

# PROCEDURE FOR COORDINATING UTILITY WORK WITHIN CHROMIUM SOIL AREAS

CITY OF BAYONNE  
BAYONNE, NEW JERSEY

*Prepared for*

**Honeywell**

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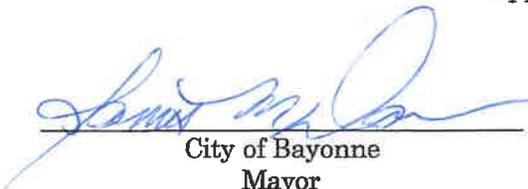
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**TABLE OF CONTENTS**

1.0 INTRODUCTION AND SCOPE ..... 1

2.0 REGULATORY AND LEGAL SECTION ..... 5

3.0 NOTIFICATION AND RESPONSE PROCEDURE ..... 7

    3.1 Utility Work Identification and Notification to Honeywell ..... 8

    3.2 Honeywell Evaluation of Work Area..... 9

    3.3 Project Execution ..... 10

        3.3.1 Honeywell Responsibilities ..... 10

        3.3.2 City of Bayonne Responsibilities ..... 12

        3.3.3 Responsibilities During Emergency Work ..... 13

        3.3.4 Engineering Controls ..... 14

    3.4 Team Member Responsibilities ..... 15

    3.5 Periodic Reviews ..... 16

4.0 IDENTIFICATION OF CHROMIUM SOIL AREAS ..... 18

5.0 HAZARD EVALUATION AND WORKER TRAINING ..... 19

**ILLUSTRATIONS**

Illustration 1: SOP General Process Flow Summary

**APPENDICES**

Appendix A: SOP Process Flow Chart/Response Team Key Personnel

    A-1: Notification and Response System Flow Chart

    A-2: Notification and Response Team Key Personnel

Appendix B: Individual Site Maps: Bayonne Pipeline/Western Interceptor Sewer System

Appendix C: Worker Training Manual

Appendix D: Draft Specifications for Chromium Materials Excavation and Management

Appendix E: Bayonne Rules and Regulations for Site Work, Excavation and Backfill

Appendix F: NJDEP Sewer Protocol

Appendix G: Subsurface Work Authorization Form/Dig Permit

## 1.0 INTRODUCTION AND SCOPE

Honeywell has developed this Standard Operating Procedure (SOP) to assist the City of Bayonne (also referred to herein as “City”) in safely and protectively executing work on the Bayonne Western Interceptor Sewer System in Bayonne (also referred to as Hudson County Chromate Site 144 Bayonne Pipeline), the Bayonne Force Main located in a portion of the Morris Canal in Jersey City (Site 153), and the Bayonne Aqueduct located in a portion of the Median Strip of Route 440 in Jersey City (Site 187), collectively referred to as the “Sites”. These Sites have been identified as chromium impacted sites in the Consent Judgment between the New Jersey Department of Environmental Protection (NJDEP) et al. and Honeywell, dated September 7, 2011 (Consent Judgment). Under the Consent Judgment, Honeywell is responsible for the investigation and remediation of chromium chemical production waste (CCPW) of designated Sewer Sites in accordance with a NJDEP approved Sewer Protocol (Appendix B of the Consent Judgment). CCPW includes chromium ore processing residue (COPR), hexavalent chromium, and/or other metals associated with COPR which may occur coincidentally with hexavalent chromium impacted soils.

The SOP describes a series of steps to be taken before and during utility work conducted by the City at the Sites. These steps detail actions required of Honeywell after the City notifies Honeywell that work is pending on the part of the City at the Sites. The procedures contained in this document address the excavation of chromium-impacted material and safe handling and disposal methods in the event that City workers and/or contractors are required to work in areas of chromium soils at the Sites.

The City of Bayonne, its consultants, contractors, and utility workers will follow this SOP when repairing or otherwise maintaining pipelines and any associated structures at Sites where chromium-impacted soils or fill (also referred to as “chromium soils”) are located. Chromium soils may contain visually identifiable COPR that was the by-product from a former processing facility. Chromium soils may not necessarily exhibit visible COPR, but could contain concentrations of hexavalent chromium above the NJDEP soil criterion, which is currently 20 milligrams per kilogram (mg/kg or parts per million [ppm]) when analyzed by a

certified laboratory. This SOP is intended to protect utility workers who may encounter chromium soils in any form during the course of their work. This SOP addresses sewer/utility repair or replacement performed either as part of planned maintenance work or as a result of emergency situations at the Sites. The procedure meets the requirements of the Consent Judgment and Sewer Protocol. The Sewer Protocol includes requirements for developing procedures to allow utility workers to safely repair or replace sewer/utility lines and associated structures at these Sites. In the event of any planned maintenance or emergency repair of City-owned utility pipeline(s) at the Sites which will involve disturbance of chromium soils or remedial measures, the City agrees to follow the steps identified in this procedure.

The City has entered into a long-term agreement with Veolia for the operation and maintenance of its water and sewer systems. Accordingly, any reference to the City in terms of operation and maintenance of its water and sewer systems shall be interpreted as also referring to Veolia, as well as City and Veolia contractors and employees. Similarly, Honeywell uses remediation contractors and consultants and, where this SOP references Honeywell, it should be understood that this also includes Honeywell's consultants and contractors.

Worker safety and training requirements are addressed in an accompanying Worker Training Manual prepared by Honeywell for use by the City and provided as **Appendix C**.

In addition to being subject to the requirements identified in this SOP, some of the Sites may be subject to an existing institutional control (deed notice) which includes certain provisions pertaining to disturbance and restoration of engineering controls (caps with designated components), as well as notification and reporting requirements. Since areas subject to capping and deed notice must maintain their integrity to function as intended, work activity in such areas will require restoration of the engineering control to its pre-disturbance condition. If work is occurring in an area subject to a deed notice and involves the disturbance of engineering controls, NJDEP notification and reporting requirements by Honeywell will apply in addition to the process described in this SOP.

As an additional level of protection, Honeywell has entered into a contract with Terradex Inc. to notify Honeywell through the New Jersey One Call (811) system

whenever soil disturbing work takes place at the Sites. Notice through the Terradex LandWatch system enables Honeywell to work with entities performing subsurface work, identify if there are chromium soils in their work area and inform them of the process described in this SOP and the associated worker safety/training requirements. The Terradex system has been implemented as a conservative measure to provide notification to Honeywell of pending subsurface work at or near the Sites by entities which notify New Jersey One Call prior to digging, as required by New Jersey law. Honeywell will continue to use the Terradex LandWatch system, provided Terradex is able to provide this service and is able to do so consistent with the requirements of New Jersey law.

This SOP will be followed in all applicable cases; however, this SOP cannot account for all site-specific conditions; field-driven modifications to this procedure can be made upon agreement of both Honeywell and the City.

This SOP is organized in the following sections:

**2.0 Regulatory and Legal Section:** Provides background information on the regulatory and legal basis for the development of this SOP.

**3.0 Notification and Response Procedure:** Describes the function of the proposed system.

**3.1 Utility Work Identification and Notification to Honeywell:** Describes the function of the “Chromium Response Hotline.”

**3.2 Honeywell Evaluation of Work Area:** Describes Honeywell’s responsibility on determination of work on or near a Site.

**3.3 Project Execution:** Describes organizational roles and responsibilities of the various parties.

**3.4 Responsibilities:** Describes individual roles and responsibilities of the various parties.

**3.5 Periodic Reviews:** Describes regular coordination and meetings between the parties.

**4.0 Identification of Chromium Soil Areas:** Describes the Sites where this SOP applies.

**5.0 Hazard Evaluation and Worker Training:** Provides information regarding the health hazards that may be encountered and worker training.

## 2.0 REGULATORY AND LEGAL SECTION

Chromium soils were historically used as construction fill at various properties in Hudson County, New Jersey, including portions of sewer pipelines in Bayonne and Jersey City. Regulatory requirements for Sewer Sites containing chromium soils include the Sewer Protocol (**Appendix F**), which specifies remedial action requirements that take into consideration:

- protection of the utility;
- depth of contaminated soils; and
- land use such as the presence of public streets or highways.

For these types of utility sites (linear sites containing a utility line), with subsurface contamination at depths greater than 3 feet, or sites situated beneath city streets or highways, capping and institutional controls in the form of a deed notice constitute the prescribed remedy. For Sites (or portions of Sites) with shallow contamination (less than 3 feet deep), the prescribed remedy (if feasible) is either installation of an engineered capping system or removal of the top 3 feet of contaminated soils and replacement with 3 feet of clean soil underlain by a demarcation layer and, in some cases, a geosynthetic clay liner.

The Sewer Protocol provides for protective remedial measures while minimizing invasive excavation work which could disturb or cause damage to sewer structures or other utilities. The Sewer Protocol requires remediation through excavation and removal of chromium soils when it becomes necessary to repair or replace sewer pipeline or portions of sewer pipelines. Coordinating soil removal with utility repair or replacement allows for removal under more controlled conditions, reducing the likelihood of incidental damage to the utility line or disruption of utility service.

Under the Sewer Protocol, Honeywell also must develop procedures to identify when Sewer Sites are scheduled for repair, address emergency utility work at Sewer Sites, and provide for training of utility workers on recognition of visual COPR and appropriate steps for worker protection.

NJDEP regulations allow for engineering controls (capping) and institutional controls (deed notice) as part of remedial actions. These controls are established to communicate the presence of contaminated soils and control disturbance of these soils and potential exposure to them. After deed notices are recorded, a Remedial Action Soil Permit is obtained from the NJDEP for post-remediation inspections and reporting to be performed by Honeywell.

For remedial actions where residual groundwater contaminants may remain at concentrations above the NJDEP groundwater quality standards, an institutional control for groundwater (referred to as a Classification Exception Area) is required in order to communicate the presence of and restrict the use of contaminated groundwater.

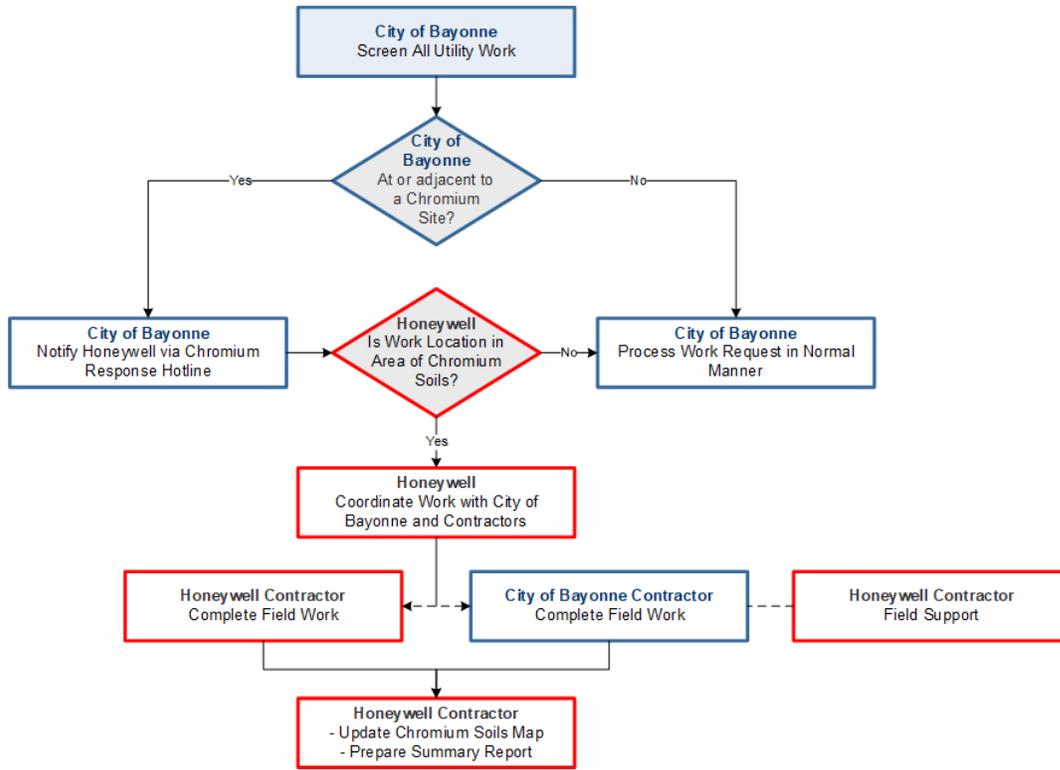
The Worker Training Manual specifies worker protection requirements including training of workers for protection from exposure to chromium soils during utility or other work performed at the Sites. Further information regarding the Worker Training Manual is included in Section 5. A copy of the Worker Training Manual is included as **Appendix C**.

This SOP provides details for coordination of work between Honeywell and the City. The notification and response procedure, coordination of work, key personnel and responsibilities for SOP implementation are described in the following section.

### 3.0 NOTIFICATION AND RESPONSE PROCEDURE

The following procedure guides work procedures at the City of Bayonne sewer utilities known as the Bayonne Pipeline (Western Interceptor Sewer System) in Bayonne, the Bayonne Force Main located in a portion of the Morris Canal in Jersey City, and the Bayonne Aqueduct located in a portion of the Median Strip of Route 440 in Jersey City (refer to **Appendix B** for Site maps). Fundamental to the process is the obligation of the City to notify Honeywell of pending work within or adjacent to the Sites so that Honeywell can evaluate the City's scope of work and take appropriate actions that enable the City to conduct its work in a safe manner. The City's notifications to Honeywell will include utility work by the City and/or its contractors and utility work by other entities that the City is aware of within or adjacent to the Sites.

The notification and response procedures described in this document involve collaborative work between Honeywell, the City and their respective representatives, and require specific actions to be taken by each party. The success of this procedure will depend on the collaboration and full understanding of this procedure. A detailed activity flow process is presented in **Appendix A: Notification and Response System Flow Chart**. A simplified process flow illustration follows:



**Illustration 1 SOP General Process Flow Chart**

A detailed activity flow process is presented in **Appendix A-1** (Notification and Response System Flow Chart) which provides details regarding work identification, notification, coordination, and reporting requirements.

Key components of the notification and response system are described in the following sections. Additional activities and administrative controls include periodic Site inspections by Honeywell and periodic communications via calls or meetings with the City regarding any upcoming work at the Sites.

### 3.1 UTILITY WORK IDENTIFICATION AND NOTIFICATION TO HONEYWELL

The first step in this procedure is the determination by the City supervisory personnel (or City representatives) that utility work is going to be implemented within or adjacent to one of the Sites included in **Appendix B**. Following this internal identification and acknowledgement, the City will notify Honeywell using the Telephone Response System established by Honeywell (Chromium Response Hotline: **855-727-2658**), indicating that work will be taking place at the specific Site (including NJDEP Site number and Site address) and the schedule for that work.

The 24-hour Chromium Response Hotline operates in a manner similar to the New Jersey One-Call utility mark-out notification. Following determination that work will be performed at the Site(s), the City will contact the Chromium Response Hotline to report that work will be undertaken, specify the location, identify whether the work is emergency work or planned maintenance/repair, and provide information regarding the caller and pertinent contact information. For scheduled maintenance work, it will be necessary to indicate the projected timeframe for conducting the work. The answering service will record the name of the person initiating the call on behalf of the City, contact information, planned excavation location(s), expected start date, and the nature of the work (emergency or non-emergency). The Hotline has appropriate scripts and templates for the answering service personnel so that incoming calls can be addressed appropriately. The Chromium Response Hotline will generate a report using appropriate templates for emergency or non-emergency situations and will proceed to make notifications to designated Honeywell individuals (Honeywell Response Team list included in **Appendix A-2**). Honeywell has provided and will maintain a list of contacts, chain-of-command and telephone-chain so that incoming notifications can be routed to appropriate personnel for response in a timely manner. If the City is contacted by other parties regarding work at the Sites, the City will notify Honeywell for coordination of work with other parties.

In case of an emergency, the City must notify Honeywell via the Chromium Response Hotline. For non-emergency work, the City may also notify Honeywell of planned work during periodic meetings or in writing.

### **3.2 HONEYWELL EVALUATION OF WORK AREA**

Honeywell will provide qualified personnel to respond to the City's notifications. Honeywell and its consultants will review the City's notification to determine whether the work will be in an area of known or suspected chromium soils. If Honeywell determines that the proposed work is not in an area containing chromium soils, then the City of Bayonne or other party would proceed with its work without further coordination with Honeywell. If the work will be taking place in or immediately adjacent to a suspected chromium area, Honeywell will evaluate the potential for encountering chromium-impacted material during work activities and coordinate with the City and appropriate contactor staff to ensure implementation of the work in accordance with procedures contained in this document.

Honeywell will hold meetings with the City and its contractors prior to the planned work in order to coordinate the following in advance:

- Health and safety requirements,
- Roles and responsibilities,
- Air monitoring (to be performed by Honeywell if necessary),
- Honeywell onsite technical assistance,
- Soil and groundwater management,
- Procurement of appropriate materials to restore engineering controls, and
- Backfill and restoration requirements.

### 3.3 PROJECT EXECUTION

Prior to every planned utility project, the City and Honeywell will agree on which entity will take the lead on construction execution for the removal of impacted chromium soils. This will be done on a project-specific basis.

A Subsurface Work Authorization Form (“Dig Permit”) has been developed to facilitate coordination of subsurface work at Site 153 specifically. A Dig Permit Form is included in **Appendix G**.

#### ***3.3.1 Honeywell Responsibilities***

As part of the program, a Health and Safety Plan (HASP) will be implemented during field work activities. Existing HASP documents have been developed by Honeywell’s contractors for Site investigation and remedial action field work involving chromium soils and include provisions for worker safety, community health and safety, and emergency response procedures.

Honeywell will work with the City on publishing a Fact Sheet to distribute to interested parties and City stakeholders, if deemed necessary.

When the City contractor takes the lead on the excavation of material at Honeywell chrome sites, , Honeywell will perform the following:

- Provide a qualified representative during the work to visually assess whether there is an indication of chromium soils and to offer field support to the City's crew,
- Perform air monitoring of the work area,
- Coordinate removal and disposal of chromium-impacted soils and waste,
- Provide roll offs or trucks for removal of chromium-impacted soils and sign manifests for chromium-impacted waste as needed,
- Take additional soil samples (if necessary), and
- Verify that restoration of the engineering controls is performed properly.

When Honeywell takes the lead on construction execution, Honeywell will perform the following:

- Procure a 40-hour OSHA HAZWOPER trained contractor to expose the utility line in coordination with the City,
- For Site 153, prepare and complete the Dig Permit form,
- Remove, manage, and dispose of chromium-impacted soils and water, and create a clean corridor for the City's utility workers to perform the appropriate repairs or replacements to the utility line,
- Perform air monitoring of the work area,
- Coordinate removal and disposal of chromium-impacted soils and waste, and sign waste manifests for chromium-impacted waste as needed,
- Coordinate with the City and its representatives to protect the utility line,
- Take additional soil samples (if necessary), and
- Restore the engineering controls.

Honeywell will be responsible for providing notice of the work to the NJDEP and/or Licensed Site Remediation Professional (LSRP), as applicable.

Honeywell will not be performing any utility work. Only the City's contractors will perform work on the utility lines.

