA 10 - TERMINAL 1 & ADJACENT APRON

The southern portion of the Airport located south of Taxiway B and Runway 9-27 consists of Terminal 1 and the airside apron of the airport. This area includes ticket counters, baggage handling areas, employee support areas and Transportation Security Administration check point areas. Two-story rotundas consist of offices, food storage and preparation, employee support areas, and passenger area gates. The airside apron is used to park aircraft at passenger gates and includes typical ground support equipment. A Phase I and Phase II ESA was performed by Kleinfelder. The findings from the reports are described below.

### Kleinfelder Phase I ESA

Kleinfelder conducted a Phase I ESA on behalf of the Airport Authority for the Terminal 1 and apron in 2017 that identified RECs and HRECs (Kleinfelder, 2017). The conditions identified included:

- Long-term, on-going fueling spillage from re-fueling in the vicinity of the terminal gates;
- Impacts to regional groundwater from long-term historical industrial uses; and
- Three former USTs removed during 1992/1993 during Gate 7 reconstruction activities.

### Kleinfelder Phase II ESA

Kleinfelder conducted a Phase II ESA on behalf of the Airport Authority in support of planned redevelopment activities at Terminal 1 and the apron. A total of 11 soil borings were advanced and 33 soil samples and 11 groundwater samples were collected in January 2018 (Kleinfelder, 2018a). Sampling locations were selected based on the results of the Phase I ESA and targeted slit trench drains around the west and east rotunda terminal gates and former UST areas.

Soil samples were analyzed for TPH, metals, VOCs, SVOCs, and PCBs. The results of the investigation were as follows:

- TPH-g and TPH-o were not detected above laboratory reporting limits, TPH-d was detected up to 161 mg/kg.
- Metals were reported at concentrations below the Industrial RSLs and DTSC-SLs with the exception of arsenic. All metals were detected at concentrations below the Site-Specific background concentrations developed by Geosyntec with the expectation of selenium, mercury, and zinc.
- VOCs and PCBs were not detected above laboratory reporting limits.

- Fourteen SVOCs were reported in the samples analyzed, however were not detected at concentrations greater than SFRWQCB ESLs and USEPA RSLs.

Groundwater samples were collected and analyzed for TPH, metals, VOCs, SVOCs, and PCBs.

- TPH-g and TPH-o were not detected above laboratory reporting limits. TPH DRO was detected in four samples with a maximum concentration of 4.4 mg/L. TPH DRO exceeded the San Francisco SFRWQCB ESLs for saltwater ecotoxicity.
- Metals were reported at concentrations below their respective MCL with the exception of cadmium, lead, nickel, and selenium. Cadmium, copper, lead, mercury, nickel, selenium, and zinc in various samples exceeded SFRWQCB ESLs for saltwater ecotoxicity.
- VOCs and PCBs were not detected above laboratory reporting limits.
- Two SVOCs were reported in the samples analyzed, however they were not detected at concentrations greater than SFRWQCB ESLs and USEPA RSLs.

The results of the investigation had widespread TPH and SVOC detections in soil throughout the investigation area and groundwater detections were near the eastern rotunda. The TPH and SVOC detections in groundwater appears to be near the former USTs and is likely from past releases.

Kleinfelder recommends that soil disturbance as part of redevelopment of Terminal 1 will need to adhere to this SMP to mitigate risks to construction workers. If occupied buildings are to be constructed in this area, then an HHRA will need to be conducted to evaluate vapor intrusion risks.

## PROFILE AREA 10 - SOUTH SIDE TERMINAL 1 REPLACEMENT AND SUPPORT FACILITY

The area located south of the taxiway, north of North Harbor Drive, and east of Terminal 1 is approximately 123 acres and includes a portion of Terminal 1 and ten buildings owned by the Airport Authority. The buildings in this area have various lessees for airplane maintenance and repair, commercial services and computer operations, and administrative tasks. The portion of Terminal 1 includes commuter waiting areas and passenger boarding bridges. A fuel pump station, buildings that are used to dispose of airport lavatory waste, and parking areas are also included in this area. A Phase I and Phase II ESA was performed by Amec Foster Wheeler Environmental and Infrastructure, Inc. (AMEC) for this area.

Historical information and investigations of the Lindbergh Field Tank Farm and the findings from the Phase I and Phase II ESA reports are described below.

### Former Lindbergh Field Tank Farm and Refueling Facility

The former Tank Farm and Refueling Facility was located on the south side of the Site at the northwestern corner of the intersection of Harbor Drive and Stillwater Road. Since 1952, the Lindbergh Field Tank Farm and Refueling Facility served as the sole fuel source for all commercial airlines at the airport and contained 35 fuel USTs and two waste disposal USTs ranging in size from 10,000 gallons to 40,000 gallons. The facility was decommissioned in 1997 and aboveground fueling operations moved to a new location west of this site. From 1987 through 1995, groundwater monitoring wells were installed, soil and groundwater samples were collected and analyzed for TPH and BTEX and phase-separated hydrocarbons (PSH) were reported at the Site (Holguin, Fahan & Associates, Inc., 2000). TPH was detected in soil at concentrations up to 76,000 mg/kg and benzene was detected in groundwater at concentrations up to 7,400 µg/L.

