Soil and Groundwater Management Plan

Inner Harbor Seawater Desalination Plant
Corpus Christi, Nueces County, Texas

Prepared for:

City of Corpus Christi
Corpus Christi, Texas

Prepared by:

NOVEMBER 2022

TABLE OF CONTENTS

APPENDICES

ACRONYMS AND ABBREVIATIONS

BTEX	Benzene, Toluene, Ethyl benzene, and Xylenes
CCAP	Comprehensive Corrective Action Plan
CFR	Code of Federal Regulation
COCs	Constituents of Concern
EPA	United States Environmental Protection Agency
FHR	Flint Hills Resources Corpus Christi, LLC
HAZWOPER	Hazardous Waste Operators and Emergency Response
KMRC	Kerr McGee Refining Corporation
LNAPL	Light Non-Aqueous Phase Liquid
MTBE	Methyl Tertiary-Butyl Ether
NPDES	National Pollutant Discharge Elimination System
PAHs	Polycyclic Aromatic Hydrocarbons
PCLs	Protective Concentration Levels
PID	Photo-ionization Detector
PPE	Personal Protective Equipment
RAP	Response Action Plan
RCRA	Resource Conservation and Recovery Act
SGMP	Soil and Groundwater Management Plan
SWRC	Southwestern Refining Co., Inc.
TCEQ	Texas Commission on Environmental Quality
TDS	Total Dissolved Solids
TNRCC	Texas Natural Resource Conservation Commission (predecessor of the TCEQ)
TPH	Total Petroleum Hydrocarbons
TRRP	Texas Risk Reduction Program
TWC	Texas Water Commission (predecessor of the TCEQ)

1.0 INTRODUCTION

The City of Corpus Christi (City) plans to construct water lines associated with the Inner Harbor Desalination Plant project in Corpus Christi, Nueces County, Texas as shown in Figure 1. This Soil and Groundwater Management Plan (SGMP) addresses soil and groundwater management procedures for construction activities associated with the development of the Inner Harbor Desalination Plant.

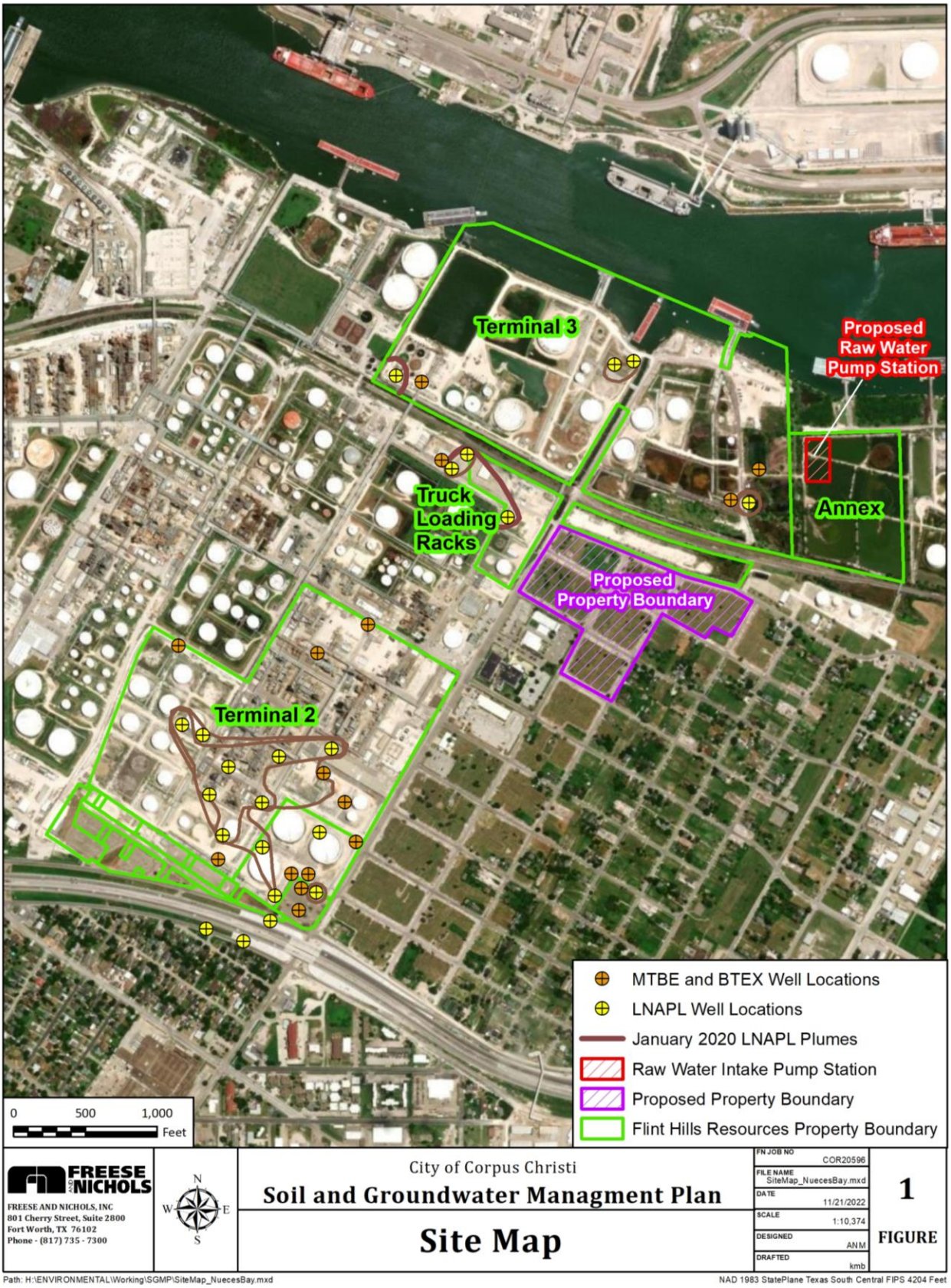
1.1 Potential Source Site

The Flint Hills Resources Corpus Christi, LLC (FHR) property is a potential source of impacted surface soils and groundwater within the project area. The facility is located at 1607 Nueces Bay Boulevard in Corpus Christi, Texas at the northern and western boundary of the proposed site location as shown in Figure 1. Light non-aqueous phase liquid (LNAPL) was first discovered in 1989 during instillation of monitoring wells. Southwestern Refining Co., Inc. (SWRC), the previous owner to FHR, entered into an agreed order with the Texas Water Commission (TWC, predecessor to the Texas Commission on Environmental Quality (TCEQ)) on March 9, 1992. Data from historic and recent investigations indicate the presence of benzene, toluene, ethylbenzene, and xylenes (BTEX), methyl tertiary-butyl ether (MTBE), and total petroleum hydrocarbons (TPH) in soils and groundwater at the site.