### ***3.3.2 City of Bayonne Responsibilities***

When the City takes the lead on construction execution, the City will perform the following:

- Procure a 40-hour OSHA HAZWOPER trained contractor to perform the work,
- Coordinate with Honeywell to protect the environmental remedy and ensure appropriate safety measures are in place,
- For Site 153, prepare and complete the Dig Permit form,
- Provide traffic control,
- Remove, manage, and dispose of chromium-impacted soils and water in coordination with Honeywell's representatives, and
- Restore the NJDEP-approved engineering controls, in coordination with Honeywell.

When Honeywell takes the lead on construction execution, the City will perform the following:

- Provide traffic control,
- After Honeywell creates a clean corridor along the utility line, the City's contractors will perform all necessary utility repairs or replacements. The clean corridor will include a liner barrier above impacted soils, so that utility workers do not come into contact with those soils, and
- Coordinate with Honeywell to protect the environmental remedy and ensure appropriate safety measures are in place.

The City will not be performing air monitoring, will not be signing waste manifests for chromium-impacted material, and will not be coordinating with NJDEP for chromium matters. The City will remain responsible for disposal of non-chromium impacted soils and waste material.

The above responsibilities are provided as guidance based on Honeywell's experience at Sewer Sites in Hudson County. The process has been effective and efficient at

other sites; however, each utility project is different, so deviations from the above process may need to be made in the field.

### ***3.3.3 Responsibilities During Emergency Work***

The City will take the lead on all emergency utility work at the Sites. Honeywell will make qualified personnel available within 3 hours of the City's notice to Honeywell in order to provide support during utility emergencies with or adjacent to the Sites.

The City will perform the following during a utility emergency at the Sites:

- Notify Honeywell of the emergency via the Chromium Response Hotline immediately,
- Procure an on-call, 40-hour OSHA HAZWOPER trained contractor to perform the work,
- Coordinate with Honeywell to protect the environmental remedy and ensure appropriate safety measures are in place,
- For Site 153, prepare and complete the Dig Permit form,
- Provide traffic control,
- Remove, manage, and dispose of chromium-impacted soils and water in coordination with Honeywell's representatives, and
- Restore the NJDEP-approved engineering controls, in coordination with Honeywell.

The City will retain an emergency response contractor with properly trained workers and equipment necessary to perform utility work in areas of chromium soils. Honeywell has provided draft specifications for excavation, management and disposal of chromium soils to the City for inclusion as part of its contractor bidding process for utility work at the Sites in **Appendix D**. Honeywell will provide information on approved disposal facilities for chromium-contaminated waste materials as needed.

Honeywell will work with the City to make appropriate arrangements for the disposal of chromium-contaminated material. Honeywell will work with the City on restoring engineering controls in accordance with approved NJDEP remedies or

existing deed notices. The City contractor will provide the appropriate clean fill material in accordance with specifications as well as NJDEP requirements (including the NJDEP Fill Guidance; last updated April 2015).

During emergency work Honeywell will perform the following:

- Send a qualified representative to the Site within 3 hours of notification by the City,
- Visually assess whether there is an indication of chromium soils and offer field support to the City's crew,
- Perform air monitoring of the work area,
- Coordinate removal and disposal of chromium-impacted soils and waste,
- Provide roll offs or trucks for removal of chromium-impacted soils and sign manifests for chromium-impacted waste as needed. If roll-offs are not available, then Honeywell will coordinate with the City's contractors to properly stockpile the soils and cover the stockpile for disposal at another time,
- Take additional soil samples (if necessary), and
- Verify that restoration of the engineering controls is performed properly.

### ***3.3.4 Engineering Controls***

If the area is subject to a deed notice, restoration of the area will involve replacement in kind of the pre-existing engineering control(s) which may include clean fill, demarcation layer, geotextile or other type of liner, landscaping and/or paving. Site backfill and restoration work may also include measures (e.g., placement of geotextile liner and possibly a capillary break material along the sides and bottom of the excavation) to prevent recontamination of new fill by surrounding chromium soils, to the extent practicable and allowable. Honeywell will document the restoration of engineering controls for use in completing a deed notice disturbance report and other applicable documents as described below.

As a last step in the process, Honeywell will update the chromium soil area Site map (**Appendix B**) by incorporating the changed conditions of the area subject to the work and, if applicable per deed notice requirements and/or NJDEP Soil Remedial

Action Permits, prepare a report on the disturbance and restoration of engineering controls for submittal to the NJDEP.

### ***3.3.5 City of Bayonne Rules and Regulations***

All utility-related work must comply with the City Rules and Regulations, which include standard material specifications including backfill and restoration requirements. Backfill requirements for Honeywell Sites include providing clean fill certification of hexavalent chromium < 1 milligrams per liter, laboratory analysis results, and specific requirements for compaction. A copy of the City Rules and Regulations pertaining to site work, excavation, and backfill requirements are provided for reference in Appendix E.

### ***3.3.6 Cost Reimbursement***

Honeywell and the City will agree upon cost share and reimbursement on a project specific basis. When the City takes the lead on excavation, Honeywell agrees to pay for the incremental cost of using 40-hr OSHA HAZWOPER trained construction crews.

Honeywell will pay for the disposal of chromium-impacted soils and for air monitoring at its sole cost and expense.

## **3.4 TEAM MEMBER RESPONSIBILITIES**

The SOP notification and response system flow chart and Honeywell Response Team key personnel and contact information (phone numbers, email addresses) are included in **Appendix A-1**.

**Telephone Answering Service** (Chromium Response Hotline): Will receive all notifications from the City and/or its designated contractor informing Honeywell of expected work at the Site subject to this procedure. The service will contact a responsible individual within the Honeywell Response Team.

**Honeywell Remediation Manager:** Responsible for implementation of procedures in accordance with the SOP, including retaining contractor services, communicating with project personnel for proper coordination and documentation of the work, and providing for notifications to the NJDEP as applicable. In coordination with the

City, the Honeywell Remediation Manager will determine if a Fact Sheet should be developed for distribution to interested parties and City stakeholders.

**Honeywell Project Personnel:** Responsible for the implementation of all SOP requirements, including providing an assessment to the entities submitting notice of intent to perform work at the Sites and confirmation that chromium soils are or are not present at the work area. Project personnel will provide field support and technical assistance as needed prior to and during the proposed work, and after completion of the work and document all information in a field logbook. Project personnel will also be responsible for updating the chromium soils Site maps and preparing summary reports following completion of field work.

**City of Bayonne Supervisor:** Responsible for retaining appropriate contracted services as indicated in the SOP, checking the proposed utility work location on the chromium soils Site maps, and providing notification to Honeywell in the event of any utility work at the Site, including notification to the Chromium Response Hotline.

**City of Bayonne Project Personnel/Contractors:** Responsible for coordinating any intrusive work on the utility lines with Honeywell's project personnel and contractor, as applicable. City employees (designated supervisory and field staff) will be required to have appropriate training as indicated in Section 5 and specified in the Worker Training Manual. City personnel are not expected to conduct ground-intrusive work (e.g., digging, drilling, and excavation) in areas of chromium soils. It is expected that City contractor(s) will perform the field work involving removal and disposal of chromium soils and Site restoration in conjunction with utility repair or replacement work. The City contractor performing field work will be required to have applicable health and safety training for field personnel as indicated in the Worker Training Manual.

### 3.5 PERIODIC REVIEWS

Honeywell and the City agree to establish certain ongoing consultations and communications to facilitate implementation of the SOP including meetings at least every six months, and more often as needed, to review any issues in the SOP process.

**Attendees:** For the City, the Attendees at the Periodic Meetings will include but will not be limited to, City: Municipal Services Director, Associated Staff, and Veolia representatives.

For Honeywell, the Attendees at the Periodic Meetings will include but will not be limited to, the Construction Manager and/or Remediation Manager, and the following from the Honeywell Contractor: the Program Manager and/or the Program Field Manager.

**Agenda for Periodic Meetings:** the Agenda for the Periodic Meetings will include the following topical areas:

- A. City and Veolia reports on future utility repair/replacement projects, other development projects or utility work at chromium Sites in Bayonne and Jersey City focusing both on short term (i.e., within the current year) as well as longer term (i.e., beyond the current year as information is available).
- B. Honeywell reports on current remediation status of sites; future planned sampling and/or remediation.
- C. Coordination of periodic worker training.
- D. Updates to the SOP or Worker Training Plan (if applicable).
- E. Updates on drawings if applicable, based on additional remediation that may have been conducted either as part of the planned site remediation, or as a result of the application of the Sewer Protocol provisions following the repair or replacement of a utility line.
- F. Updates on key personnel, lines of communication, and contact information (if applicable).
- G. Other topics as applicable.

**Communication for Periodic Meetings:**

- A. Honeywell will develop an agenda and circulate it to the City at least 5 business days prior to each Periodic Meeting.
- B. Honeywell will distribute a summary of action items from the Periodic Meeting to all participants after each Periodic Meeting.

## 4.0 IDENTIFICATION OF CHROMIUM SOIL AREAS

Site maps with information on ownership, address, and tax parcel information are provided in **Appendix B**. The Site maps in **Appendix B** have been updated to reflect current ownership, tax parcel information and identification of chromium areas of concern based on remedial investigation (RI) sampling results. The Site maps include figures showing remedial actions planned or completed based on Remedial Action Work Plans (RAWPs) or Remedial Action Reports (RARs) submitted to and approved by the NJDEP. Honeywell will also provide survey coordinates for the Sites for use by the City and incorporation into its existing GIS sewer mapping system.

The presence of chromium soils or COPR fill may be indicated as gray-black granular material, yellow-green colored staining, reddish-brown nodules in soils, gray-green mud, or extremely hard layers of dark brown soil. Chromium-impacted groundwater may be indicated by yellow-green colored water. Fill soils may also contain other contaminants that are commonly associated with historic fill and unrelated to COPR fill, such as polycyclic aromatic hydrocarbons (PAHs) and metals. This SOP does not address potential risk of exposure to these other contaminants.

NJDEP Site 166 (Route 440 Extension) is located just west of Site 144 Line C and within a portion of Richard A. Rutkowski Park. Honeywell removed chromium-impacted soils from Site 166 under the jurisdiction of NJDEP and groundwater monitoring results indicate that chromium levels in groundwater are below the NJDEP standard. Honeywell is currently working cooperatively with property owners (State of New Jersey Tidelands and Department of Transportation) to finalize and record deed notices and obtain a NJDEP Remedial Action Permit for Soils for post-remediation monitoring and reporting. Site 166 does not contain a sewer line but is included for reference in this SOP in the event of any future subsurface work by the City of Bayonne. It is also included as part of the Terradex LandWatch system used for notification to Honeywell of pending subsurface work by entities that notify New Jersey One Call prior to digging.

## 5.0 HAZARD EVALUATION AND WORKER TRAINING

This SOP is intended to provide information and procedures for utility workers and contractors who may be performing work in areas containing chromium soils or groundwater.

Potential chemical exposure pathways are:

- Inhalation of airborne dusts and mists that may contain contaminated particulates
- Skin and eye contact and absorption due to direct contact with contaminated soil, sediment, and/or liquids
- Incidental ingestion of contaminated soils, liquids, and/or particulates

Contact with known or suspected chromium soils must be avoided. Potential exposure to chromium contamination could occur by utility workers performing ground intrusive activities (e.g., drilling, digging, and excavation). Only properly trained and equipped personnel should be allowed to perform tasks that may involve the handling of known or suspected chromium soils.

As stated in previous sections, it is anticipated that City personnel will not conduct activities such as excavation, material handling, and disposal of chromium soils. Such activities will be implemented by City contractors or Honeywell designated contractors whether on an emergency or non-emergency basis. However, City personnel must be knowledgeable and trained on the potential hazards and safety procedures to be followed when work is conducted in areas of chromium fill, as well as the safety procedures that should be followed if exposure to chromium fill occurs during normal operation and maintenance of the sewer pipeline. Accordingly, Honeywell has developed a Worker Training Manual as discussed below.

### **Worker Training Manual**

Honeywell has prepared a Worker Training Manual that addresses worker protection requirements including training of workers who potentially may be exposed to COPR or chromium soils or groundwater in conjunction with utility or other subsurface work (see **Appendix C**). The Worker Training Manual contains

details regarding worker training requirements and pertinent reference information including fact sheets with information on chromium and potential health hazards. Honeywell will provide training support to the City as deemed appropriate, and the City will develop and implement a permanent worker training plan based on the requirements outlined in the Worker Training Manual.

Honeywell in consultation with the City has identified the following training needs for City employees that would be provided by Honeywell (or its designated contractor):

- Chromium Awareness Training - initial and periodic training (every 2 years): estimated 1 to 2 hours duration and includes City/Veolia staff with responsibility for performing some level of field work along with any appropriate supervisory personnel.
- HAZWOPER 40-hour training and annual 8-hour refresher training: estimated to include two City supervisory employees (if requested by the City).

It is expected that Honeywell will pay for the cost of the training program and the City would cover the cost for the time for its employees to attend the training.

City contractors performing field work on the Site involving disturbance of engineering controls and/or the potential for exposure to chromium soils will be required to have applicable health and safety training as indicated in the Worker Training Manual. Health and safety training requirements for City contractors will be specified as part of the City of Bayonne's bidding process for utility work and contractors will be required to demonstrate appropriate training documentation to the City prior to performing field work at the Sites.

**APPENDIX A**

**SOP PROCESS FLOW CHART/  
RESPONSE TEAM KEY PERSONNEL**

**APPENDIX A-1**

**NOTIFICATION AND RESPONSE SYSTEM FLOW CHART**

**APPENDIX A-2**

**HONEYWELL RESPONSE TEAM KEY PERSONNEL**

**APPENDIX B**

**INDIVIDUAL SITE MAPS**

**APPENDIX C**

**WORKER TRAINING PLAN MANUAL  
(Separate Document)**

**APPENDIX D**

**DRAFT SPECIFICATIONS FOR CHROMIUM MATERIALS  
EXCAVATION AND MANAGEMENT**

**APPENDIX E**

**BAYONNE RULES AND REGULATIONS  
FOR SITE WORK, EXCAVATION AND BACKFILL**

**APPENDIX F**

**NJDEP SEWER PROTOCOL**

**APPENDIX G**

**SUBSURFACE WORK AUTHORIZATION FORM**

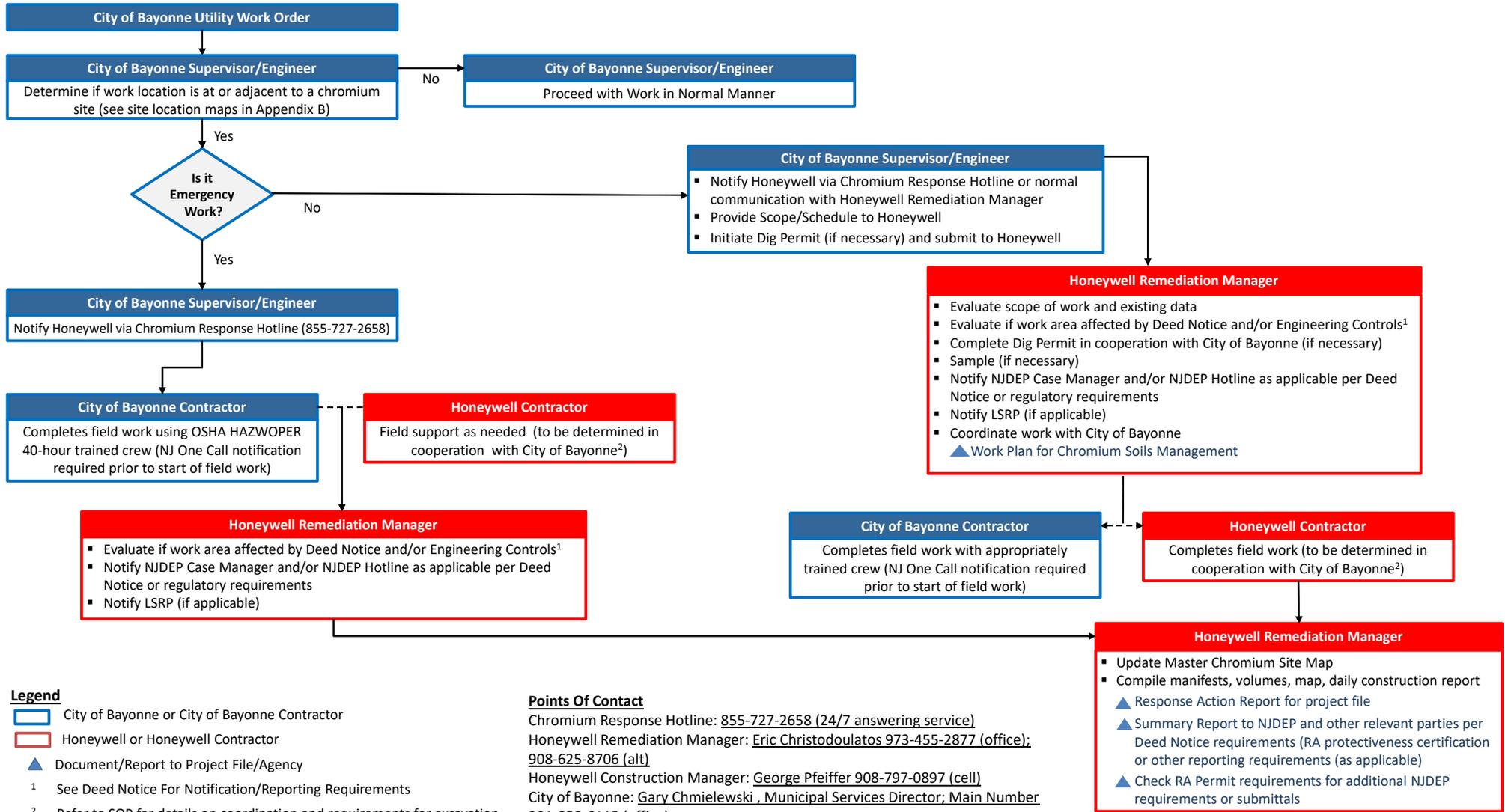
**APPENDIX A**

**SOP PROCESS FLOW CHART/  
RESPONSE TEAM KEY PERSONNEL**

**APPENDIX A-1**

**NOTIFICATION AND RESPONSE SYSTEM FLOW CHART**

Figure A-1 Notification and Response System Flow Chart  
 Response Actions and Responsibilities for City of Bayonne Projects in Areas of Chromium Sites



**Legend**

City of Bayonne or City of Bayonne Contractor

Honeywell or Honeywell Contractor

▲ Document/Report to Project File/Agency

<sup>1</sup> See Deed Notice For Notification/Reporting Requirements

<sup>2</sup> Refer to SOP for details on coordination and requirements for excavation and disposal of chromium soils, backfill, and site restoration. Honeywell reimbursement of City of Bayonne for the portion of work associated with OSHA 40-hour trained crew and disposal of chromium soils.