In 1993, a Feasibility Study/Corrective Action Plan (FS/CAP) was prepared and it proposed the removal of PSH, excavation of hydrocarbon-impacted soil and on-Site treatment of the soil in biotreatment cells with a cleanup goal of 1,000 mg/kg of TPH. The FS/CAP was approved by the DEH (Holguin, Fahan & Associates, Inc., 2000). From 1991 to 1997, approximately 29,000 gallons of PSH was recovered from the Site. During operation of the hydrocarbon recovery system and the dewatering systems, more than 1,100,000 gallons of groundwater was treated and discharged to the sanitary and storm sewers.

Groundwater monitoring after the remedial activities confirmed that the PSH was removed to the extent feasible and dissolved phase benzene concentrations were below 400 µg/L (Holguin, Fahan & Associates, Inc., 2000). Remedial excavations and biotreatment were also conducted

and confirmation soil samples were collected. The TPH concentrations in the confirmation soil samples were generally below 15,000 mg/kg except where soil was unable to be excavated due to the proximity of adjacent structures (e.g., sidewalks and subsurface utilities). It was reported that approximately 395 cubic yards of soil containing petroleum hydrocarbons with an average concentration of 20,000 mg/kg remains in-place (Holguin, Fahan & Associates, Inc., 2000). The DEH closed this site on 23 October 2002.

**AMEC Phase I ESA**

AMEC conducted a Phase I ESA on behalf of the Airport Authority in 2017 that identified RECs and HRECs (AMEC, 2017). The conditions identified included:

- A 3,000-gallon waste oil UST and 12,000-gallon wastewater UST (oil/water separator) are located in the fuel pumping station at the western most pump island. Maintenance records were not available after 2008. The wastewater UST reportedly drains to a GAC treatment system, then is discharged to the stormwater system. However, the GAC system had not been operational for six months prior to the Phase I ESA.
- Hydraulic lifts used for vehicle maintenance within buildings 2375 Air Lane and 2330 Stillwater Road and disused lifts outside of 2417 Winship Lane.
- Petroleum odors observed in soil during replacement of concrete pads along the western property border in Terminal 1.
- Former USTs identified at 3225 North Harbor Drive were removed in 1990 and 1995; 1990 record documents indicated five UST removed, however the figure included in the closure letter indicated a total of 13 USTs.
- The Lindberg Field Fuel Farm was decommissioned, and three phases of soil excavations removed nearly 18,000 cubic yards. Approximately 395 cubic yards of impacted soil is estimated to remain in inaccessible areas.
- A former 32,500-gallon AST was identified by EDR for American Airlines; however, an AST was not observed during the site visit or in aerial photos or Sanborn fire insurance maps.
- PCE was detected in a groundwater sample from monitoring well MW-6 installed northwest of the fuel station in Lindbergh Field Fuel Farm in 1994.

**AMEC Phase II ESA**

AMEC conducted a Phase II ESA on behalf of the Airport Authority in support of planned redevelopment activities at the Southside T1RP & Support Facilities. In August and September 2017, a total of 42 soil borings were advanced up to 12 feet bgs, and 126 soil samples and 10 groundwater grab samples were collected (AMEC, 2018). Sampling locations were selected based on the results of the Phase I ESA and targeted RECs, HRECs, and areas proposed for construction.

Soil samples were analyzed for TPH, VOCs, and Title 22 Metals. Soil samples from ten boring locations were also analyzed for SVOCs and PCBs. The results of the investigation were as follows:

- TPH GRO was detected up to 1,590 mg/kg, TPH DRO was detected up to 4,100 mg/kg, and TPH MRO was reported up to 2,900 mg/kg. Maximum concentrations were detected in the former Lindbergh Field Fuel Farm (TPH GRO and DRO) and TDY Building (TPH MRO).
- Metals were reported at concentrations below the Industrial RSLs and HERO screening levels with the exception of arsenic. All metals were detected at concentrations below the Site- Specific background concentrations developed by Geosyntec with the exception of cobalt, lead, and zinc.
- VOCs were not detected above laboratory reporting limits with the exception of n-butylbenzene and sec-butylbenzene which were detected at the same location as the elevated TPH concentrations. Concentrations were not detected above RSLs or HERO screening levels).
- SVOCs were detected in five of the 30 samples analyzed. Concentrations were not detected above RSLs, and HERO screening levels have not been established for the analytes detected.
- PCBs were detected in two of 30 samples analyzed and had a maximum concentration of 0.180 mg/kg, below the respective RSL.

Groundwater samples were collected and analyzed for TPH, VOCs, and select samples for SVOCs and PCBs. The results of the investigation were as follows:

- TPH was detected in five of the 10 groundwater sample collected. The maximum concentration of TPH GRO was detected at 200 mg/L, TPH DRO at 560 mg/L, and TPH

MRO at 0.064 mg/L. The highest concentrations of TPH GRO and DRO were reported in the Lindbergh Field Fuel Farm.

- Three VOCs were reported above their respective MCL. Maximum detected concentrations included: cis-1,2-dichloroethene (cDCE) at 79 µg/L, TCE at 5.6 µg/L, and vinyl chloride at 1.5 µg/L.
- SVOCs were not detected above laboratory reporting limits.
- PCBs were not detected above laboratory reporting limits.

Based on the results of the investigations, AMEC recommends the following for future construction activities:

- SMP should be followed for the handling and disposal of soil and groundwater.
- The excavation, movement, and reuse of soil containing arsenic in excess of RSLs should be considered.
- A waste management plan describing containerization, testing, treatment, and disposal should be prepared if groundwater may be encountered during construction.
- A construction health and safety plan should be prepared.
- A soil vapor survey and HHRA for the future terminal building footprint.

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