1.2 Environmental Investigations at FHR

Soil and groundwater investigation activities were performed by Arcadis between July 2019 and June 2020. The following provides a background of the environmental investigations previously conducted on the site.

> *The FHR East Refinery is located at 1607 Nueces Bay Boulevard in Corpus Christi, Texas. The major areas of this facility include Terminal 2, which includes the refinery process area and the associated tank farm, the Truck Loading Racks, and Terminal 3 (including the area referenced as the Annex) which contains the facility's wastewater treatment facilities and another tank farm.*
>
> *The presence of LNAPL beneath the East Refinery was first observed in the Terminal 2 area during the installation of monitoring wells by SWRC in 1989. In 1991, nine recovery wells were installed in the uppermost water-bearing unit in Terminal 2. The recovery wells were equipped with electric submersible pumps to recover total fluids (LNAPL and groundwater) and placed into operation in 1992.*
>
> *On March 9, 1992, SWRC entered into an agreed order with the TWC to address environmental issues at the East Refinery, including operation of the recovery wells in accordance with Provision 10 of the Agreed Order. In 1995, FHR purchased the East Refinery from SWRC, a subsidiary of Kerr McGee Refining Corporation (KMRC). As part of the purchase of the refinery, FHR has assumed responsibility for performing some of the actions required by the Agreed Order. In particular, FHR submits quarterly reports to the TCEQ that outline the results of quarterly fluid level measurements obtained from the monitoring wells located*


Terminal 3
Proposed Raw Water Pump Station
Truck Loading Racks
Annex
Proposed Property Boundary
Terminal 2
MTBE and BTEX Well Locations
LNAPL Well Locations
January 2020 LNAPL Plumes
Raw Water Intake Pump Station
Proposed Property Boundary
Flint Hills Resources Property Boundary
0
500
1,000
Feet
FREESE AND NICHOLS, INC
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
Phone - (817) 735 - 7300
N
W
E
S
City of Corpus Christi
Soil and Groundwater Managment Plan
Site Map
FN JOB NO COR20596
FILE NAME SiteMap_NuecesBay.mxd
DATE 11/21/2022
SCALE 1:10,374
DESIGNED ANM
DRAFTED kmb
1
FIGURE
Path: H:\ENVIRONMENTAL\Working\SGMP\SiteMap_NuecesBay.mxd
NAD 1983 StatePlane Texas South Central FIPS 4204 Feet

in the Refinery Process Area, Terminal 2 Tank Farm, and Truck Loading Rack area, and summarize the total volumes of water and LNAPL removed by the refinery's LNAPL/groundwater recovery systems.

FHR submitted the Terminal 3 Dissolved Phase Groundwater Investigation Report to the Texas Natural Resource Conservation Commission (TNRCC, predecessor to the TCEQ) on December 19, 1996, which was subsequently approved by the TNRCC on February 7, 1997. This report recommended semi-annual gauging of Terminal 3 Area monitoring wells and annual collection of groundwater samples from non-LNAPL containing monitoring wells. FHR performs voluntary quarterly gauging events of Terminal 3 Area monitoring wells. The results of the voluntary gauging events are reported annually with the required quarterly monitoring events for the Refinery Process Area, Truck Loading Rack Area, and Terminal 2 Tank Farm wells. Furthermore, in correspondence dated May 28, 2009, the TCEQ approved FHR's request for Closure of the Terminal 3 and Annex areas, pending proof of implementing institutional controls (i.e., filing deed record). However, based on additional gauging and sampling results indicating elevated constituent of concern concentrations and residual LNAPL conditions, FHR has delayed the generation/filing of the institutional controls and continues to conduct annual sampling and quarterly gauging of the Terminal 3 monitoring wells. Additionally, a Response Action Plan (RAP) was prepared on August 21, 2018 for Waste Management Unit 19 in Terminal 3.

In compliance with the Agreed Order, FHR submitted a Comprehensive Corrective Action Plan (CCAP) to the TNRCC in October 1996, which was subsequently approved on February 26, 1997. The CCAP recommended that FHR continue submitting quarterly reports to summarize fluid level measurements and recovery well production volumes. In addition, the CCAP recommended that groundwater samples be collected annually from non-LNAPL containing monitoring wells and analyzed for total dissolved solids, BTEX and MTBE. As requested by the TCEQ in a letter dated March 16, 2010, a CCAP Addendum was prepared to describe planned improvements to the existing Terminal 2 Groundwater Recovery System. Improvements to the recovery system began in April 2011 and were completed in July 2011. System improvements included the rehabilitation of all recovery wells in the current recovery system network and the installation of three new recovery wells in the Terminal 2 Area as detailed in the Recovery System Optimization Implementation Report submitted to the TCEQ in October 2012.

FHR evaluated the effectiveness of the Terminal 2 Groundwater Recovery System in 2016 and 2017, including natural source zone depletion characterization, LNAPL transmissivity testing, and long-term LNAPL recovery rate testing. As detailed in the April 2018 report entitled "Recovery System Optimization Report", this evaluation showed that although LNAPL recovery rates were initially high when the recovery wells were placed into operation in 1992, LNAPL recovery rates have decreased significantly during the previous 10 years. LNAPL transmissivities in most of the monitoring and recovery wells tested are below the Interstate Technology & Regulatory Council lower limit of practicality for hydraulic recovery (0.1 square feet per day) which indicates the LNAPL in these areas are no longer recoverable. Based on the results of the 2016 and 2017 recovery system evaluation, the Recovery System Optimization Report recommended shut down of several recovery wells where LNAPL has been recovered to residual saturation. The Recovery System Optimization Report also

recommended a reduction in the number of monitoring wells to be sampled due to the stability of the dissolved-phase hydrocarbon concentrations and close proximity of other monitoring wells.

LNAPL

Measurable LNAPL (0.01 foot or greater) was present in one or more quarterly gauging events in 19 of the 89 FHR monitoring wells. The areal extent of the LNAPL zero feet thickness contour in the Refinery Process and Terminal 2 Tank Farm continues to decrease with time. Three Terminal 2 monitoring wells (monitoring wells M-2, MW-11, and MW-53) that contained LNAPL during the reporting period from July 2018 to June 2019 did not contain LNAPL during more recent reporting periods. These three monitoring wells are located near the edges of the Terminal 2 LNAPL plume that has been contracting during the previous several years. As such, the general conclusion of a stable to decreasing LNAPL plume is appropriate.