**Points Of Contact**

Chromium Response Hotline: [855-727-2658 \(24/7 answering service\)](tel:855-727-2658)

Honeywell Remediation Manager: [Eric Christodoulatos 973-455-2877 \(office\); 908-625-8706 \(alt\)](tel:973-455-2877)

Honeywell Construction Manager: [George Pfeiffer 908-797-0897 \(cell\)](tel:908-797-0897)

City of Bayonne: [Gary Chmielewski, Municipal Services Director; Main Number 201-858-6115 \(office\)](tel:201-858-6115)

City of Bayonne Utility Operations – Veolia (formerly Suez) Project Manager:

[Jason Kiernan; Main Number 888-434-0518 \(office\)](tel:888-434-0518)

LSRP (TBD)

**APPENDIX A-2**

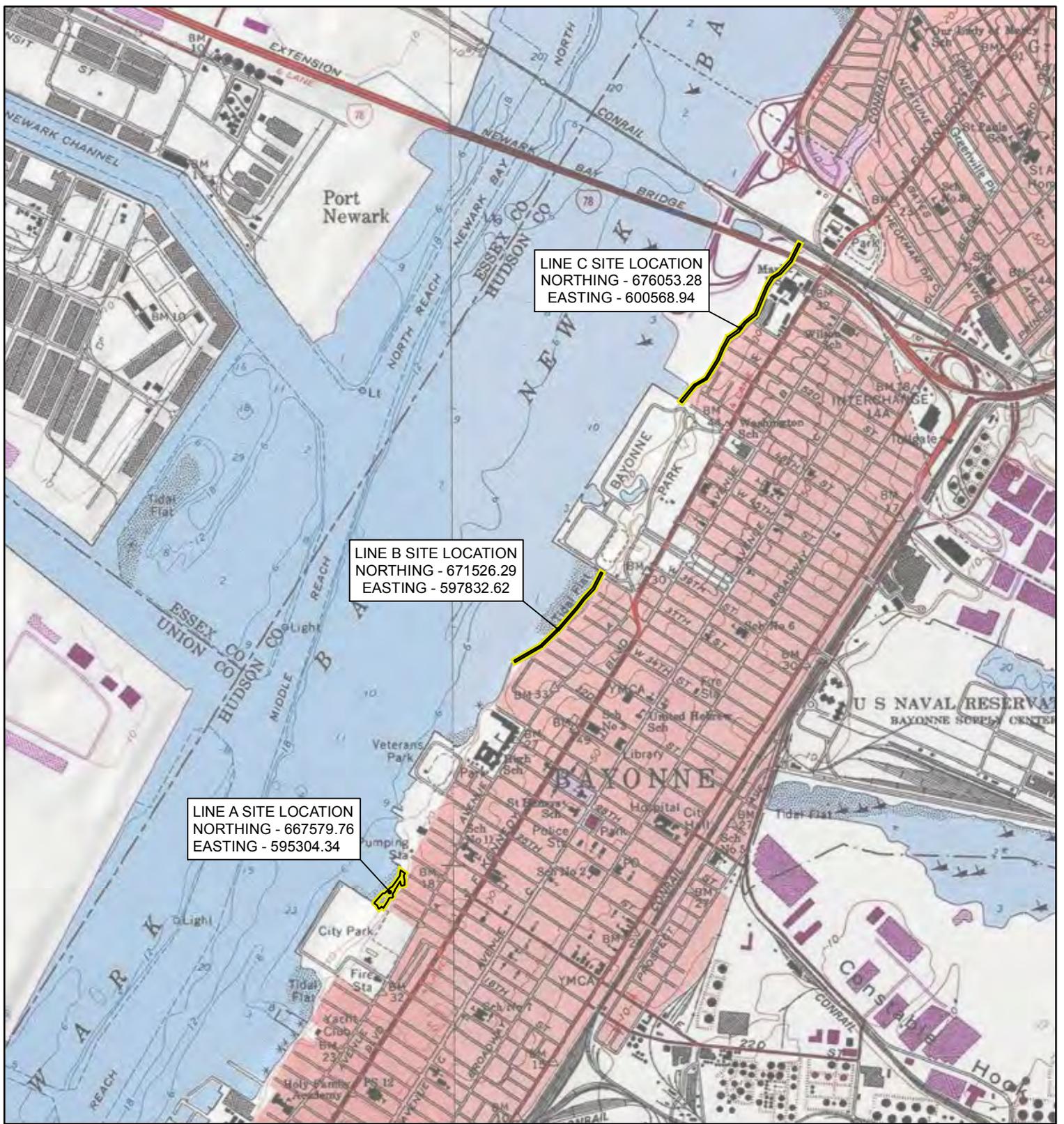
**HONEYWELL RESPONSE TEAM KEY PERSONNEL**

**Table 1: Notification and Response System Key Personnel  
City of Bayonne and Honeywell**

<b>ORGANIZATION</b>	<b>KEY PERSONNEL</b>	<b>PHONE NUMBERS</b>	<b>EMAIL</b>	<b>MAILING ADDRESS</b>
<b>Honeywell Emergency Response Contractor (ERTS)</b>	Val Garner, Senior Vice President Cal Rainey, Director of Call Center Operations Cindy Devlin, Director of Project Management	<b>Honeywell Response # 855-727-2658</b> <b>[rings to ERTS 24/7 # 800-924-6804]</b>	<a href="mailto:vgarner@ertsonline.com">vgarner@ertsonline.com</a> <a href="mailto:crainey@ertsonline.com">crainey@ertsonline.com</a> <a href="mailto:cdevlin@ertsonline.com">cdevlin@ertsonline.com</a>	Environmental Response & Training Solutions (ERTS) 11231 Phillips Industrial Blvd. E Suite 300 Jacksonville, Florida 32256
<b>Honeywell</b>	Eric Christodoulatos, Senior Remediation Manager George Pfeiffer, Construction Manager	973-455-2877 (908-625-8706 alt) 908-797-0897 (cell)	<a href="mailto:eric.christodoulatos@honeywell.com">eric.christodoulatos@honeywell.com</a> <a href="mailto:george.pfeiffer@honeywell.com">george.pfeiffer@honeywell.com</a>	Honeywell 115 Tabor Road Morris Plains, NJ 07950
<b>Honeywell Project Personnel / Consultant - WSP</b>	Dennis Nagg, Principal Engineer Peg Bonaker, Project Manager Telly Giouzelis, Project Manager/Field Services Helen Cerbone, Field Services Andrew Shust, H&S Coordinator Michael Mahnkopf, LSRP Other Project Personnel TBD	609-512-3500 (609-865-6959 cell) 609-512-3500 (484-880-0772 cell) 609-512-3500 (609-865-3592 cell) 609-433-1250 (cell) 609-512-3500 (609-638-3598 cell) 609-512-3500 (609-638-3730 cell)	<a href="mailto:dennis.nagg@wsp.com">dennis.nagg@wsp.com</a> <a href="mailto:margaret.bonaker@wsp.com">margaret.bonaker@wsp.com</a> <a href="mailto:aristotelis.giouzelis@wsp.com">aristotelis.giouzelis@wsp.com</a> <a href="mailto:helen.cerbone@wsp.com">helen.cerbone@wsp.com</a> <a href="mailto:andrew.shust@wsp.com">andrew.shust@wsp.com</a> <a href="mailto:michael.mahnkopf@wsp.com">michael.mahnkopf@wsp.com</a>	WSP USA Environment & Infrastructure Inc. 2000 Lenox Drive, 3rd Floor Lawrenceville, NJ 08648
<b>City of Bayonne</b>	Gary Chmielewski, Municipal Services Director [Other personnel to be provided as needed]	201-858-6115 (main office) (M-F, 8:00 AM to 4:30 PM)	<a href="mailto:PublicWorks@baynj.org">PublicWorks@baynj.org</a>	City of Bayonne 630 Avenue C Bayonne, NJ 07002
<b>Veolia (formerly Suez) Bayonne sewer operations and maintenance</b>	Jason Kiernan, Project Manager Marvin Williams (other personnel to be provided as needed)	Veolia - Bayonne 888-434-0518 (main number)	<a href="mailto:Jason.Kiernan.@veolia.com">Jason.Kiernan.@veolia.com</a> <a href="mailto:Marvin.Williams@veolia.com">Marvin.Williams@veolia.com</a>	110 Oak Street Bayonne, NJ 07002
<b>City of Bayonne Consultant / Engineer - CME Associates</b>	Rob Russo [Other personnel to be provided by CME as needed]	732-727-8000	<a href="mailto:rrusso@cmeusa1.com">rrusso@cmeusa1.com</a>	CME Associates 3141 Bordentown Avenue Parlin, NJ 08859
<b>City of Bayonne Contractor(s)</b>	[To be provided by City of Bayonne]	[To be provided by City of Bayonne]	[To be provided by City of Bayonne]	[To be provided by City of Bayonne]

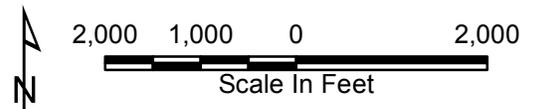
**APPENDIX B**

**SITE INFORMATION MAPS**



**Legend**

 CEA Boundary



**wood.**

ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC.

200 AMERICAN METRO BLVD, SUITE 113  
HAMILTON, NEW JERSEY 08619

**FIGURE 1: SITE LOCATION MAP**  
STUDY AREA 2 - SITE 144  
BAYONNE PIPELINE  
LINES A, B, AND C  
BAYONNE, NEW JERSEY

Source: ESRI Basemap, HERE, DeLorme, USGS, © OpenStreetMap; 2015

PROJ. NO.	3487180608	02/21/2019	REV.
DWN. BY.	WSL	CHKD BY.	MEM

Document Path: C:\Users\willang\OneDrive - Wood PLC\GIS\Projects\Honeywell\Study Area 2\Site 166\Deed Notice\Figure 1 - Site Location Map.mxd



NAD 1983 StatePlane New Jersey FIPS 2900 Feet

**LEGEND**

 SITE BOUNDARY



2,000 1,000 0 2,000  
Scale In Feet

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National

**wood.**

ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC.  
200 AMERICAN METRO BLVD, SUITE 113  
HAMILTON, NEW JERSEY 08619

**FIGURE 1  
SITE LOCATION MAP**

SITE 166 - ROUTE 440 EXTENSION  
PORTION OF BLOCK 12, LOT 2  
AND BLOCK 22, LOT 1  
BAYONNE, HUDSON COUNTY, NEW JERSEY

PROJ. NO.	3552220109	03/09/2022	REV.
DWN. BY.	WSL	CHKD BY.	EGG

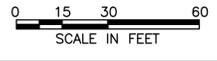
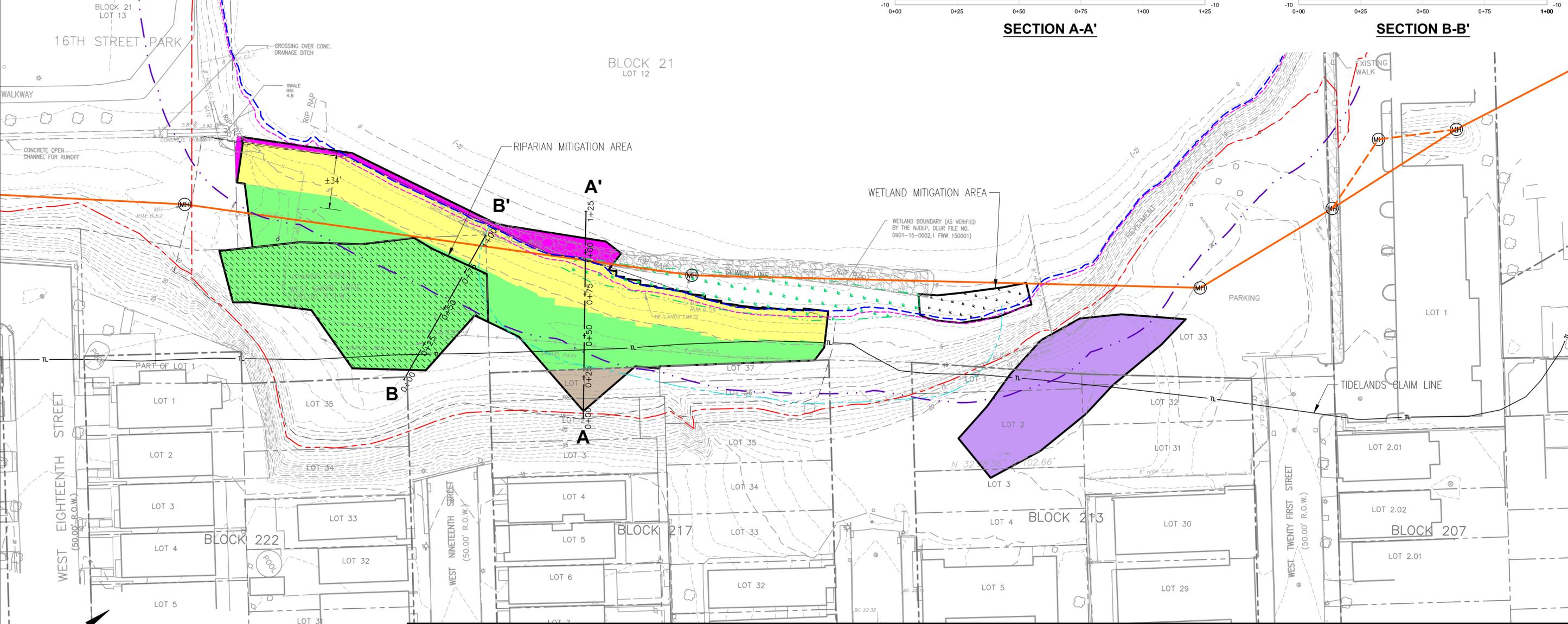
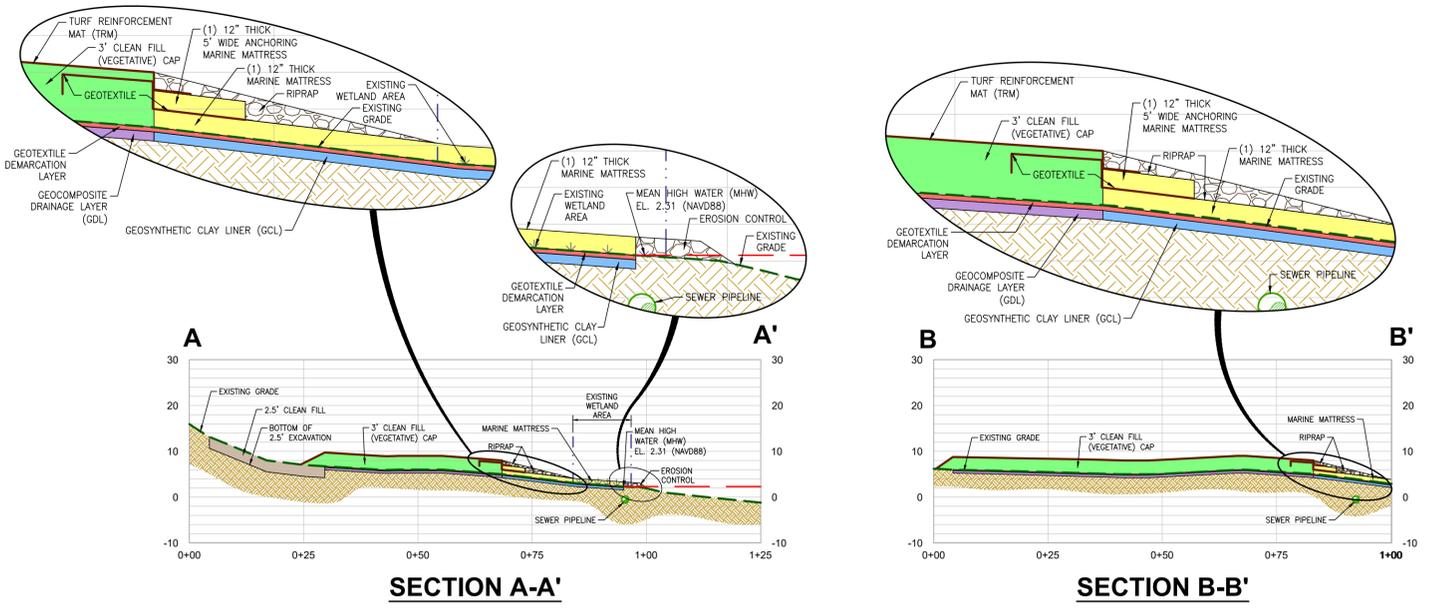
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**MAPPING REFERENCES**

- A. TOPOGRAPHIC SURVEY WAS CONDUCTED BY KENNON SURVEYING SERVICES, INC. (KSS), WARREN, NJ WITH SUPPLEMENTAL FIELD SURVEY PERFORMED BY MASER CONSULTING P.A., RED BANK, NJ.
- B. SITE TOPOGRAPHY FROM DIGITAL FILE NAMED AREAS A\_B\_C 06-17-14.dwg AS RECEIVED FROM KENNON SURVEYING SERVICE, INC. OF WARREN NEW JERSEY DATED 17 JUNE 2014 AND SUPPLEMENTAL FIELD SURVEY PERFORMED BY MASER CONSULTING P.A. ON JUNE 28 AND 29, 2016 AND PROVIDED IN A DRAWING NAMED 16001188A LINE A SURVEY DATED 12 JULY 2016. PROPERTY BOUNDARY ARE BASED ON TAX MAP SHEETS 46 AND 62.
- C. BAYONNE INTERCEPTOR PIPELINE ALIGNMENT IS BASED ON FIGURE 1 PIPELINE LOCATION MAP WEST 16TH STREET TO WEST 31ST STREET STUDY AREA 2 SITE 144, DATED 05/01/13.
- D. MHW, MLW AND SHW (NAVD88) WERE OBTAINED FROM NOAA VIA EMAIL DATED DECEMBER 22, 2014. 100 YEAR FLOOD ELEVATION IS BASED ON FLOOD INSURANCE RATE MAP, HUDSON COUNTY, NEW JERSEY, PANEL 92 OF 118, MAP NUMBER 34017C0092E, "PRELIMINARY JANUARY 30, 2015".
- E. TIDELANDS CLAIM LINE OBTAINED FROM NJDEP BUREAU OF TIDELANDS MANAGEMENT SHOWING CONVEYANCES ON NEWARK BAY; ATLAS SHEET NO. 665-2148.
- F. BOUNDARIES OF REMEDY AREAS ARE FROM PLANS ENTITLED "STUDY AREA 2 - SITE 144, LINE A, BAYONNE WESTERN INTERCEPTOR SEWER PIPELINE REMEDIAL DESIGN, BAYONNE, NEW JERSEY", REVISION C, DATED 12/04/18.