In the Truck Loading Rack and Terminal 3 areas, intermittent occurrences of LNAPL remain in several monitoring wells that historically contained LNAPL. Overall, LNAPL thicknesses in the Truck Loading Rack and Terminal 3 areas are stable or declining with time. As documented in prior reports, the presence of LNAPL in the vicinity of the Truck Loading Rack area is considered by FHR to be attributable to historical Citgo operations, immediately upgradient of the FHR Truck Loading Rack property. Citgo operates a LNAPL recovery system at this property boundary. Additionally, Citgo operates two pipelines that underlie the FHR Truck Loading area. Given that the history of the Truck Loading Rack and Terminal 3 areas have had intermittent LNAPL in several monitoring wells, but that none of the surrounding wells have shown LNAPL occurrences over this reporting period, FHR does not consider this to be a risk to the Corpus Christi Ship Channel, but continues to gauge, evaluate, and make recommendations for corrective actions if these conditions substantially change.

BTEX/MTBE

In 2000, FHR voluntarily added MTBE to the list of analytical parameters for the East Refinery to achieve consistency with the Corpus Christi Refineries groundwater monitoring programs. FHR developed iso-concentration contours of the dissolved-phase constituents to represent the Texas Risk Reduction Program (TRRP) Tier 1 Residential Protective Concentration Levels (PCLs) associated with a Class 1 Groundwater Resource. All analytical results were reported with detection limits at or below these PCLs. However, it should be noted the first (upper-most) and second groundwater-bearing units are Class 3 Groundwater Resources based on elevated concentrations of TDS above 10,000 mg/L in groundwater samples collected from the on-site monitoring wells, and a lack of use within a 0.5 mile radius that would result in human or ecological exposure, per TCEQ Regulatory Guidance RG-366/TRRP-8. As such, groundwater is also delineated to the TRRP Tier 1 Residential PCL for a Class 3 groundwater unit.

BTEX/MTBE concentrations in the groundwater generally decrease with distance away from the LNAPL plumes and attenuate to Tier 1 Residential PCLs within approximately 100 to 300 feet of the LNAPL plumes. Dissolved phase concentrations of BTEX/MTBE have remained relatively stable or exhibit decreasing trends. The stable or decreasing dissolved-phase hydrocarbon concentrations are consistent with the monitored natural attenuation groundwater data presented in the April 2018 Recovery System Optimization Report. The

monitored natural attenuation data showed a decrease of electron receptors (oxygen, nitrate, sulfate) and an increase of electron acceptor end products (methane, ethane, ferrous iron) within and downgradient of the dissolved-phase plumes, indicating natural microbial degradation of hydrocarbons is occurring at the refinery.

In summary, groundwater monitored natural attenuation data shows hydrocarbons are being effectively remediated by naturally occurring biological processes (including these evaluated as "groundwater monitored natural attenuation" and those evaluated as "natural source zone depletion"), and the dissolved-phase groundwater plume is stable or declining.

No additional environmental investigations have been conducted by the City.

2.0 SOIL AND GROUNDWATER MANAGEMENT

This SGMP outlines the requirements for the City, its Contractor, and its Environmental Coordinator to manage soil and groundwater generated during construction of the desalination plant and associated pipelines. All handling, management, and disposal of contaminated soil and groundwater from the project area must be completed in accordance with requirements set forth in this document.

According to previous environmental investigations conducted on and near the proposed desalination plant project area, there are known impacts to surface soils and groundwater that may be encountered during construction activities.

2.1 Execution of the Soil and Groundwater Management Plan

The City has contracted with Freese and Nichols to develop this SGMP for the proposed desalination plant project. The City and its Contractors will be responsible for soil and groundwater management within the project area in accordance with the SGMP during construction activities. The project area is located in two distinct development areas that have been further subdivided into five unique SGMP zones. The completion of soil and groundwater management activities in each zone are detailed in Sections 4 through 8 of this SGMP.

The City and its Contractor will identify an Environmental Coordinator that, at a minimum, meets the following experience and training; at least two verifiable years of experience performing the work outlined within the SGMP zones and/or 40-hour Hazardous Waste Operators and Emergency Response (HAZWOPER) Site Worker Training in accordance with 29 Code of Federal Regulations (CFR) 1910.120 and current 8-hour refresher training.

The City, Engineer, and Contractor will coordinate construction activities such that during excavation activities in potentially contaminated areas, the Environmental Coordinator will be onsite or be readily available to answer any questions about the implementation of the SGMP during any construction activities in the project corridor.

The City, its Contractor, or the Environmental Coordinator will maintain a daily log of Contractor activities with respect to soil and groundwater management. The daily log will include the following observations made during construction activities:

1. Summary of daily construction activities.
2. Extent and depth of the excavation.
3. Description of material generated.
4. Date and origin of material generated.
5. Volume of soil generated during construction.
6. Staging or final disposition for material generated from construction zone.
7. Description of groundwater encountered.
8. Date and method of groundwater recovery from each construction zone.
9. Volume of groundwater recovered from each construction zone.
10. Staging or final disposition of groundwater recovered from each construction zone.

2.2 Revisions to the Soil and Groundwater Management Plan

If necessary, revisions to this SGMP are identified before or during construction activities that would be beneficial to the City, the Contractor, or the Environmental Coordinator, an addendum to this SGMP will be prepared and distributed to all appropriate parties. No revisions shall be made to the work conducted within project area without being specified in an addendum or revision to the SGMP.

3.0 CONSTRUCTION ZONE OUTLINE

The Inner Harbor Desalination Plant Project was divided into the following five distinct construction zones as shown in Figure 2:

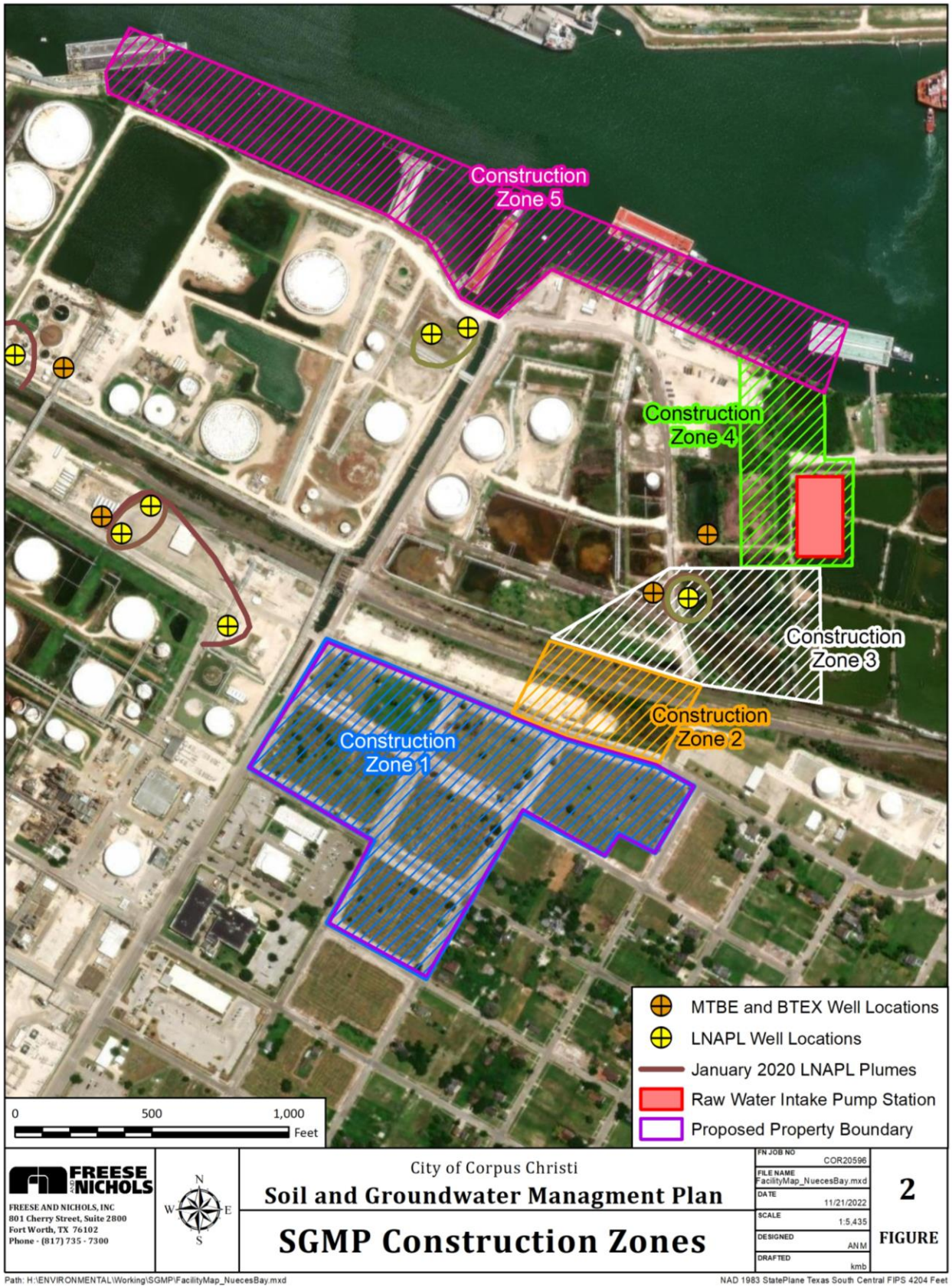
- **Construction Zone 1:** This area includes the entire footprint of the proposed Inner Harbor Desalination Plant. The area was historically used for residential purposes. The area was predominantly developed as residential single-family dwellings as early as the 1950s with most of the residential structures being removed by the early 2000s. Soils in this area may have been indirectly impacted by surrounding industrial land uses. In 2010, the TCEQ installed a series of environmental soil borings, ranging in depth from 10 to 25 feet below ground surface, within this zone to evaluate soils and groundwater underlying the Hillcrest Community. Shallow groundwater reported on soil boring logs from 2010 indicate groundwater was present at 7.5 to 22.5 feet below ground surface across the area. All of the shallow monitoring wells were plugged. No permanent water wells were identified within this zone. Shallow groundwater in this area may have been indirectly impacted by migrating groundwater plumes from adjacent industrial facilities.

- **Construction Zone 2:** This area includes a section of the pipeline corridor for the influent and effluent pipelines from the proposed Inner Harbor Desalination Plant to the Corpus Christi Bay Industrial Canal. This area includes an existing railroad right-of-way and some industrial uses. Soils in this area may have been directly impacted by the presence of the railroad tracks and indirectly impacted by surrounding industrial land uses. Shallow groundwater in this area may have been indirectly impacted by migrating groundwater plumes from adjacent industrial facilities.

- **Construction Zone 3:** This area includes a section of the pipeline corridor for the influent and effluent pipelines within the FHR facility where recent environmental sampling has indicated elevated concentrations of TPH, BTEX, and MTBE and the presence of LNAPL. Soils in this area may have been directly impacted by the historical operations of the FHR. Shallow groundwater in this area may have been directly impacted by the historical operations of the FHR and migrating groundwater plumes the onsite industrial facilities.

- **Construction Zone 4:** This area includes a section of the pipeline corridor for the influent and effluent pipelines within the FHR facility as well as the proposed raw water intake pump station. Soils in this area may have been directly or indirectly impacted by the historical operations of the FHR. Shallow groundwater in this area may have been directly or indirectly impacted by the historical operations of the FHR and migrating groundwater plumes the onsite industrial facilities.

- **Construction Zone 5:** The area includes a section of the pipeline corridor for the influent and effluent pipelines within the FHR facility as well as the proposed raw water intake and discharge diffuser. Construction in this zone is located within the tidally influenced Industrial Canal off of Corpus Christi Bay. Sediment this area may have been directly or indirectly impacted by the historical operations of the FHR. Surface water and underlying groundwater in this area may have been indirectly impacted by the historical operations of the FHR and migrating groundwater plumes the onsite industrial facilities.


Construction Zone 5
Construction Zone 4
Construction Zone 3
Construction Zone 2
Construction Zone 1
MTBE and BTEX Well Locations
LNAPL Well Locations
January 2020 LNAPL Plumes
Raw Water Intake Pump Station
Proposed Property Boundary
0
500
1,000
Feet
FREESE AND NICHOLS, INC
801 Cherry Street, Suite 2800
Fort Worth, TX 76102
Phone - (817) 735 - 7300
N
W
E
S
City of Corpus Christi
Soil and Groundwater Managment Plan
SGMP Construction Zones
FN JOB NO COR20596
FILE NAME FacilityMap_NuecesBay.mxd
DATE 11/21/2022
SCALE 1:5,435
DESIGNED ANM
DRAFTED kmb
2
FIGURE
Path: H:\ENVIRONMENTAL\Working\SGMP\FacilityMap_NuecesBay.mxd
NAD 1983 StatePlane Texas South Central FIPS 4204 Feet

4.0 ACTIVITES OCCURRING IN CONSTRUCTION ZONE 1

The Contractor will be responsible for conducting construction activities within Construction Zone 1 in accordance with the following procedures.