**LEGEND**

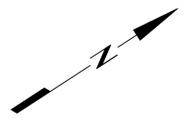
	3FT SOIL CAP COMPLETED (15,956 SF)		SEWER MANHOLE (APPROXIMATE)
	MARINE MATTRESS CAP COMPLETED (8,995 SF)		BAYONNE PIPELINE (APPROXIMATE)
	EX-1 EXCAVATION AREA COMPLETED TO UNRESTRICTED USE (655 SF)		MHW (EL 2.1)
	AUGMENTATION OF EXISTING RIPRAP COMPLETED (1,371 SF)		SHW (EL 2.63)
	PROPOSED EX-2 EXCAVATION AREA		50FT- RIPARIAN LINE
	RIPARIAN MITIGATION AREA: DEED RESTRICTED AREA TO BE PROTECTED		WETLAND TRANSITION
	WETLAND MITIGATION AREA TO BE PROTECTED		FWA (100 YR FLOOD EL 14.0)
			WETLANDS



WOOD PROJECT No. 3487210107 DRAWING: FIG 4 - RA AREAS AND CAP DETAILS		<b>wood.</b> ENVIRONMENT & INFRASTRUCTURE SOLUTIONS 200 AMERICAN METRO BLVD, SUITE 113 HAMILTON, NEW JERSEY 08619	
PREPARED/DATE: SPM 3/04/22	CHECKED/DATE: MEM 3/04/22		
REV.	DATE	STATUS	PRPD BY / CHKD BY

**FIGURE 4**  
REMEDIAL ACTION AREAS AND CAP DETAILS  
STUDY AREA 2 - SITE 144  
BAYONNE PIPELINE - LINE A  
BAYONNE, NEW JERSEY

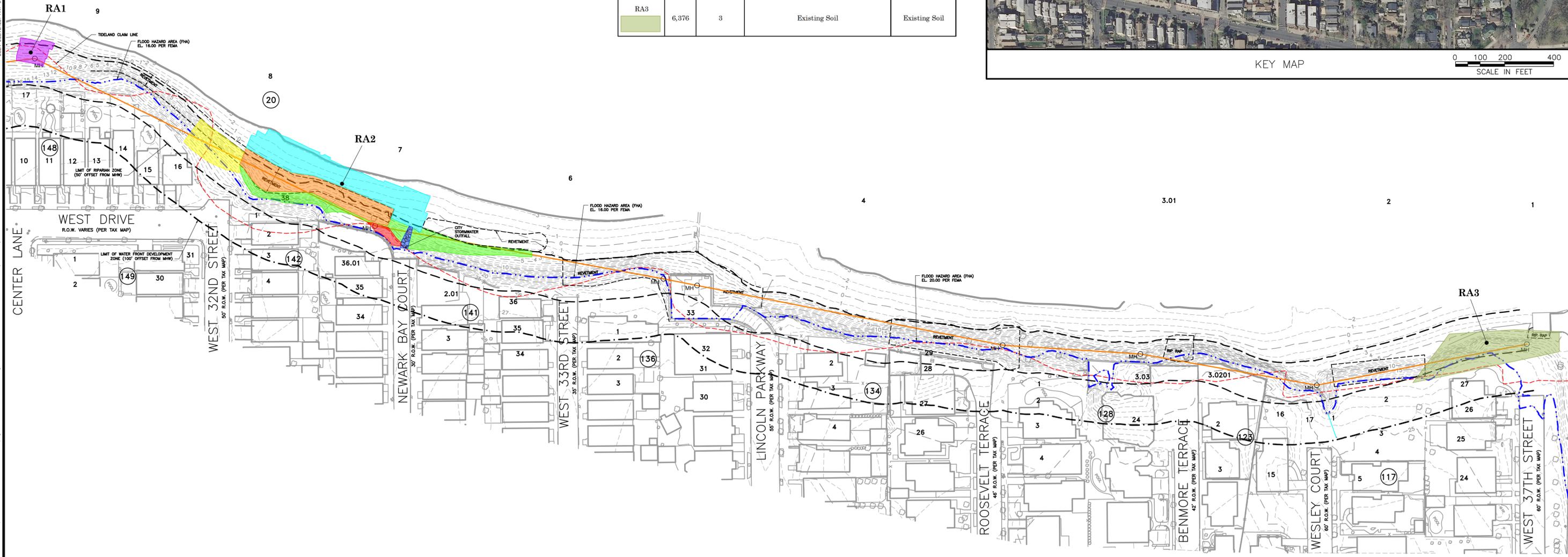
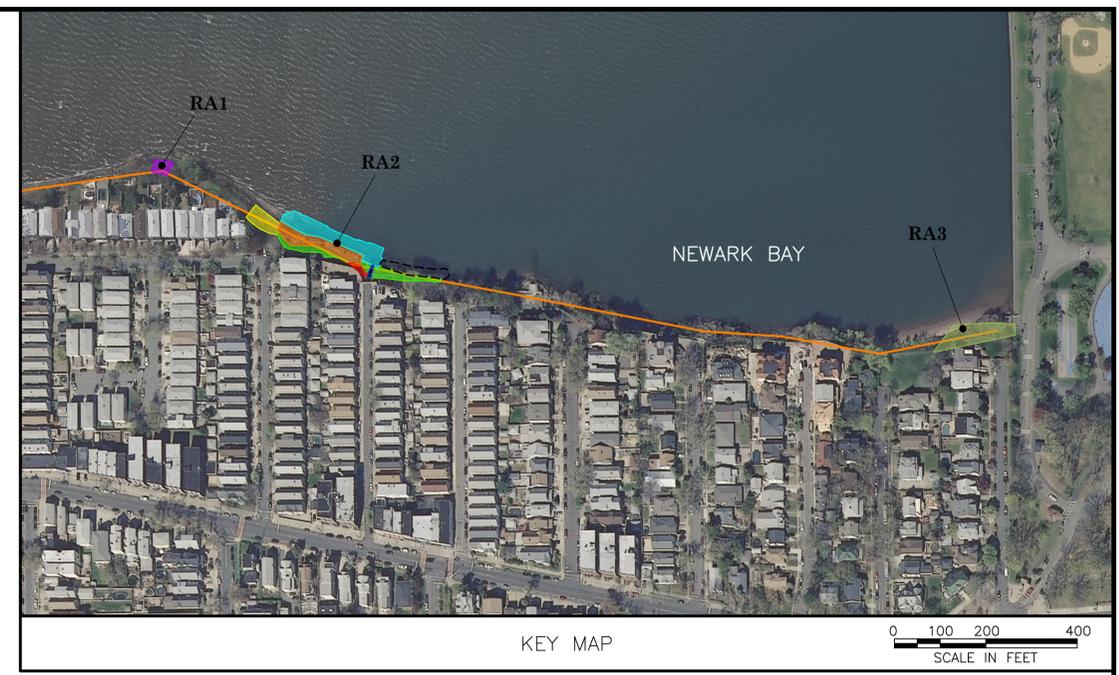
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**LEGEND**

- MH ○ SEWER MANHOLE (APPROXIMATE)
- BAYONNE PIPELINE (APPROXIMATE)
- - - BLOCK BOUNDARY PER KENNON
- - - LOT BOUNDARY PER KENNON
- (22) BLOCK NUMBER
- 1 LOT NUMBER
- 100-YEAR FLOOD HAZARD ELEVATION
- TIDELANDS CLAIM LINE
- MEAN HIGH WATER LINE
- 50' RIPARIAN LINE
- 100' WATERFRONT DEVELOPMENT LINE
- REMEDIAL AREA DEFERRED BY TIDELANDS

Remedial Area	Area (sf)	Cap Thickness (ft)	Material (Top to Bottom)	Cap Type
RA1	1,076	1	Rip-Rap Stone / Pressure Grout Cement	Rip-Rap / Pressure Grout (RPG)
RA2	2,423	3	Existing Soil	Existing Soil
RA2	4,995	1	Rip-Rap Stone / Pressure Grout Cement	Rip-Rap / Pressure Grout (RPG)
RA2	7,205	1	Clean fill (stone filled marine mattress); Geotextile demarcation layer; Geosynthetic clay liner	Marine Mattress Stone Fill (PMM) / Geosynthetic Clay Liner
RA2	4,364	1	Vegetative cover (Filtrexx GroSoxx®); Geotextile demarcation layer; Geosynthetic clay layer (a.k.a. PVS Cap)	Soil Vegetative / Geosynthetic Clay Liner
RA2	214	1	Rip-Rap Stone Over Non-Woven Geotextile	Rip-Rap Stone
RA3	6,376	3	Existing Soil	Existing Soil



- PLAN REFERENCES:**
- SITE TOPOGRAPHY FROM DIGITAL FILE ENTITLED AREAS A\_B\_C 06-17-14.dwg AS RECEIVED FROM KENNON SURVEYING SERVICES, INC. OF WARREN NEW JERSEY DATED 17 JUNE 2014.
  - BAYONNE SEWER PIPELINE ALIGNMENT IS BASED ON FIGURE 3C, PIPELINE LOCATION MAP, STEPHEN GREGG PARK TO NEW JERSEY TURNPIKE AUTHORITY.
  - MHW, MLW, SHW OBTAINED FROM NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (EMAIL DATED NOVEMBER 23, 2015). ALL ELEVATIONS ARE REFERENCED TO NAVD83.
  - 100 YEAR FLOOD ELEVATION IS BASED ON FIRM FLOOD INSURANCE RATE MAP, HUDSON COUNTY, NEW JERSEY(ALL JURISDICTIONS), PANEL 111 OF 118, MAP NUMBER 34017C0111E, "PRELIMINARY DECEMBER 20, 2013."
  - TIDELAND CLAIM LINE OBTAINED FROM NJDEP BUREAU OF TIDELANDS MANAGEMENT SHOWING CONVEYANCES ON NEWARK BAY, ATLAS SHEET NO. 645-2148, NEW JERSEY DEPARTMENT OF TIDELANDS MANAGEMENT, TRENTON, NJ, 1971-1991.
  - PROPERTY LINES (OTHER THAN BLOCK 142) PER STATE OF NEW JERSEY COMPOSITE OF PARCELS DATA, NEW JERSEY STATE PLANE NAD83, NJ OFFICE OF INFORMATION TECHNOLOGY (NJGIT) AND THE OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS (OGIS); 2020/11.
  - REMEDIAL ACTION LIMITS AND BLOCK 142 PROPERTY LINES PER "FINAL ASBUILT STUDY AREA 2 - REMEDIAL AREAS RA-1 & RA-2", DATED 04/23/19, BY KENNON SURVEYING SERVICES, INC., WARREN, NEW JERSEY.

REV.	DATE	STATUS	SPM PRPD BY	MEM CHKD BY
1	11/12/20	UPDATED PROPERTY LINES AND MANHOLE, CLARIFIED TABLE		

Wood Project No. 3487180608  
Drawing: FIGURE 5 RA OVERVIEW

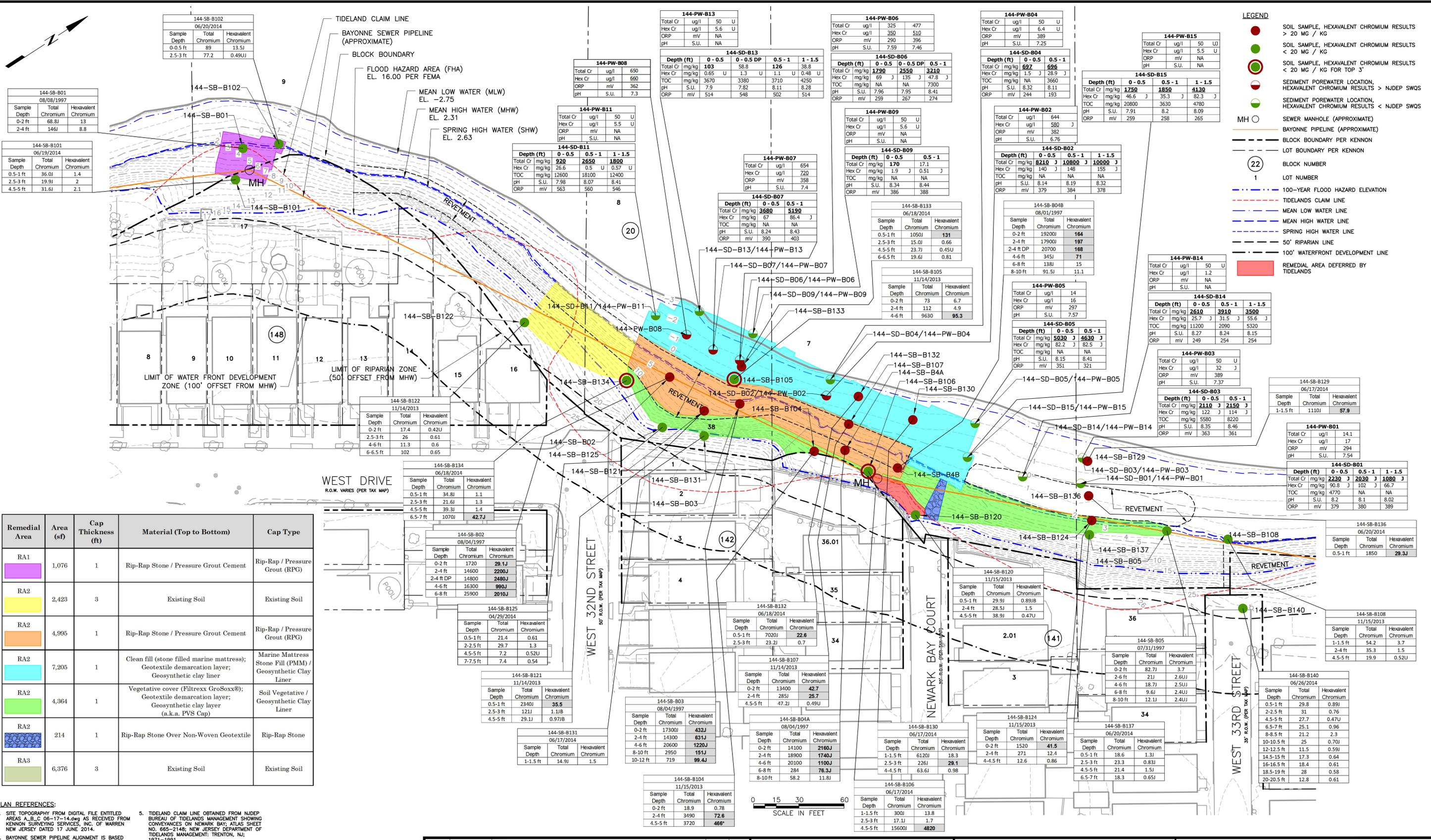
PREPARED/DATE: SPM 6/04/19  
CHECKED/DATE: MEM 6/05/19

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200 AMERICAN METRO BLVD, SUITE 113  
HAMILTON, NEW JERSEY 08619

**FIGURE 5**  
REMEDIAL ACTION OVERVIEW  
STUDY AREA 2, SITE 144  
BAYONNE PIPELINE LINE B  
BAYONNE, NEW JERSEY

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Remedial Area	Area (sf)	Cap Thickness (ft)	Material (Top to Bottom)	Cap Type
RA1	1,076	1	Rip-Rap Stone / Pressure Grout Cement	Rip-Rap / Pressure Grout (RPG)
RA2	2,423	3	Existing Soil	Existing Soil
RA2	4,995	1	Rip-Rap Stone / Pressure Grout Cement	Rip-Rap / Pressure Grout (RPG)
RA2	7,205	1	Clean fill (stone filled marine mattress); Geotextile demarcation layer; Geosynthetic clay liner	Marine Mattress Stone Fill (PMM) / Geosynthetic Clay Liner
RA2	4,364	1	Vegetative cover (Fitrex GroSoxx®); Geotextile demarcation layer; Geosynthetic clay layer (a.k.a. PVS Cap)	Soil Vegetative / Geosynthetic Clay Liner
RA2	214	1	Rip-Rap Stone Over Non-Woven Geotextile	Rip-Rap Stone
RA3	6,376	3	Existing Soil	Existing Soil

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  - TIDELAND CLAIM LINE OBTAINED FROM NJDEP BUREAU OF TIDELANDS MANAGEMENT SHOWING CONVEYANCES ON NEWARK BAY, ATLAS SHEET NO. 645-2148, NEW JERSEY DEPARTMENT OF TIDELANDS MANAGEMENT, TRENTON, NJ, 1971-1991
  - PROPERTY LINES (OTHER THAN BLOCK 142) PER STATE OF NEW JERSEY COMPOSITE OF PARCELS DATA, NEW JERSEY STATE PLANE NAD83, NJ OFFICE OF INFORMATION TECHNOLOGY (NJOT) AND THE OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS (OGIS): 2020/11.
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REV.	DATE	STATUS	SPM PRPD BY	MEM CHKD BY
1	11/12/20	UPDATED PROPERTY LINES AND MANHOLE, CLARIFIED TABLE	SPM	MEM

Wood Project No. 3487180608  
 Drawing: FIGURE 6A-6B RA1, RA2, RA3 PLAN

PREPARED/DATE: SPM 6/06/19  
 CHECKED/DATE: MEM 6/06/19

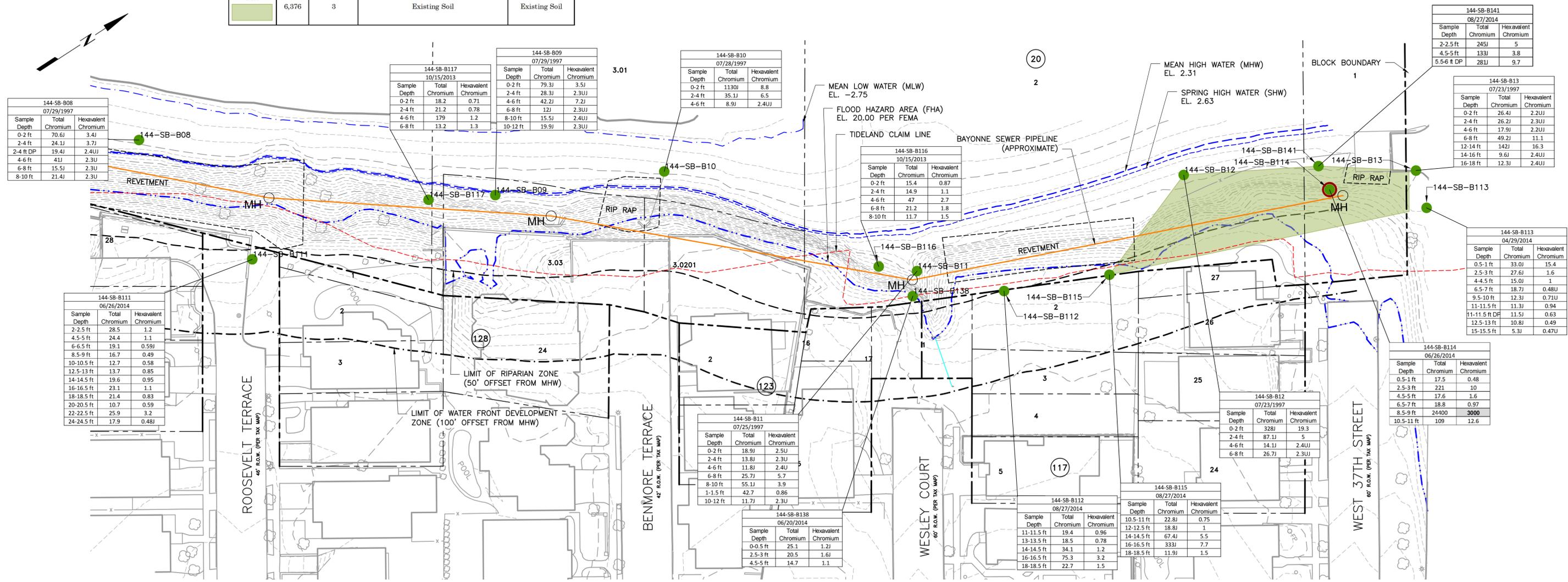
**wood.**  
 ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC.  
 200 AMERICAN METRO BLVD, SUITE 113  
 HAMILTON, NEW JERSEY 08619

**FIGURE 6A**  
 SUMMARY OF REMEDIAL ACTIONS (RA1, RA2)  
 STUDY AREA 2, SITE 144  
 BAYONNE PIPELINE LINE B  
 BAYONNE, NEW JERSEY

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- LEGEND**
- SOIL SAMPLE, HEXAVALENT CHROMIUM RESULTS < 20 MG / KG
  - SOIL SAMPLE, HEXAVALENT CHROMIUM RESULTS < 20 MG / KG FOR TOP 3'
  - MH ○ SEWER MANHOLE (APPROXIMATE)
  - BAYONNE PIPELINE (APPROXIMATE)
  - BLOCK BOUNDARY PER KENNON
  - - - LOT BOUNDARY PER KENNON
  - (22) BLOCK NUMBER
  - 1 LOT NUMBER
  - 100-YEAR FLOOD HAZARD ELEVATION
  - TIDELANDS CLAIM LINE
  - MEAN LOW WATER LINE
  - MEAN HIGH WATER LINE
  - SPRING HIGH WATER LINE
  - 50' RIPARIAN LINE
  - 100' WATERFRONT DEVELOPMENT LINE
  - REMEDIAL AREA DEFERRED BY TIDELANDS

Remedial Area	Area (sf)	Cap Thickness (ft)	Material (Top to Bottom)	Cap Type
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RA2	2,423	3	Existing Soil	Existing Soil
RA2	4,995	1	Rip-Rap Stone / Pressure Grout Cement	Rip-Rap / Pressure Grout (RPG)
RA2	7,205	1	Clean fill (stone filled marine mattress); Geotextile demarcation layer; Geosynthetic clay liner	Marine Mattress Stone Fill (PMM) / Geosynthetic Clay Liner
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RA2	214	1	Rip-Rap Stone Over Non-Woven Geotextile	Rip-Rap Stone
RA3	6,376	3	Existing Soil	Existing Soil



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  - PROPERTY LINES (OTHER THAN BLOCK 142) PER STATE OF NEW JERSEY COMPOSITE OF PARCELS DATA, NEW JERSEY STATE PLANE NAD83, NJ OFFICE OF INFORMATION TECHNOLOGY (NJGIT) AND THE OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS (OGIS), 02/07/11.
  - REMEDIAL ACTION LIMITS AND BLOCK 142 PROPERTY LINES PER "FINAL ASBUILT STUDY AREA 2 - REMEDIAL AREAS RA-1 & RA-2", DATED 04/23/19, BY KENNON SURVEYING SERVICES, INC., WARREN, NEW JERSEY.