4.1 Generated Soils

Previous environmental investigation data within Construction Zone 1 and in the area surrounding the proposed plant site indicate that soils in this zone have a lower likelihood of impacts from historical FHR operations and other industrial uses in the area.

All generated soils from within the Construction Zone 1 should be segregated by the Contractor in stockpiles in accordance with the construction plans and specifications. All excess soils that cannot be reused within the project footprint in Construction Zone 1 should be placed in lined stockpiles for reuse as possible during the project. The lining should be consistent with impermeable plastic sheeting with a thickness of at least 6 mil. Plastic sheeting should be used to cover the stockpiles or roll-off containers during non-working hours or during precipitation events. Stockpiled soils from Construction Zone 1 should not be comingled with soils from other zones.

Generated soils can be returned to the excavation during construction activities. TCEQ and U.S. Environmental Protection Agency (EPA) guidance for common utility projects and excavation-type activities indicates that all generated soils, regardless of the level of contamination, can be returned to the excavation or utility trench from which it was derived for use as backfill whenever possible under Resource Conservation and Recovery Act (RCRA) requirements. Copies of the TCEQ rule and EPA letter are included in Appendix A.

Soils generated from Construction Zone 1 can be used as fill material as needed in Construction Zones 2, 3, or 4, and on-site reuse is strongly encouraged to reduce disposal costs. Generated soils from Construction Zone 1 may not be placed in Construction Zone 5.

Generated soils in this area would likely be classified as a Class II non-hazardous waste. All excess soils that cannot be reused within the project footprint should be placed into lined, roll-off containers. Prior to transport and disposal of generated soils, any necessary waste classification sampling efforts and coordination with the disposal landfill must be completed by the Contractor. Waste classification sampling is anticipated to include TPH by Texas Method 1005 and BTEX-MTBE by EPA Method 8021. It should be noted that the actual analyses and associated frequencies warranted for profiling and landfill approval may vary based on the landfill's requirements. The number of laboratory analyses is determined by the amount of waste material warranting off-site disposal and specific analytical requirements of the landfill. The Contractor will be responsible for ensuring that all soils leaving the site are covered under an approved landfill profile or waste acceptance application and accompanied by unique, numbered waste manifests or load authorization tickets. Copies of the manifests or load authorization tickets should be returned to the City Project Engineer.

4.2 Recovered Water

Shallow groundwater is likely to occur across the project site. In addition, it is possible that stormwater runoff at the site may occur during construction activities. The actual amount of accumulated water

generated from dewatering during construction activities will depend on the conditions encountered at the site and the construction methods utilized. During periods of work stoppage, berming open excavations to prevent stormwater runoff into the open excavations is recommended.

Shallow groundwater and stormwater runoff in the area is potentially contaminated with petroleum hydrocarbons, MTBE, and BTEX. Any groundwater or stormwater encountered in the trenches during construction shall be recovered and containerized in watertight containers.

If water is recovered from Construction Zone 1, the Contractor should conduct waste classification sampling to determine the final disposition of the accumulated water. Based on the waste classification results, there may be several options available to the Contractor to dispose of the water recovered from Construction Zone 1:

- Water may require transport and disposal to a commercial disposal facility.
- Water may meet City requirements to be discharged to the City sanitary sewer system with advance coordination with the City. This will likely involve collecting a representative composite sample of the water to be discharged in accordance with the terms of the City. These analyses are likely to include a subset of the chemicals of concern outlined in the National Pollutant Discharge Elimination System (NPDES) requirements for industrial discharges into publicly owned treatment works (Title 30 of the Code of Federal Regulations Chapter 122, Appendix D, Tables 2 and 3).
- Water may meet requirements to be discharged directly to an upland area and allowed to drain across the site by overland flow.
- Water may meet requirements to be reused for dust control or other source water needs on the project site.

The City Project Engineer will provide final direction to the Contractor on proper disposal or discharge of the recovered water.

5.0 ACTIVITES OCCURRING IN CONSTRUCTION ZONE 2

The Contractor will be responsible for conducting construction activities within Construction Zone 2 in accordance with the following procedures.

5.1 Generated Soils

Previous environmental investigation data within Construction Zone 2 and in the surrounding area indicate that soils in this zone have potentially been impacted by the presence of the railroad tracks in the area, historical FHR operations, and other industrial uses in the area. Possible contaminants of concern (COCs) in the Construction Zone 2 include TPH, BTEX, MTBE, polycyclic aromatic hydrocarbons (PAHs), and heavy metals.

All generated soils from within the Construction Zone 2 should be segregated by the Contractor in stockpiles in accordance with the construction plans and specifications. All excess soils that cannot be reused within the project footprint in Construction Zone 2 should be placed in lined stockpiles for reuse as possible during the project. The lining should be consistent with impermeable plastic sheeting with a thickness of at least 6 mil. Plastic sheeting should be used to cover the stockpiles or roll-off containers during non-working hours or during precipitation events. Stockpiled soils from Construction Zone 2 should not be comingled with soils from other zones.

Generated soils can be returned to the excavation during construction activities. TCEQ and EPA guidance for common utility projects and excavation-type activities indicates that all generated soils, regardless of the level of contamination, can be returned to the excavation or utility trench from which it was derived for use as backfill whenever possible under RCRA requirements. Copies of the TCEQ rule and EPA letter are included in Appendix A.

Soils generated from Construction Zone 2 can be used as fill material as needed in Construction Zones 3 or 4, and on-site reuse is strongly encouraged to reduce disposal costs. Generated soils from Construction Zone 2 may not be placed in Construction Zone 5. Generated soils from Construction Zone 2 should not be reused in Construction Zone 1 without confirmation from the City. Generated soils from Construction Zone 2 should be visually screened (i.e., no observed staining, no observed photoionization detector (PID) readings, no observed odor, etc.) and potentially sampled for TPH, BTEX, and MTBE concentrations to be reused within Construction Zone 1.

Generated soils in this area would likely be classified as a Class II non-hazardous waste. All excess soils that cannot be reused within the project footprint should be placed into lined, roll-off containers. Prior to transport and disposal of generated soils, any necessary waste classification sampling efforts and coordination with the disposal landfill must be completed by the Contractor. Waste classification sampling is anticipated to include TPH by Texas Method 1005 and BTEX-MTBE by EPA Method 8021. It should be noted that the actual analyses and associated frequencies warranted for profiling and landfill approval may vary based on the landfill's requirements. The number of laboratory analyses is determined by the amount of waste material warranting off-site disposal and specific analytical requirements of the landfill. The Contractor will be responsible for ensuring that all soils leaving the site are covered under an approved landfill profile or waste acceptance application and accompanied by unique, numbered waste manifests or load authorization tickets. Copies of the manifests or load authorization tickets should be returned to the City Project Engineer.