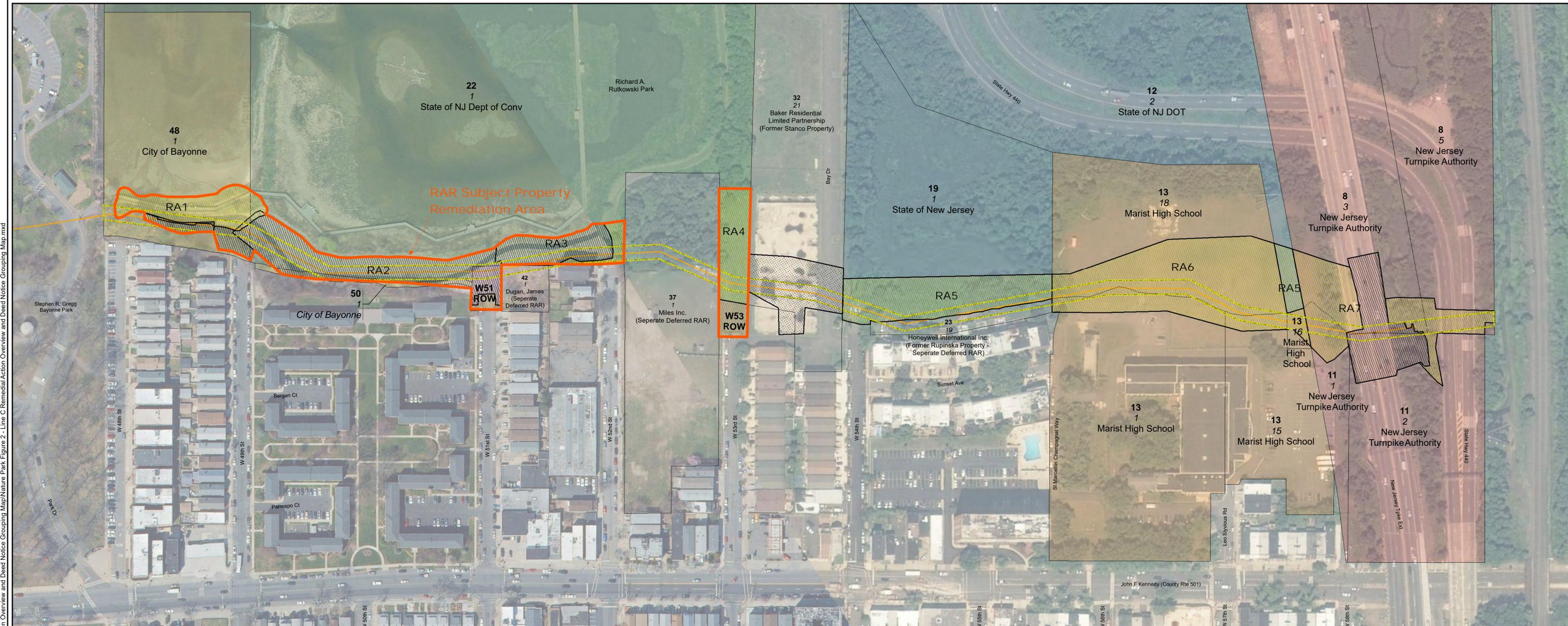
1		11/12/20	UPDATED PROPERTY LINES, CLARIFIED TABLE	SPM	MEM
REV.	DATE		STATUS	PRPD BY	CHKD BY
				PREPARED/DATE: SPM 6/04/19	CHECKED/DATE: MEM 6/05/19

Wood Project No. 3487180608  
Drawing: FIGURE 6A-6B RA1, RA2, RA3 PLAN

**wood.**

ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC.  
200 AMERICAN METRO BLVD, SUITE 113  
HAMILTON, NEW JERSEY 08619

**FIGURE 6B**  
SUMMARY OF REMEDIAL ACTIONS (RA3)  
STUDY AREA 2, SITE 144  
BAYONNE PIPELINE LINE B  
BAYONNE, NEW JERSEY



Group #	Block	Lot	Property Owner	Current Land Use	Remedy	Remedial Action Report
1	8	3	New Jersey Turnpike Authority	15F - Exempt Misc	RA-7: Existing Soil Cap; Stone Cap; Clean Fill/ Geocomposite Drainage Layer Cap; Existing Revetment/Stone Cap	New Jersey Turnpike Authority RAR; September 2018
	8	5	New Jersey Turnpike Authority	15F - Exempt Misc		
	11	1	New Jersey Turnpike Authority	15F - Exempt Misc		
2A	12	2	State of NJ DOT	15C - Exempt Public	RA-5: Existing Soil Cap	Block 13, Lots 1, 15, 16, 18; Block 12, Lot 2; Block 19, Lot 1 RAR; June 2019
	19	1	State of NJ	15C - Exempt Public		
3	13	1	Marist H.S.	15B - Exempt Other School	RA-6: Existing Soil Cap	Richard A. Rutkowski Park (City of Bayonne RAR; November 2019)
	13	15	Marist H.S.	15B - Exempt Other School		
	13	16	Marist H.S.	15B - Exempt Other School		
	13	18	Marist H.S.	15B - Exempt Other School		
4	22	1	State of NJ	15C - Exempt Public (Park)	RA-2: Vegetated Clean Fill Cap; Asphalt Walkway RA-3: Vegetated Clean Fill/Geocomposite Drainage Layer Cap; Asphalt Walkway RA-4: Existing Soil Cap	
	48	1	City of Bayonne	15C - Exempt Public (Park)	RA-1: Soil Vegetative/Geocomposite Clay Liner Cap; RA-2: Vegetated Clean Fill Cap; Asphalt Walkway	
5	50	1	City of Bayonne	15C - Exempt Public (Park)	RA-2: Vegetated Clean Fill Cap; Asphalt Walkway	
	W51 St		City of Bayonne	Right-of-Way	RA-2: Vegetated Clean Fill Cap; Vegetated Clean Fill/Geocomposite Drainage Layer Cap; Existing Asphalt Cap	
6	W53 St		City of Bayonne	Right-of-Way	RA-4: Existing Soil Cap	

**Legend**

- Site Boundary
- Bayonne Sewer Pipeline

**Remedial Area (RA) Type**

- Existing Soil Cap
- Completed Cap (2018)
- Remediation Complete (Former Stanco Property - See Note 3)

**Deed Notice Grouping (Parcels)**

- Group 1 - New Jersey Turnpike Authority
- Group 2 - State of New Jersey
- Group 3 - Marist H.S.
- Group 4 - State of New Jersey
- Group 5 - City of Bayonne
- Group 6 - City of Bayonne
- Seperate Deferred RAR

**Parcel Label**

2048 Block  
10.A Lot

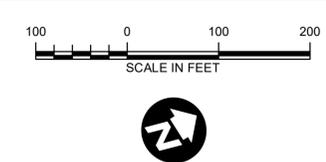
**Notes:**

- RA - Remedial Area (per Dec 2015 RAWP)
- ROW - Right-of-way
- Remediation completed, No Further Action Unrestricted Use for chromium issued 9/17/2007.
- Remedial Areas are depicted for illustrative purposes only. See Remedial Action Report for actual limits.

**Source:**

State of New Jersey Composite of Parcels Data, New Jersey State Plane NAD83; NJ Office of Information Technology (NJ OIT) and the Office of Geographic Information Systems (OGIS); 2013/09.

ESRI Imagery Basemap; Esri, DigitalGlobe; 7/30/2013.



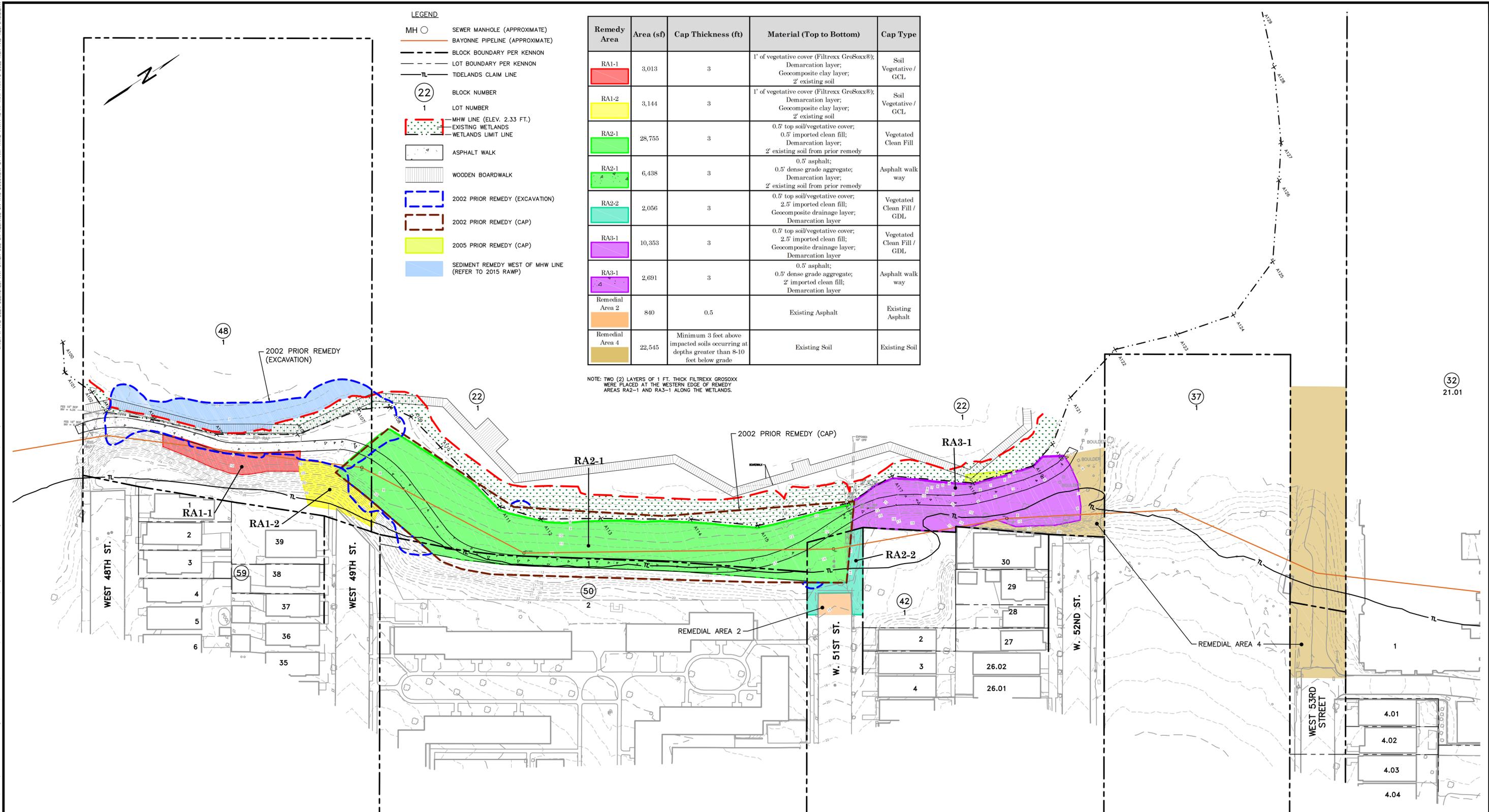
REV.	DATE	STATUS	Prepared By	Checked By

Wood Project No. 3487180608	Prepared/Date WSL 09/04/2018	Checked/Date BW 09/26/2019
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**Figure 2**  
**Line C Remedial Action Overview**  
**and Deed Notice Grouping Map**  
Study Area 2 - Line C  
Bayonne, New Jersey

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NOTE: TWO (2) LAYERS OF 1 FT. THICK FILTREXX GROSOXX WERE PLACED AT THE WESTERN EDGE OF REMEDIY AREAS RA2-1 AND RA3-1 ALONG THE WETLANDS.

- PLAN REFERENCES:**
- SITE TOPOGRAPHY FROM DIGITAL FILE ENTITLED AREAS A,B,C 06-17-14.dwg AS RECEIVED FROM KENNON SURVEYING SERVICES, INC. OF WARREN NEW JERSEY DATED 17 JUNE 2014.
  - BAYONNE SEWER PIPELINE ALIGNMENT IS BASED ON FIGURE 3C, PIPELINE LOCATION MAP, STEPHEN GREGG PARK TO NEW JERSEY TURNPIKE AUTHORITY.
  - MHW, MLW, SHW OBTAINED FROM NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (EMAIL DATED NOVEMBER 23, 2015). ALL ELEVATIONS ARE REFERENCED TO NAVD88.
  - STATE OF NEW JERSEY COMPOSITE OF PARCELS DATA, NEW JERSEY STATE PLANE NAD83, NJ OFFICE OF INFORMATION TECHNOLOGY (NJOT) AND THE OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS (OGIS); 2013/09.
  - WETLAND BOUNDARY DELINEATED BY AMEC E&I, INC., ON MARCH 14, 2013.

- NOTES:**
- REMEDIAL ACTION LIMITS PER "REMEDIAL ACTION ASSULT", DATED JUNE 2016, BY ARECON LTD., HAMILTON, NEW JERSEY.
  - PARCEL BOUNDARIES FROM AN ELECTRONIC FILE: "PROPERTY LINES TO AMECFW\_01-11-17NEW BLOCK.DWG" PROVIDED BY KENNON SURVEYING SERVICES, INC. OF WARREN NEW JERSEY.
  - DRAFT REMEDIAL ACTION REPORT FOR SITE 144, C-LINE DATED JUNE 2005, PREPARED BY EQUITY ENVIRONMENTAL.
  - REMEDIAL ACTION REPORT, STUDY AREA 2, SITE 144 BAYONNE PIPELINE C, BAYONNE, NEW JERSEY, DATED APRIL 2006 PREPARED BY EQUITY ENVIRONMENTAL.
  - TIDELANDS CLAIM LINE OBTAINED FROM NJDEP BUREAU OF TIDELANDS MANAGEMENT VECTOR DIGITAL DATA, REVISED JULY 2004.

- AREAS WEST OF THE MEAN HIGH WATER (MHW) LINE ARE REFERRED TO AS THE SEDIMENT REMEDIY. AS DISCUSSED IN THE ECOLOGICAL RISK ASSESSMENT REPORT (APPENDIX E) OF THE NJDEP-APPROVED REMEDIAL ACTION WORK PLAN (RAWP), NO ACTIVE REMEDIY ACTION WEST OF THE MHW LINE IS REQUIRED. REFER TO FIGURE 4B OF THE RAWP FOR SEDIMENT AND PORE WATER SAMPLE RESULTS.
- TWO (2) LAYERS OF 1 FT. THICK FILTREXX GROSOXX WERE PLACED AT THE WESTERN EDGE OF REMEDIY AREAS RA2-1 AND RA3-1 ALONG THE WETLANDS.