5.2 Recovered Water

Shallow groundwater is likely to occur across the project site. In addition, it is possible that stormwater runoff at the site may occur during construction activities. The actual amount of accumulated water generated from dewatering during construction activities will depend on the conditions encountered at the site and the construction methods utilized. During periods of work stoppage, berming open excavations to prevent stormwater runoff into the open excavations is recommended.

Shallow groundwater and stormwater runoff in the area is potentially contaminated with petroleum hydrocarbons, MTBE, and BTEX. Any groundwater or stormwater encountered in the trenches during construction shall be recovered and containerized in watertight containers.

If water is recovered from Construction Zone 2, the Contractor should conduct waste classification sampling to determine the final disposition of the accumulated water. Based on the waste classification results, there may be several options available to the Contractor to dispose of the water recovered from Construction Zone 2:

- Water may require transport and disposal to a commercial disposal facility.
- Water may meet City requirements to be discharged to the City sanitary sewer system with advance coordination with the City. This will likely involve collecting a representative composite sample of the water to be discharged in accordance with the terms of the City. These analyses are likely to include a subset of the chemicals of concern outlined in the National Pollutant Discharge Elimination System (NPDES) requirements for industrial discharges into publicly owned treatment works (Title 30 of the Code of Federal Regulations Chapter 122, Appendix D, Tables 2 and 3).
- Water may meet requirements to be discharged directly to an upland area and allowed to drain across the site by overland flow.
- Water may meet requirements to be reused for dust control or other source water needs on the project site.

The City Project Engineer will provide final direction to the Contractor on proper disposal or discharge of the recovered water.

6.0 ACTIVITES OCCURRING IN CONSTRUCTION ZONE 3

The Contractor will be responsible for conducting construction activities within Construction Zone 3 in accordance with the following procedures.

6.1 Generated Soils

Previous environmental investigation data within Construction Zone 3 and in the surrounding area indicate that soils in this zone have potentially been impacted by historical FHR operations and other industrial uses in the area. Possible COCs in the Construction Zone 3 include TPH, BTEX, MTBE, and PAHs.

All generated soils from within the Construction Zone 3 should be segregated by the Contractor in stockpiles in accordance with the construction plans and specifications. All excess soils that cannot be reused within the project footprint in Construction Zone 3 should be placed in lined stockpiles for reuse as possible during the project. The lining should be consistent with impermeable plastic sheeting with a thickness of at least 6 mil. Plastic sheeting should be used to cover the stockpiles or roll-off containers during non-working hours or during precipitation events. Stockpiled soils from Construction Zone 3 should not be comingled with soils from other zones.

Generated soils can be returned to the excavation during construction activities. TCEQ and EPA guidance for common utility projects and excavation-type activities indicates that all generated soils, regardless of the level of contamination, can be returned to the excavation or utility trench from which it was derived for use as backfill whenever possible under RCRA requirements. Copies of the TCEQ rule and EPA letter are included in Appendix A.

Soils generated from Construction Zone 3 should not be used as fill material in other zones.

Generated soils in this area may be classified as a Class I non-hazardous waste. All excess soils that cannot be reused within Construction Zone 3 should be placed into lined, roll-off containers. Prior to transport and disposal of generated soils, any necessary waste classification sampling efforts and coordination with the disposal landfill must be completed by the Contractor. Waste classification sampling is anticipated to include TPH by Texas Method 1005 and BTEX-MTBE by EPA Method 8021. It should be noted that the actual analyses and associated frequencies warranted for profiling and landfill approval may vary based on the landfill's requirements. The number of laboratory analyses is determined by the amount of waste material warranting off-site disposal and specific analytical requirements of the landfill. The Contractor will be responsible for ensuring that all soils leaving the site are covered under an approved landfill profile or waste acceptance application and accompanied by unique, numbered waste manifests or load authorization tickets. Copies of the manifests or load authorization tickets should be returned to the City Project Engineer.

6.2 Recovered Water

Shallow groundwater is likely to occur across the project site. In addition, it is possible that stormwater runoff at the site may occur during construction activities. The actual amount of accumulated water generated from dewatering during construction activities will depend on the conditions encountered at the site and the construction methods utilized. During periods of work stoppage, berming open excavations to prevent stormwater runoff into the open excavations is recommended.

Shallow groundwater and stormwater runoff in the area is potentially contaminated with petroleum hydrocarbons, MTBE, and BTEX. Any groundwater or stormwater encountered in the trenches during construction shall be recovered and containerized in watertight containers.

If water is recovered from Construction Zone 3, the Contractor should conduct waste classification sampling to determine the final disposition of the accumulated water. Based on the waste classification results, there may be several options available to the Contractor to dispose of the water recovered from Construction Zone 3:

- Water may require transport and disposal to a commercial disposal facility.
- Water may meet City requirements to be discharged to the City sanitary sewer system with advance coordination with the City. This will likely involve collecting a representative composite sample of the water to be discharged in accordance with the terms of the City. These analyses are likely to include a subset of the chemicals of concern outlined in the National Pollutant Discharge Elimination System (NPDES) requirements for industrial discharges into publicly owned treatment works (Title 30 of the Code of Federal Regulations Chapter 122, Appendix D, Tables 2 and 3).
- Water may meet requirements to be discharged directly to an upland area and allowed to drain across the site by overland flow.
- Water may meet requirements to be reused for dust control or other source water needs on the project site.

The City Project Engineer will provide final direction to the Contractor on proper disposal or discharge of the recovered water.

7.0 ACTIVITES OCCURRING IN CONSTRUCTION ZONE 4

The Contractor will be responsible for conducting construction activities within Construction Zone 4 in accordance with the following procedures.

7.1 Generated Soils

Previous environmental investigation data within Construction Zone 4 and in the surrounding area indicate that soils in this zone have potentially been impacted by historical FHR operations and other industrial uses in the area. Possible COCs in the Construction Zone 4 include TPH, BTEX, MTBE, and PAHs.

All generated soils from within the Construction Zone 4 should be segregated by the Contractor in stockpiles in accordance with the construction plans and specifications. All excess soils that cannot be reused within the project footprint in Construction Zone 4 should be placed in lined stockpiles for reuse as possible during the project. The lining should be consistent with impermeable plastic sheeting with a thickness of at least 6 mil. Plastic sheeting should be used to cover the stockpiles or roll-off containers during non-working hours or during precipitation events. Stockpiled soils from Construction Zone 4 should not be comingled with soils from other zones.

Generated soils can be returned to the excavation during construction activities. TCEQ and EPA guidance for common utility projects and excavation-type activities indicates that all generated soils, regardless of the level of contamination, can be returned to the excavation or utility trench from which it was derived for use as backfill whenever possible under RCRA requirements. Copies of the TCEQ rule and EPA letter are included in Appendix A.

Soils generated from Construction Zone 4 can be used as fill material as needed in Construction Zones 2, 3, or 4, and on-site reuse is strongly encouraged to reduce disposal costs. Generated soils from Construction Zone 4 may not be placed in Construction Zone 5. Generated soils from Construction Zone 4 should not be reused in Construction Zone 1 without confirmation from the City. Generated soils from Construction Zone 4 should be visually screened (i.e., no observed staining, no observed PID readings, no observed odor, etc.) and potentially sampled for TPH, BTEX, and MTBE concentrations to be reused within Construction Zone 1.

Generated soils in this area would likely be classified as a Class II non-hazardous waste. All excess soils that cannot be reused within the project footprint should be placed into lined, roll-off containers. Prior to transport and disposal of generated soils, any necessary waste classification sampling efforts and coordination with the disposal landfill must be completed by the Contractor. Waste classification sampling is anticipated to include TPH by Texas Method 1005 and BTEX-MTBE by EPA Method 8021. It should be noted that the actual analyses and associated frequencies warranted for profiling and landfill approval may vary based on the landfill's requirements. The number of laboratory analyses is determined by the amount of waste material warranting off-site disposal and specific analytical requirements of the landfill. The Contractor will be responsible for ensuring that all soils leaving the site are covered under an approved landfill profile or waste acceptance application and accompanied by unique, numbered waste manifests or load authorization tickets. Copies of the manifests or load authorization tickets should be returned to the City Project Engineer.

7.2 Recovered Water

Shallow groundwater is likely to occur across the project site. In addition, it is possible that stormwater runoff at the site may occur during construction activities. The actual amount of accumulated water generated from dewatering during construction activities will depend on the conditions encountered at the site and the construction methods utilized. During periods of work stoppage, berming open excavations to prevent stormwater runoff into the open excavations is recommended.

Shallow groundwater and stormwater runoff in the area is potentially contaminated with petroleum hydrocarbons, MTBE, and BTEX. Any groundwater or stormwater encountered in the trenches during construction shall be recovered and containerized in watertight containers.

If water is recovered from Construction Zone 4, the Contractor should conduct waste classification sampling to determine the final disposition of the accumulated water. Based on the waste classification results, there may be several options available to the Contractor to dispose of the water recovered from Construction Zone 4:

- Water may require transport and disposal to a commercial disposal facility.
- Water may meet City requirements to be discharged to the City sanitary sewer system with advance coordination with the City. This will likely involve collecting a representative composite sample of the water to be discharged in accordance with the terms of the City. These analyses are likely to include a subset of the chemicals of concern outlined in the National Pollutant Discharge Elimination System (NPDES) requirements for industrial discharges into publicly owned treatment works (Title 30 of the Code of Federal Regulations Chapter 122, Appendix D, Tables 2 and 3).
- Water may meet requirements to be discharged directly to an upland area and allowed to drain across the site by overland flow.
- Water may meet requirements to be reused for dust control or other source water needs on the project site.

The City Project Engineer will provide final direction to the Contractor on proper disposal or discharge of the recovered water.

8.0 ACTIVITES OCCURRING IN CONSTRUCTION ZONE 5

The Contractor will be responsible for conducting construction activities within Construction Zone 5 in accordance with the following procedures.

8.1 Generated Sediment

Previous environmental investigation data conducted inland adjacent to Construction Zone 5 indicate that sediment in this zone may have potentially been impacted by historical FHR operations and other industrial uses in the area. Possible COCs in the Construction Zone 5 include TPH, BTEX, MTBE, and heavy metals.

Sediment dredged or excavated during construction activities in Construction Zone 5 should be segregated by the Contractor in accordance with the construction plans and specifications. All generated sediment in Construction Zone 5 should be placed in the temporary soil storage easement for proper final disposition.

Sediment generated from Construction Zone 5 should not be used as fill material in other construction zones.

If permanent reuse areas are not identified for generated sediment, any dredged or excavated sediment should be transported offsite for disposal. Prior to transport and disposal of generated sediment, any necessary waste classification sampling efforts and coordination with the disposal landfill must be completed by the Contractor. Waste classification sampling is anticipated to include TPH by Texas Method 1005, BTEX-MTBE by EPA Method 8021, and heavy metals by EPA Method 6020. It should be noted that the actual analyses and associated frequencies warranted for profiling and landfill approval may vary based on the landfill's requirements. The number of laboratory analyses is determined by the amount of waste material warranting off-site disposal and specific analytical requirements of the landfill. The Contractor will be responsible for ensuring that all soils leaving the site are covered under an approved landfill profile or waste acceptance application and accompanied by unique, numbered waste manifests or load authorization tickets. Copies of the manifests or load authorization tickets should be returned to the City Project Engineer.

8.2 Dewatering Activities

Any work area that requires dewatering during construction shall prevent the accumulation of surface water in containment vessels whenever possible. All surface water dewatered from the construction area should be redirected to the Industrial Canal/Corpus Christi Bay outside of the project work area utilizing the appropriate sediment and erosion control best management practices.

9.0 OFFSITE MANAGEMENT OF SOIL AND GROUNDWATER

Any generated soils that are not returned to the excavation shall be loaded into roll-off containers or haul trucks utilizing appropriate equipment. Final characterization and profiling of the excess generated soil for offsite disposal at a licensed facility is the responsibility of the Environmental Coordinator. The stockpiled material shall remain at the staging area until waste classification has been completed.

Final characterization and profiling of the recovered groundwater for offsite disposal at a licensed facility is the responsibility of the Contractor. The recovered water shall remain in the holding tanks at the staging area until waste classification has been completed. Decontamination water and recovered groundwater mud shall be disposed of utilizing a vacuum truck, tanker truck or other appropriate mode of transportation by a state licensed waste transporter to the appropriate licensed disposal facility.

10.0 CONSTRUCTION WORKER HEALTH & SAFETY PROCEDURES

10.1 Personal Protective Equipment (PPE)

Due to the presence of potential COCs in soil, groundwater, and sediment, construction workers in each of these project areas could potentially be exposed to the COCs via dermal contact, ingestion, and/or inhalation exposure pathways.

The Contractor and Environmental Coordinator shall ensure that all applicable worker health and safety and construction safety regulations, including 20 CFR 1910.120, are properly applied. All required medical monitoring, worker health and safety monitoring, and PPE shall be provided by the Contractor.