REV.	DATE	STATUS	PRPD BY	CHKD BY

Wood Project No. 3487180608  
Drawing: RA OVERVIEW

PREPARED/DATE: SPM 10/22/19  
CHECKED/DATE: MEM 10/22/19

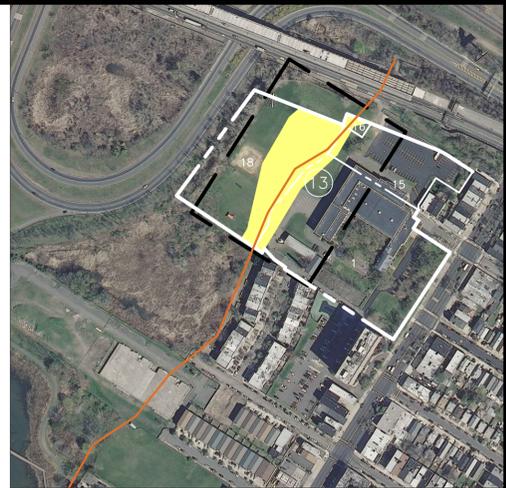
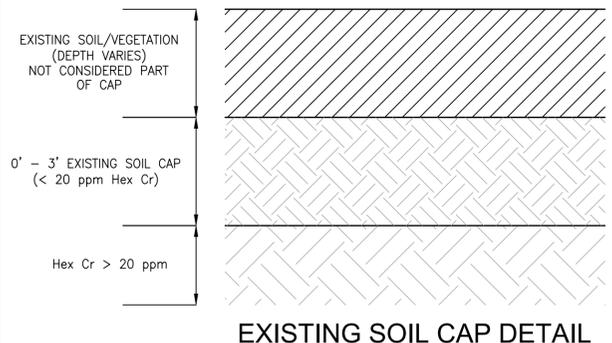
**wood.**

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200 AMERICAN METRO BLVD, SUITE 113  
HAMILTON, NEW JERSEY 08619

**FIGURE 6**  
REMEDIAL ACTION OVERVIEW  
STUDY AREA 2, SITE 144  
BAYONNE PIPELINE SECTION C  
RICHARD A. RUTKOWSKI PARK  
BAYONNE, NEW JERSEY

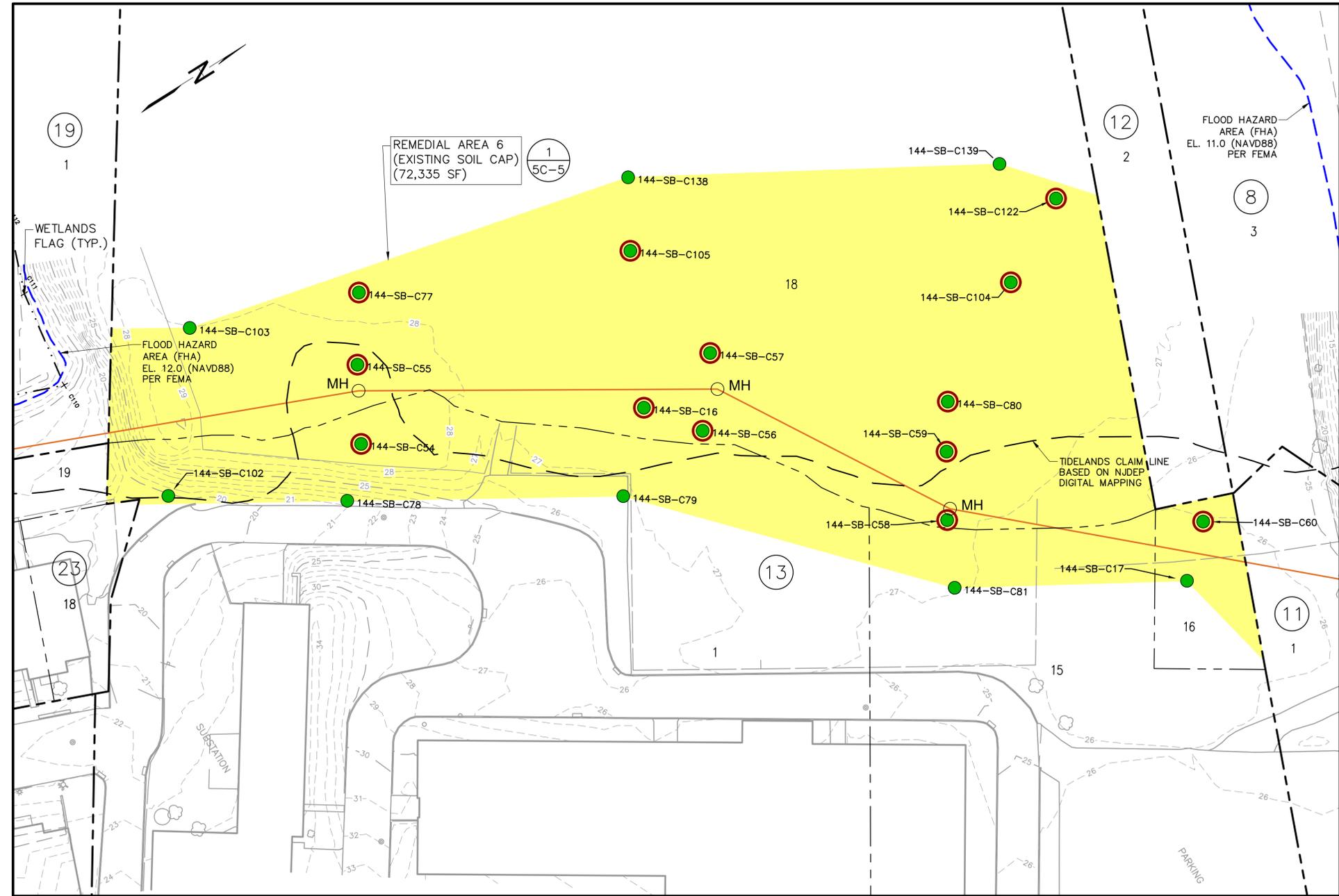


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- LEGEND**
- SOIL SAMPLE, HEXAVALENT CHROMIUM RESULTS < 20 MG / KG
  - SOIL SAMPLE, HEXAVALENT CHROMIUM RESULTS < 20 MG / KG FOR TOP 3'
  - 148 BLOCK NUMBER
  - 4 LOT NUMBER
  - MH ○ SEWER MANHOLE (APPROXIMATE)
  - BAYONNE PIPELINE (APPROXIMATE)
  - BLOCK BOUNDARY
  - LOT BOUNDARY
  - FLOOD HAZARD LINE
  - TIDELANDS CLAIM LINE
  - EXISTING SOIL CAP

- PLAN REFERENCES:**
1. SITE TOPOGRAPHY FROM DIGITAL FILE ENTITLED AREAS A\_B\_C 06-17-14.dwg AS RECEIVED FROM KENNON SURVEYING SERVICES, INC. OF WARREN, NEW JERSEY DATED 17 JUNE 2014.
  2. 100 YEAR FLOOD ELEVATION IS BASED ON FIRM FLOOD INSURANCE RATE MAP, HUDSON COUNTY, NEW JERSEY (ALL JURISDICTIONS), PANEL 103 OF 118, MAP NUMBER 34017C0103E, "REVISED PRELIMINARY JANUARY 30, 2015".
  3. TIDELANDS CLAIM LINE OBTAINED FROM NJDEP BUREAU OF TIDELANDS MANAGEMENT VECTOR DIGITAL DATA, REVISED JULY 2004.
  4. BAYONNE SEWER PIPELINE ALIGNMENT IS BASED ON FIGURE 3C, PIPELINE LOCATION MAP, STEPHEN GREGG PARK TO NEW JERSEY TURNPIKE AUTHORITY.
  5. STATE OF NEW JERSEY COMPOSITE OF PARCELS DATA, NEW JERSEY STATE PLANE NAD83, NJ OFFICE OF INFORMATION TECHNOLOGY (NJOIT) AND THE OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS (OGIS); 2013/09.
  6. WETLAND BOUNDARY DELINEATED BY AMEC E&I, INC., ON MARCH 14, 2013.



REV.	DATE	STATUS	PRPD BY	CHKD BY

WOOD, PROJECT No. 3482190687  
DRAWING: 3482190687-5200-RASO-0000

PREPARED/DATE:  
CW 03/01/19

CHECKED/DATE:  
MM 03/01/19

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200 AMERICAN METRO BLVD, SUITE 113  
HAMILTON, NEW JERSEY 08619

**FIGURE 4**  
**REMEDIAL ACTION SUMMARY**  
STUDY AREA 2 SITE 144  
BLOCK 13, LOTS 1, 15, 16, & 18  
BAYONNE, NEW JERSEY

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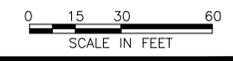


**LEGEND**

- ⊙ SANITARY SEWER MANHOLE
- B/L BLOCK & LOT
- x- EXISTING 6' CHAIN LINK FENCE
- F- EXISTING NJTA FIBER OPTIC CABLE
- EXISTING CURBLINE
- BAYONNE PIPELINE (APPROXIMATE)
- - - TIDELANDS CLAIM LINE
- - - APPROXIMATE BLOCK/LOT LINES
- BRIDGE PIER & FOOTINGS
- NJ TURNPIKE AUTHORITY RIGHT-OF-WAY
- FORMER IRM CAP AREAS
- EXISTING SOIL CAP
- ENGINEERING CONTROL CAP
- AREA A (SEE REMEDY AREAS TABLE)
- AREA B (SEE REMEDY AREAS TABLE)
- AREA B POLYMERIC MARINE MATTRESS (3'-0" THICK)
- AREA C (SEE REMEDY AREAS TABLE)
- AREA D (SEE REMEDY AREAS TABLE)
- AREA E POLYMERIC MARINE MATTRESS (1'-0" THICK)
- AREA E (SEE REMEDY AREAS TABLE)
- STONE

REMEDY AREAS			
LOCATION	COMPLETED AREA (SF)	CAP THICKNESS	MATERIAL (BOTTOM TO TOP)
A	11,925	3'-0"	GDL AND ORANGE DEMARCATION LAYER TOPPED WITH 2.5' OF CLEAN REUSE MATERIAL AND DGA, 6" OF AASHTO #1 STONE ON TOP UNDERLAIN WITH 16 OZ NON-WOVEN GEOTEXTILE FABRIC
B	5,480	3'-0"	16 OZ NON-WOVEN FABRIC AND ORANGE DEMARCATION LAYER, PMM (2 SETS OF 18 INCH) AND 3' OF AASHTO #1 STONE PLACED IN BETWEEN
C	500	3'-0"	GDL AND ORANGE DEMARCATION LAYER, 2' OF DGA, 1' OF AASHTO #1 STONE ON TOP
D	830	3'-0"	GDL AND ORANGE DEMARCATION LAYER, 3' OF AASHTO #1 STONE ON TOP
E	1,955	1'-0" + REVETMENT	PMM FILLED WITH AASHTO #1 STONE
E	N/A EXISTING	VARIABLE	REVTMENT BLOCK + DGA SUBGRADE

- REFERENCE MAPS**
- MAP ENTITLED "NEW JERSEY STATE HIGHWAY DEPARTMENT, GENERAL PROPERTY PARCEL MAP, ROUTE 440 FREEWAY SECTION 2, FROM 63RD STREET TO BAYONNE BRIDGE", DATED JUNE 1965, SHEETS 4 THROUGH 8.
  - MAP ENTITLED "NEW JERSEY TURNPIKE AUTHORITY, NEW JERSEY TURNPIKE, NEWARK BAY - HUDSON COUNTY EXTENSION, PARCEL PROPERTY MAP, CITY OF BAYONNE, HUDSON COUNTY", SHEETS 1 AND 2.
  - MAP ENTITLED "PLAN & PROFILE, INTERCEPTING SEWER, BAYONNE N.J., 1949-50, CLYDE POTTS ASSOCIATES", SUPPLIED BY THE CITY OF BAYONNE SEWERAGE AUTHORITY.
  - MAP ENTITLED "AS-BUILT SURVEY" WAS PERFORMED BY KELLER & KIRKPATRICK, INC. ON 05/19/10 AND LAST REVISED 02/22/11
  - MAP ENTITLED "EAST APPROACH LAND PIERS PIER ELEVATIONS -PIERS E29 TO E33" PREPARED BY HOWARD, NEEDLES, TAMMEN & BERGDORF, SHEET 12 OF 16, LAST REVISED 01/05/54.
  - MAP ENTITLED "EAST APPROACH LAND PIERS FOUNDATION PLAN" PREPARED BY HOWARD, NEEDLES, TAMMEN & BERGDORF, SHEET 3 OF 16, LAST REVISED 01/05/54.
  - MAP ENTITLED "EAST APPROACH LAND PIERS PIER E33" PREPARED BY HOWARD, NEEDLES, TAMMEN & BERGDORF, SHEET 13A OF 16, LAST REVISED 07/24/54.
  - MAP ENTITLED "REMEDIATION ACTION, SITE LOCATION: SA=2 LINE C-NJTP SITE 144, AS-BUILT ELEVATION" PREPARED BY ARECON LTD, FIGURE 2, DATED NOV, 2017.
- DRAWING NOTES:**
- TIDELANDS CLAIMS LINE SHOWN HEREON DEPICTS NATURAL WATERWAYS NOW OR FORMERLY TIDE-FLOWED AT MEAN HIGH WATER AS COMPILED BY NJDEP BETWEEN 1977 AND 1991. THIS DATA HAS BEEN INSERTED INTO THIS DRAWING FROM REFERENCE MAPS GIVEN ABOVE. CONDITIONS AND RESTRICTIONS CONTAINED ON MAP APPLY TO THE USE OF THIS INFORMATION. FOR PURPOSES OF THIS DRAWING, THIS LINE HAS BEEN HELD AS THE DIVISION LINE BETWEEN UPLANDS AND RIPARIAN LANDS, REFERRED TO IN DEEDS OF RECORD AS THE HIGH WATER LINE.
  - THIS DRAWING IS SUBJECT TO EASEMENTS OF RECORD AND ANY OTHER PERTINENT FACTS WHICH A TITLE SEARCH MIGHT DISCLOSE.
  - HORIZONTAL DATUM IS BASED UPON THE NEW JERSEY SYSTEM OF PLANE COORDINATES (N.J.S.P.C.), N.A.D. '83 AS DETERMINED BY G.P.S. METHODOLOGY.
  - VERTICAL DATUM IS BASED UPON NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.
  - UTILITY LOCATIONS SHOWN HEREON ARE FROM ABOVE GROUND OBSERVATIONS ONLY.
  - LOTS / BLOCKS WITHIN THE NJTA PROPERTY ARE NOT SHOWN; REFER TO OTHER BAR FIGURES FOR THIS INFORMATION.
  - SEE FIGURE 6 FOR ENGINEERING CONTROL DETAILS.
  - SAMPLE LOCATION IDS FOR BORINGS 144-SB-501 THROUGH 144-SB-537 HAVE BEEN REVISED TO READ 144-SB-C501 THROUGH 144-SB-C537 TO REFLECT THAT THE SAMPLES WERE COLLECTED FROM A LOCATION ALONG LINE C OF SITE 144. THIS DIFFERS FROM THE FIELD SAMPLE ID NOMENCLATURE FOR THESE SAMPLES. THE FIELD SAMPLE IDS REMAIN AS THEY WERE REPORTED TO THE LABORATORY FOR ANALYSIS. THE FOLLOWING BORING LOCATIONS WERE CORRECTED AND SUPERCEDE LOCATIONS DEPICTED IN THE 2014 RR AND/OR 2015 RAWP: 144-SB-C174, 144-SB-C175, 144-SB-C182, 144-SB-C188, 144-SB-C194, AND 144-SB-C195.
  - THE AS-BUILT DRAWINGS WERE PRODUCED BASED ON DATA AND DRAWINGS PROVIDED BY SUBCONTRACTOR ARECON LTD, ON 01/31/18 AND 10/13/17 AND ARE INCLUDED IN APPENDIX F OF THE REMEDIATION ACTION REPORT.



**SOURCE MAP REFERENCE:**

- REMEDIATION ACTION WORK PLAN HUDSON COUNTY CHROMATE SITE 144 BAYONNE PIPELINE - LINES B AND C, DEC. 2015 PREPARED BY AMEC FOSTER WHEELER.
- MOD-IV DATABASE: DIVISION OF TAXATION THROUGH THE LOCAL PROPERTY TAX (LPT)/TECHNICAL SUPPORT SECTION AND THE NEW JERSEY TREASURY OFFICE OF INFORMATION TECHNOLOGY (OIT).
- BASE MAP CREATED FROM 2012 HIGH RESOLUTION AERIAL PHOTOGRAPHY, PERFORMED BY KENNON SURVEYING SERVICES, INC.
- PARCELS OF HUDSON COUNTY NEW JERSEY STATE PLANE NAD83: HUDSON COUNTY DEPARTMENT OF PLANNING, JERSEY CITY, NEW JERSEY; 01/07/10

REV.	DATE	STATUS	PRPD BY	CHKD BY

WOOD, PROJECT No. 3487180608  
DRAWING: 3487180608-5202-RAPO-5001

PREPARED/DATE: STR 12/19/17  
CHECKED/DATE: MM 12/19/17

**wood.**

ENVIRONMENT & INFRASTRUCTURE SOLUTIONS  
200 AMERICAN METRO BLVD, SUITE 113  
HAMILTON, NEW JERSEY 08619

**FIGURE 6A**  
**REMEDIAL ACTION OVERVIEW**  
STUDY AREA 2 SITE 144  
BAYONNE PIPELINE SECTION C  
NJ TURNPIKE EXIT: MILEPOST N2.9  
BAYONNE, NEW JERSEY



Path: P:\GIS\Projects\Honeywell\Study Area 5\Site\_153 - Former Morris Canal\20111118 - RI Report\Figure 1B Area of Concern Map.mxd



**Legend**

- Site Boundary/Area of Concern (AOC)
- AOC-1 - Hexavalent-Chromium Impacted Fill
- AOC-2 - Historic Fill (Co-located with AOC-1)

Source: Esri World Imagery, DigitalGlobe, 2014.



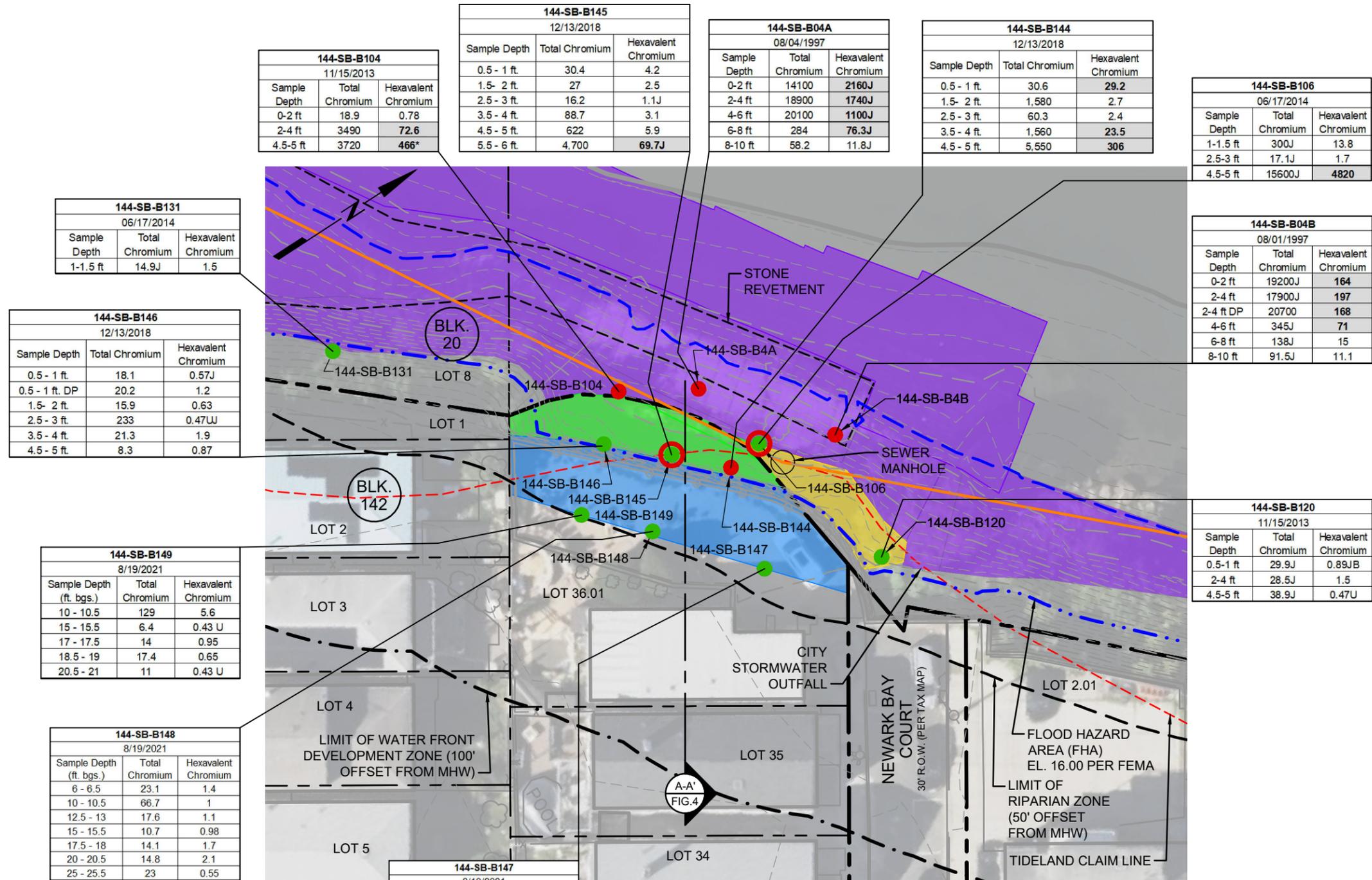
Project Number: 3480130371	
Prepared/Date: WSL 12/10/2014	Checked/Date: EGG 12/10/2014

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ENVIRONMENT & INFRASTRUCTURE  
200 AMERICAN METRO BLVD, SUITE 113  
HAMILTON, NEW JERSEY 08619

**Figure 1B**  
Site Boundary/Area of Concern Map  
Site 153 - Former Morris Canal  
Jersey City, New Jersey

\\hmi-1s1\Projects\CADD\HONEYWELL\JERSEY\_CITY\_SA\_2\3487180608\REMEDY\_AS-BUILT\_FIGURES\KLM\Figure 3 - Remedial Action Plan.dwg Tue, 15 Aug 2023 4:14pm steve.mozzo Layout: Fig3



**LEGEND**

- SOIL SAMPLE, HEXAVALENT CHROMIUM RESULTS > 20 MG / KG
- SOIL SAMPLE, HEXAVALENT CHROMIUM RESULTS < 20 MG / KG
- SOIL SAMPLE, HEXAVALENT CHROMIUM RESULTS < 20 MG / KG FOR TOP 3'
- BAYONNE PIPELINE (APPROXIMATE)
- BLOCK BOUNDARY
- LOT BOUNDARY
- 100-YEAR FLOOD HAZARD ELEVATION
- TIDELANDS CLAIM LINE
- MEAN HIGH WATER LINE
- 50' RIPARIAN LINE
- 100' WATERFRONT DEVELOPMENT LINE
- EXISTING SOIL CAP
- EXISTING CAP FROM PRIOR REMEDY
- REMEDIAL AREA DEFERRED BY TIDELANDS
- SOIL VEGETATIVE / GEOSYNTHETIC CLAY LINER CAP

**DATA QUALIFIERS:**

J - DATA INDICATES THE PRESENCE OF A COMPOUND THAT MEETS THE IDENTIFICATION CRITERIA. THE CONCENTRATION GIVEN IS AN APPROXIMATE VALUE.