10.2 Equipment Decontamination

Equipment shall be decontaminated before moving from a more impacted to less impacted project areas. Therefore, decontamination of equipment is required:

- When moving from Construction Zone 3 **to** any other construction zone.
- When moving from Construction Zones 2, 3, and 4 **to** offsite.

Appendix A

EPA and TCEQ Guidance on Reuse of Generated Soils During Construction

<<Prev Rule Next Rule>>

Texas Administrative Code

TITLE 30	ENVIRONMENTAL QUALITY
PART 1	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CHAPTER 350	TEXAS RISK REDUCTION PROGRAM
SUBCHAPTER B	REMEDY STANDARDS
RULE §350.36	Relocation of Soils Containing Chemicals of Concern for Reuse Purposes

(a) A person must comply with this section when relocating soils for reuse purposes from an affected property (on-site or off-site) which is undergoing or has completed a response action under Remedy Standard A or B and the soils contain COCs in excess of naturally occurring background concentrations. Relocation of soils which contain COCs may be subject to additional requirements or limitations (e.g., land disposal restrictions) within each program area identified in §350.2 of this title (relating to Applicability). The person must treat excavated soils containing non-aqueous phase liquids to applicable levels prior to relocation or else manage the soils as wastes. The excavation of soils containing COCs during construction activities (e.g., installation, repair, removal of telephone lines or other utilities, but not closures, remediations, or PST tank removal actions, for example) and the subsequent replacement of those soils into that same excavation shall not be considered to constitute relocation or reuse and shall not be subject to the provisions of this section.

(b) The person may relocate soils for reuse in response to Remedy Standard A when COCs meet the critical soil PCLs and the following requirements for the new location.

(1) Soils to be reused must meet the residential or commercial/industrial critical surface or subsurface soil PCLs as applicable for the new location, depending upon depth of placement, established in accordance with Subchapter D of this chapter (relating to Development of Protective Concentration Levels).

(2) The soil reuse shall be protective of ecological receptors at the new location.

(3) The soil reuse activity must allow the requirements for Remedy Standard A response actions set forth in §350.32(a) of this title (relating to Remedy Standard A) to be met at the new location.

(4) The person shall comply with the institutional control requirement for commercial/industrial land use as specified in §350.31(g) of this title (relating to General Requirements for Remedy Standards). Proof of compliance with the institutional control requirement shall be submitted within 90 days of completing the relocation action.

(5) The reuse of soils with concentrations of COCs which do not exceed the critical soil PCLs for the new location does not require the prior approval of the executive director, when that new location is within the boundary of on-site or off-site property which contains the affected property (i.e., not just within the affected property limits).

(c) The person must meet the following requirements in response to Remedy Standard B when soils that are to be relocated for reuse purposes contain concentrations of COCs that exceed the critical soil PCLs for the new location.

(1) The person shall determine the critical surface and, if applicable, subsurface soil PCLs in accordance with Subchapter D of this chapter (relating to Development of Protective Concentration Levels) for the new location.

(2) The soil reuse must be protective of ecological receptors at the new location.

(3) The person shall demonstrate that the soil reuse activity will allow the requirements for Remedy Standard B response actions set forth in §350.33(a) of this title (relating to Remedy Standard B) to be met for the new location.

(4) The person shall comply with the institutional control requirements specified in §350.31(g) of this title (relating to General Requirements for Remedy Standards). Proof of compliance with the institutional control shall be submitted within 90 days of completing the relocation action.

(5) The reuse of soil under Remedy Standard B requires prior executive director approval.

(6) The executive director may require the person to conduct post-response action care and submit PRACRs.

(7) The executive director may require the person to provide financial assurance for post-response action care in response to §350.33(e)(2)(C) of this title (relating to Remedy Standard B).

(d) If soils which contain concentrations of COCs above naturally-occurring levels resulting from a release are to be relocated for reuse on property not owned by the person, then the person shall obtain the written consent of the landowner prior to relocation of the soils.

(e) Within 90 days of completing a soil relocation action under this section, the person shall complete the applicable portions of a RACR as described in §350.95 of this title (relating to Response Action Completion Report) and make it available for inspection or submittal upon request of the executive director.

Source Note: The provisions of this §350.36 adopted to be effective September 23, 1999, 24 TexReg 7436

Next Page Previous Page

List of Titles Back to List

HOME | TEXAS REGISTER | TEXAS ADMINISTRATIVE CODE | OPEN MEETINGS

9441.1992(16)

United States Environmental Protection Agency
Washington, D.C. 20460
Office of Solid Waste and Emergency Response

June 11, 1992

Mr. Douglas H. Green
Piper & Marbury
1200 Nineteenth Street, N.W.
Washington, D.C. 20036-2430

Dear Mr. Green:

Thank you for your letter of April 30, 1992, requesting clarification of the Environmental Protection Agency's (EPA's) interpretation of the applicability of certain Resource conservation and Recovery Act (RCRA) requirements to common excavation-type activities.

The particular situation which you presented in your letter involves excavation of soils, such as trenching operations for pipeline installation, where the soils may be hazardous by characteristic, or may contain listed hazardous wastes. We understand that your questions specifically relate to excavations being conducted on public roadways or at other similar locations that are not necessarily associated with or are part of a RCRA regulated treatment, storage, or disposal facility.

In the example which you cited in your letter, the soils from the excavation or construction activities are temporarily moved within the area of contamination, and subsequently redeposited into the same excavated area. In these situations, we agree that such activity does not constitute treatment, storage, or disposal of a hazardous waste under RCRA. The activity of placing waste in the ground would not normally meet the regulatory definitions of "treatment" or "storage" (40 CFR 260.10). In addition, as you noted in your letter, movement of wastes within an area of contamination does not constitute "land disposal" and thus does not trigger RCRA hazardous waste disposal requirements (55 FR 8666, March 8, 1990). Thus, RCRA requirements such as land disposal restrictions would not apply.

RO 11671

With respect to generator requirements, as you indicated, a hazardous waste "generator" is one, by site, who produces a hazardous waste or first causes the waste to be regulated as hazardous (40 CFR 260.10). In the circumstances you described, the excavation does not "produce" the hazardous waste, nor does it subject the waste to hazardous waste regulation since, as discussed above, the activity you described is not "treatment," storage, or "land disposal" of hazardous waste. Therefore, we agree that the activity is not subject to any generator requirements.

Please let me know if you have any further questions regarding this issue.

Sincerely yours,
Sylvia K. Lowrance, Director
Office of Solid Waste

RO 11671