UJ - THE COMPOUND WAS NOT DETECTED AT THE INDICATED CONCENTRATION. THE RESULT IS LESS THAN THE SPECIFIED QUANTITATION LIMIT BUT GREATER THAN OR EQUAL TO THE METHOD DETECTION LIMIT.

**ABBREVIATIONS:**

DP - DUPLICATE SAMPLE

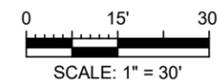
mg/kg - MILLIGRAMS PER KILOGRAM

**NOTES:**

- PROPERTY BOUNDARY LINES ARE APPROXIMATE AND WERE OBTAINED FROM PUBLIC PARCEL MAPS AS REFERENCED HEREIN UNLESS OTHERWISE NOTED.
- RESULTS REPORTED IN mg/kg.
- BOLD AND SHADED** RESULTS EXCEED NJDEP CRITERIA FOR HEXAVALENT CHROMIUM (20 mg/kg)

- PLAN REFERENCES**
- SITE TOPOGRAPHY FROM DIGITAL FILE ENTITLED AREAS A, B, C 06-17-14.dwg AS RECEIVED FROM KENNON SURVEYING SERVICES, INC. OF WARREN NEW JERSEY DATED 17 JUNE 2014.
  - BAYONNE SEWER PIPELINE ALIGNMENT IS BASED ON FIGURE 3C, PIPELINE LOCATION MAP, STEPHEN GREGG PARK TO NEW JERSEY TURNPIKE AUTHORITY.
  - MHW, MLW, SHW OBTAINED FROM NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (EMAIL DATED NOVEMBER 23, 2015). ALL ELEVATIONS ARE REFERENCED TO NAVD88.
  - 100 YEAR FLOOD ELEVATION IS BASED ON FIRM FLOOD INSURANCE RATE MAP, HUDSON COUNTY, NEW JERSEY (ALL JURISDICTIONS), PANEL 111 OF 118, MAP NUMBER 34017C0111E. \*PRELIMINARY DECEMBER 20, 2013.\*
  - TIDELAND CLAIM LINE OBTAINED FROM NJDEP BUREAU OF TIDELANDS MANAGEMENT SHOWING CONVEYANCES ON NEWARK BAY; ATLAS SHEET NO. 665-2148; NEW JERSEY DEPARTMENT OF TIDELANDS MANAGEMENT; TRENTON, NJ; 1971-1991
  - PROPERTY LINES (OTHER THAN BLOCK 142) PER STATE OF NEW JERSEY COMPOSITE OF PARCELS DATA, NEW JERSEY STATE PLANE NAD83, NJ OFFICE OF INFORMATION TECHNOLOGY (NJOIT) AND THE OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS (OGIS); 2020/11.
  - REMEDIAL ACTION LIMITS AND BLOCK 142 PROPERTY LINES PER "FINAL ASBUILT STUDY AREA 2 - REMEDIAL AREAS RA-1 & RA-2", DATED 04/23/19, AND "AS-BUILT SURVEY - SA-2 - BAYONNE INTERCEPTOR SEWER PIPELINE", DATED 07/10/23, BY KENNON SURVEYING SERVICES, INC., WARREN, NEW JERSEY.
  - AERIAL IMAGERY IS PROVIDED BY AUTODESK GEOMAP SERVICE. (C) 2023 MICROSOFT CORPORATION, (C) 2023 MAXAR, (C) CNES (2023) DISTRIBUTION AIRBUS DS.

144-SB-B147		
8/19/2021		
Sample Depth (ft. bgs.)	Total Chromium	Hexavalent Chromium
10 - 10.5	40.6	2.5
13 - 13.5	17	0.72
15.5 - 16	12	0.71
16.5 - 17	33	0.89
20 - 20.5	7	0.92
25 - 25.5	12	0.79
27 - 27.5	22	0.45 U



REV.	DATE	STATUS	PRPD BY	CHKD BY

WSP PROJECT No. 3552220109  
DRAWING: FIGURE 3 - REMEDIAL ACTION PLAN

PREPARED/DATE: SPM 8/10/23

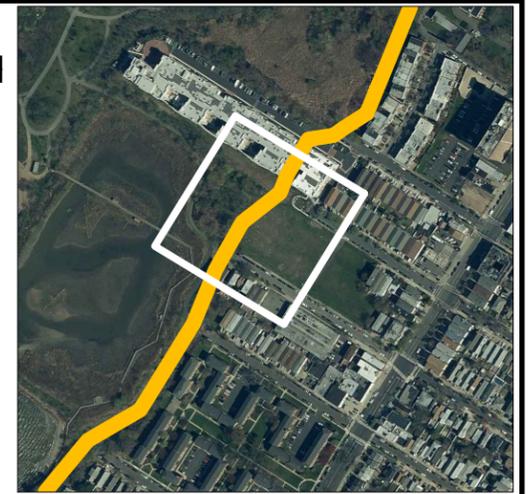
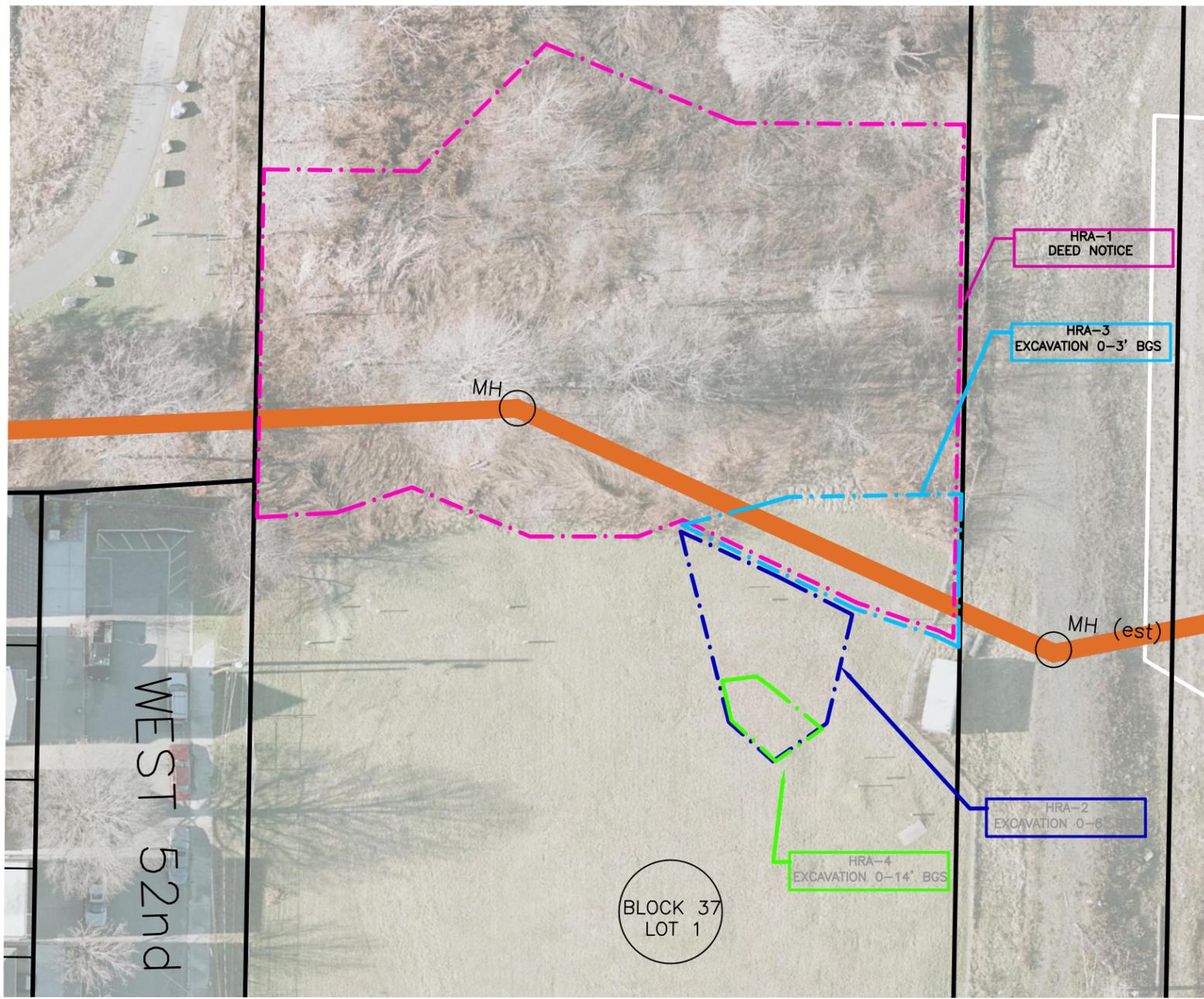
CHECKED/DATE: MEM 8/10/23

**wsp**

WSP USA Environment & Infrastructure Inc.  
2000 Lenox Drive, 3rd Floor, Lawrenceville, NJ 08648  
NJ Cert. of Authorization 24GA28010900

**FIGURE 3**  
**REMEDIAL ACTION PLAN**  
BLOCK 142, LOT 36.01  
BAYONNE, NEW JERSEY

C:\Users\scott.rudkin\OneDrive - Wood\_BI\C\cadd\ec2\348770556\52020109-5200-EXA2-4000.dwg Tue, 06 Sep 2022 - 9:50am scott.rudkin Layout: EXA\_BRA4\_1117-CONFIDENTIAL.dwg  
 UNLESS OTHERWISE AGREED IN A WRITTEN CONTRACT BETWEEN AMEC FOSTER WHEELER AND ITS CLIENT, (i) THIS DOCUMENT CONTAINS INFORMATION, DATA AND DESIGN THAT IS CONFIDENTIAL AND PROPRIETARY TO AMEC FOSTER WHEELER AND ITS CLIENT, (ii) THIS DOCUMENT MAY ONLY BE USED BY THE CLIENT IN THE CONTEXT AND FOR THE EXPRESS PURPOSE FOR WHICH IT HAS BEEN DELIVERED AND NO OTHER USE OR RELIANCE ON THIS DOCUMENT BY ANY THIRD PARTY IS AT THAT PARTY'S SOLE RISK AND RESPONSIBILITY.



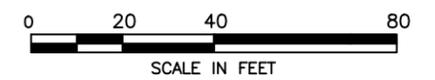
KEY MAP  
SCALE: 1" = 300'

**LEGEND**

- × EXCAVATION EDGE POINT
- Ⓢ BLOCK NUMBER
- 4 LOT NUMBER
- SEWER MANHOLE (APPROXIMATE)
- BAYONNE PIPELINE (APPROXIMATE)
- BLOCK BOUNDARY
- LOT BOUNDARY
- ⋯ HRA-1 DEED NOTICE AREA (CHROMIUM > 20 PPM > 3' BGS)
- ⋯ HRA-2 SOIL REMOVAL AREA (0-8')
- ⋯ HRA-3 SOIL REMOVAL AREA (0-3') AND REPLACEMENT WITH CLEAN FILL/DEMARCATION LAYER PER SEWER PROTOCOL
- ⋯ HRA-4 SOIL REMOVAL AREA (0-14' BGS)

**NOTES:**

1. HRA-3 ACTUAL EXCAVATION DEPTH RANGES FROM APPROXIMATELY 3.2' BGS TO 5.7' BGS.
2. NORTHING AND EASTING (N AND E) ARE NEW JERSEY STATE PLANE COORDINATES IDENTIFYING THE BOUNDARIES OF THE HRA EXCAVATIONS IN LEGEND ABOVE.



**SOURCE MAP REFERENCE:**

1. REMEDIAL ACTION WORK PLAN HUDSON COUNTY CHROMATE SITE 144 BAYONNE PIPELINE - LINES B AND C, DEC. 2015 PREPARED BY AMEC FOSTER WHEELER.
2. MOD-IV DATABASE: DIVISION OF TAXATION THROUGH THE LOCAL PROPERTY TAX (LPT)/TECHNICAL SUPPORT SECTION AND THE NEW JERSEY TREASURY OFFICE OF INFORMATION TECHNOLOGY (OIT).
3. BASE MAP CREATED FROM 2012 HIGH RESOLUTION AERIAL PHOTOGRAPHY, PERFORMED BY KENNON SURVEYING SERVICES, INC.
4. PARCELS OF HUDSON COUNTY NEW JERSEY STATE PLANE NAD83: HUDSON COUNTY DEPARTMENT OF PLANNING, JERSEY CITY, NEW JERSEY; 01/07/10
5. DRAWING TITLED, "EXCAVATION AS-BUILT" CHROMIUM REMEDIATION AREAS BLOCK 37 - LOT 1, BAYONNE, NEW JERSEY PREPARED BY KENNON SURVEYING SERVICES, INC. DATED 11/18/17.

REV.	DATE	STATUS	STR PRPD BY	HC CHKD BY
1	03/20/18	UPDATE PROPOSED EXCAVATION WITH KENNON AS-BUILT SURVEY		

WOOD, PROJECT No. 3552220109  
DRAWING: 3552220109-5200-EXA2-4000

PREPARED/DATE:  
STR 03/25/22

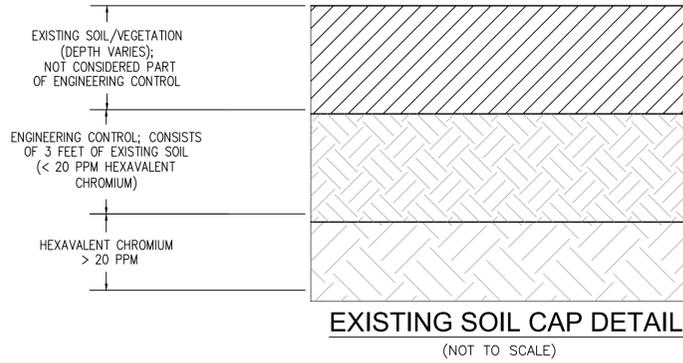
CHECKED/DATE:  
MM 03/25/22

**wood.**

ENVIRONMENT & INFRASTRUCTURE SOLUTIONS  
200 AMERICAN METRO BLVD, SUITE 113  
HAMILTON, NEW JERSEY 08619

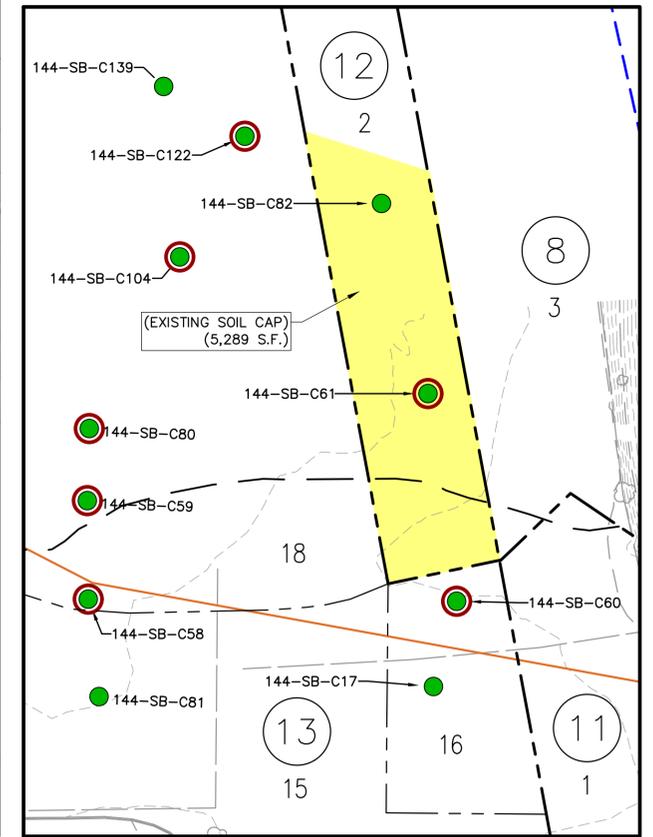
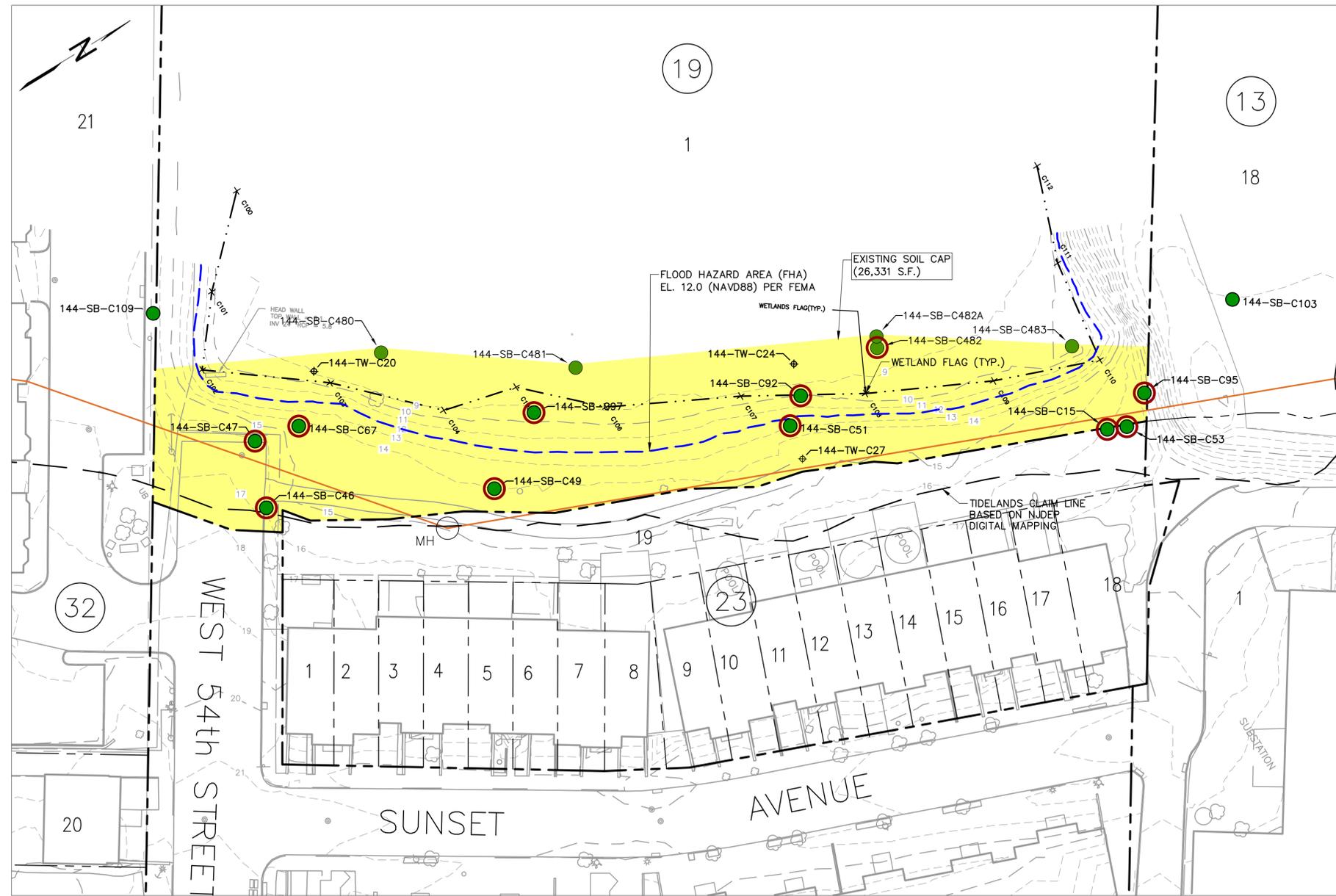
**FIGURE 4**  
OVERVIEW OF CHROMIUM REMEDIATION AREAS  
BLOCK 37, LOT 1  
STUDY AREA 2 SITE 144  
BAYONNE PIPELINE LINE C  
BAYONNE, NEW JERSEY

UNLESS OTHERWISE AGREED IN A WRITTEN CONTRACT BETWEEN AMEC FOSTER WHEELER AND ITS CLIENT, (U) THIS DOCUMENT CONTAINS INFORMATION, DATA AND DESIGN THAT IS CONFIDENTIAL AND PROPRIETARY TO AMEC FOSTER WHEELER AND ITS CLIENT. ANY USE OF THIS DOCUMENT BY ANY THIRD PARTY IS AT THAT PARTY'S SOLE RISK AND RESPONSIBILITY.



- LEGEND**
- SOIL SAMPLE, HEXAVALENT CHROMIUM RESULTS > 20 MG / KG
  - SOIL SAMPLE, HEXAVALENT CHROMIUM RESULTS < 20 MG / KG
  - SOIL SAMPLE, HEXAVALENT CHROMIUM RESULTS < 20 MG / KG FOR TOP 3'
  - 148 BLOCK NUMBER
  - 4 LOT NUMBER
  - MH ○ SEWER MANHOLE (APPROXIMATE)
  - BAYONNE PIPELINE (APPROXIMATE)
  - - - BLOCK BOUNDARY
  - - - LOT BOUNDARY
  - FLOOD HAZARD LINE
  - - - TIDELANDS CLAIM LINE
  - EXISTING SOIL CAP (SEE DETAIL)

- PLAN REFERENCES:**
1. SITE TOPOGRAPHY FROM DIGITAL FILE ENTITLED AREAS A\_B\_C 06-17-14.dwg AS RECEIVED FROM KENNON SURVEYING SERVICES, INC. OF WARREN NEW JERSEY DATED 17 JUNE 2014.
  2. 100 YEAR FLOOD ELEVATION IS BASED ON FIRM FLOOD INSURANCE RATE MAP, HUDSON COUNTY, NEW JERSEY (ALL JURISDICTIONS), PANEL 103 OF 118, MAP NUMBER 34017C0103E, "REVISED PRELIMINARY JANUARY 30, 2015".
  3. TIDELANDS CLAIM LINE OBTAINED FROM NJDEP BUREAU OF TIDELANDS MANAGEMENT VECTOR DIGITAL DATA, REVISED JULY 2004.
  4. BAYONNE SEWER PIPELINE ALIGNMENT IS BASED ON FIGURE 3C, "PIPELINE LOCATION MAP", STEPHEN GREGG PARK TO NEW JERSEY TURNPIKE AUTHORITY.
  5. STATE OF NEW JERSEY COMPOSITE OF PARCELS DATA, NEW JERSEY STATE PLANE NAD83, NJ OFFICE OF INFORMATION TECHNOLOGY (NJOIT) AND THE OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS (OGIS), 2013/09.
  6. WETLAND BOUNDARY DELINEATED BY AMEC E&I, INC., ON MARCH 14, 2013.



REV.	DATE	STATUS	PRPD BY	CHKD BY

WSP PROJECT No. 3482230897 DRAWING: 3482230897-4100-NJDOT-RA00-C101	
PREPARED/DATE: STR 08/29/23	CHECKED/DATE: MM 08/29/23

**wsp**

WSP USA  
ENVIRONMENT & INFRASTRUCTURE INC.  
2000 LENOX DR., 3RD FLOOR  
LAWRENCEVILLE, NJ 08648

**FIGURE 5**  
REMEDIAL ACTION PLAN  
STATE OF NEW JERSEY  
BLOCK 19, LOT 1  
STATE OF NEW JERSEY DOT  
BLOCK 12, LOT 2  
BAYONNE, NEW JERSEY

0 15 30 60  
SCALE IN FEET

**APPENDIX C**

**WORKER TRAINING PLAN MANUAL  
(Separate Document)**

**APPENDIX D**

**DRAFT SPECIFICATIONS FOR CHROMIUM MATERIALS  
EXCAVATION AND MANAGEMENT**

DRAFT SPECIFICATIONS  
FOR  
CHROMIUM MATERIALS  
EXCAVATION AND MANAGEMENT

*Prepared by:*

WSP USA Environment & Infrastructure, Inc.  
2000 Lenox Drive, 3<sup>rd</sup> Floor  
Lawrenceville, New Jersey 08648

**APRIL 2024**

*NOTE: This document provides basic information intended for use by contractors for excavation and management of chromium-impacted materials that may be encountered during sewer maintenance, repair and/or replacement work at designated sites in the City of Bayonne. It is a general document developed to support the Procedure for Coordinating Utility Work Within Chromium Soil Areas (SOP). It is not intended to substitute for, replace, or take the place of a more-specific plan a contractor may develop for the site-specific and job-specific tasks they will perform. No party shall assume the content of this document addresses all situations and Wood will not assume responsibility for the actions or consequences of other parties in utilizing information contained in this document.*

DRAFT

## Table of Contents

SECTION 01000 Chromium-Impacted Materials.....	2
SECTION 01001 Excavation of Chromium-Impacted Materials.....	4
SECTION 01002 Handling and Management of Chromium-Impacted Materials .....	6
SECTION 01003 Waste Transportation and Disposal of Chromium-Impacted Materials.....	10

## SECTION 01000 CHROMIUM-IMPACTED MATERIALS

### PART 1 – GENERAL

#### 1.01 DESCRIPTION

- A. These specifications were prepared by WSP on behalf of Honeywell for use by the City of Bayonne (City) and its Contractors to address excavation, handling and transportation/disposal of chromium-impacted materials that may be encountered during sewer maintenance, repair and/or replacement work at designated sites in the City of Bayonne. Chromium-impacted material refers to soil, fill or other materials such as concrete debris containing hexavalent chromium above the NJDEP soil criteria, currently 20 milligrams per kilogram (mg/kg or parts per million [ppm]). Chromium-impacted groundwater refers to groundwater containing chromium above the NJDEP groundwater quality standards, currently 70 micrograms per liter ( $\mu\text{g/L}$  or parts per billion [ppb] based on total chromium).
- B. This specification consists of the following sections.  
Section 01001 Excavation of Chromium-Impacted Materials  
Section 01002 Handling and Management of Chromium-Impacted Materials  
Section 01003 Waste Transportation and Disposal of Chromium-Impacted Materials
- C. These specifications apply to excavation, management and disposal of chromium-impacted materials that may be generated during sewer work. For Bayonne Municipal Utility Authority (BMUA)<sup>1</sup> specifications applicable to sewer construction work, refer to the BMUA Rules and Regulations and Standard Specifications/Construction Details (August 2003).
- D. During work execution, the City will be the contracting authority and will direct all work being conducted. However, coordination and consultation between the City and Honeywell may be needed on how best to manage chromium-impacted materials on a case by case basis. Honeywell (or its designated Contractor) may observe or provide oversight of work involving excavation and handling of chromium-impacted materials. In such cases, Honeywell will provide a designated representative (“Honeywell Representative”) to provide guidance on the handling of these materials.
- E. These specifications are included as an attachment to the Standard Operating Procedure (SOP) for Coordinating Work within Chromium Soil Areas. The SOP addresses coordination of work between Honeywell and the City during sewer repair or replacement performed either as part of planned maintenance work, or required as a result of an emergency situation in areas of chromium-impacted soils. The SOP specifies that the City’s contractor will take the lead in performing work associated with excavation, material handling, and transportation/disposal of materials generated during sewer work. Honeywell and/or its designated representative will assist the City in determining whether or not the work location is in an area of chromium soils and

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<sup>1</sup> At the end of 2012, the Bayonne Municipal Utilities Authority (BMUA) entered into a long-term agreement with Suez Bayonne (now Veolia) for the operation and maintenance of its sewer system. At the end of 2016, the BMUA was dissolved and the City of Bayonne has responsibility for matters related to the sewer system. Accordingly, any reference to the BMUA or City of Bayonne in terms of operation and maintenance of its system shall be interpreted as also referring to Veolia and its employees

provide technical assistance, field oversight and support as needed during soil excavation and site restoration. In some cases, Honeywell's contractor may take the lead on excavation and/or transportation/disposal of chromium contaminated materials, to be determined on a case by case basis in consultation with the City.

## 1.02 REFERENCES

- A. The Contractor shall perform all work in accordance with all applicable, Federal, State and local regulations and guidance documents.
- B. Worker Training Manual: Prepared by Honeywell for use by the City and addresses health and safety requirements for City personnel and contractors who may be implementing sewer pipeline maintenance, repair and/or replacement work or other ground intrusive activities (e.g., digging, drilling, excavation) in areas of chromium-impacted fill.
- C. BMUA Rules and Regulations and Standard Specifications/Construction Details (BMUA, August 2003).
- D. NJDEP Guidance for the Characterization of Concrete and Clean Material Certification for Recycling.

## 1.03 SUBMITTALS

- A. The Contractor shall submit to the City's designated representative for approval (unless otherwise specified) the following:
  - 1. Materials Management Plan: The plan shall include the identified chromium-impacted materials requiring management, the type of containers to be utilized, procedures for management of chromium-impacted materials, equipment to be utilized, and the proposed means/methods of coordinating the work including transportation/disposal of chromium-impacted materials at a Honeywell approved waste facility.
  - 2. Health and Safety Plan (HASP): The HASP shall comply with all provisions of OSHA which are relevant to the excavation, handling and management of chromium-impacted materials. At a minimum, the plan shall cover OSHA personnel training requirements for work being performed, provisions for prevention of contaminant migration during work, emergency and contingency planning, and work zone monitoring, and perimeter air-monitoring (if required). It shall be prepared in conformance with all applicable Health and Safety laws and regulations including but not limited to OSHA 1910.120.
  - 3. Hazardous Waste Contingency Plan: The plan shall address preparedness and prevention, emergency procedures and evacuation plan, if required in accordance with 40 CFR 262.34 and 264.52. This plan may overlap with and be included as part of the HASP.

## PART 2 PRODUCTS

Not Used

## PART 3 EXECUTION

Not Used

- END OF SECTION -

## **SECTION 01001: EXCAVATION OF CHROMIUM-IMPACTED MATERIALS**

### **PART 1 GENERAL**

#### **1.1 SCOPE OF WORK**

- A. The work under this section shall consist of furnishing all labor, equipment and materials for performing all operations for excavation of chromium-impacted materials.

#### **1.2 QUALITY ASSURANCE**

- A. The Contractor shall be responsible for coordinating with Honeywell representative to facilitate the approval of waste facility to determine waste classification sampling and analytical requirements and obtain acceptance of the material for treatment/disposal, if required in connection with sewer work.
- B. Confirmatory/post-excavation sampling or testing may be required for excavation bottom and sidewall(s), to be determined on a case by case basis in consultation with the City and Honeywell. Contractor shall cooperate with the City and/or Honeywell's designated representative and provide access for sampling if needed.

### **PART 2 PRODUCTS**

Not Used

### **PART 3 EXECUTION**

#### **3.1 EXCAVATION**

The Contractor shall prepare and submit as part of the Materials Management Plan, a section describing excavation activities for chromium-impacted areas to the City for review and approval. The excavation section of the Plan shall include a description of the work required in this specification section, work sequencing and scheduling including: excavation methods; plans for decontamination; dust control measures; any proposed temporary staging areas; handling and management of excavated materials; and any permit requirements. The excavation section of the Plan shall also include copies of required notifications and permits obtained by the Contractor and a list of all subcontractors proposed with copies of their current, valid permits or licenses to perform the work. All work shall be conducted in accordance with all OSHA requirements. Work shall not begin until approval is received from the City's designated representative.

#### **3.2 REMOVAL OF CONTAMINATED SOIL**

- A. The Contractor shall excavate contaminated soil/material as needed to complete sewer work as required by the City.
- B. The Contractor shall provide means to suppress dust as needed during excavation and while the excavation is open and/or stockpiles are in place.
- C. The Contractor shall coordinate with Honeywell representative to dispose of contaminated soil/material in accordance with Specification – Material Handling and Management.
- D. The Contractor shall coordinate access to the excavation(s) with the City's and/or Honeywell's designated representative as deemed necessary for inspection and collection of soil samples.

- E. The Contractor shall maintain a Record Drawing documenting the daily cumulative horizontal and vertical extent of the excavation in each area of concern including estimated quantities. The Record Drawing shall be updated daily, provided to the City's designated representative and shall be posted in the Contractor's trailer.
- F. Any subsurface structures, or portions thereof, or debris located within the limits of the chromium-impacted area being excavated shall be removed and decontaminated where practicable, and segregated for characterization prior to off-site disposal. Material shall be characterized in accordance with current NJDEP guidance and disposal facility requirements. Debris may be reduced in size to meet specific disposal facility requirements. Size reduction will be accomplished in coordination with and the concurrence of the City's designated representative and be performed in compliance with all applicable state and local regulation.
- G. Any utilities and associated structures encountered within the excavation shall be addressed on a case by case basis by the Contractor in consultation with the City's designated representative and other utility owners (if encountered).
- H. Excavation in close proximity to active utilities or aboveground structures shall be done in a manner protective of the utility or structure. The Contractor shall protect all existing structures to remain and active utilities.
- I. All earthwork equipment and tools used for excavation of contaminated soil/material shall be decontaminated in accordance with the HASP, and these specifications, prior to being used elsewhere on site or before leaving the site.

### 3.3 EXCAVATION AREA

- A. The chromium-impacted areas to be excavated will be defined in the field by the City's and/or Honeywell's representative.
- B. Excavation activities include the excavation and removal of soil/material from designated chromium-impacted area(s).
- C. The activities shall be performed in accordance with OSHA requirements for excavation. Work shall be completed by OSHA trained individuals. Refer to the Worker Training Plan for guidance on applicable training requirements.
- D. The Contractor shall not backfill the excavation until the final limits of excavation are reviewed and approved by the City's designated representative. Backfill can begin immediately upon approval of the City's designated representative.
- E. The excavation shall be kept dry by the implementation of construction dewatering operations, if groundwater or storm water is encountered during construction. Evacuated water shall be characterized and disposed in accordance with all applicable Federal, State and local requirements.
- F. Refer to Section 01002 (Handling and Management of Chromium-Impacted Materials) and Section 01003 (Waste Transportation/Disposal of Chromium-Impacted Materials) for requirements for management, loading and transportation/disposal of chromium-impacted materials.
- G. The Contractor shall provide all labor, equipment and materials for road closures, as needed, based on the operation.

- END OF SECTION -

## **SECTION 01002: HANDLING AND MANAGEMENT OF CHROMIUM-IMPACTED MATERIAL**

### **PART 1 - GENERAL**

#### **1.01 DESCRIPTION**

- A. The Contractor shall furnish all labor, equipment, and materials necessary to provide for the proper on-site handling and management of chromium-impacted materials including but not limited to: excavated soils, fill materials (including materials identified as chromium-impacted solid waste); excavated chromium-impacted concrete/masonry, metal, and all other debris; excavated non-chromium impacted soils/materials; asphalt pavement; miscellaneous construction debris (vegetation, trees, wood, etc.); liquid waste (decontamination water, construction dewatering, etc.); and remediation waste (disposable PPE, plastic sheeting, sampling equipment, etc.).
- B. The Contractor is responsible to perform all work in compliance with applicable Federal, State, and local regulations and requirements.
- C. The Contractor is required to provide a Site Specific Health and Safety Plan, Materials Management Plan, and Hazardous Waste Contingency Plan.
- D. The Contractor shall be responsible for coordinating the work/schedule with Honeywell representative so that arrangements can be made at a Honeywell approved waste facility.
- E. Non-chromium impacted soils removed from excavation areas shall be stockpiled temporarily in a designated stockpile area, as approved by the City's designated representative.
- F. For chromium-impacted soils, the preferred soil management method is direct loading and offsite transportation of soils removed from excavation area. If direct loading is not possible, then soils may be stockpiled temporarily in a designated Waste Staging and Storage Area as approved by the City and Honeywell's Representative. The stockpile shall be protected and covered when not in active use (adding or removing soils).
- G. Asphalt and/or concrete materials removed from excavation areas shall be inspected for potential chromium impacts, characterized in accordance with current NJDEP guidance and properly disposed off-site. NJDEP Guidance for Characterization of Concrete and Clean Material Certification for Recycling may be applicable.
- H. Oversize material removed from excavation areas, shall be properly disposed off-site in accordance with local, State and Federal disposal requirements.
- I. The Contractor shall provide a system to weigh loaded trucks before they leave the site to confirm the maximum weight restriction is not exceeded. The system can include trucks equipped with load cells, or portable truck scale or similar device approved by the City and Honeywell's Representative.

## 1.02 WASTE CONTAINERS

- A. The Contractor shall provide as applicable:
1. Plastic bags for disposable personnel protection equipment. Plastic bags shall have a minimum thickness of six (6) mils.
  2. Containers (e.g., roll-off containers) for non-hazardous municipal trash and debris.
  3. DOT-approved, steel drums (55-gallon capacity) for storage of residual impacted material and/or water or roll-off containers, if needed.
  4. Portable temporary storage tanks (FRAC tanks, etc.) for the storage, treatment and/or disposal of any collected liquids, such as pumped groundwater from excavation dewatering, decontamination fluids. The Contractor is responsible for coordination with the Honeywell representative for the transportation/disposal of collected liquids at an approved facility including any chromium-impacted groundwater. If water is discharged to local sanitary sewer system, Contractor is responsible for obtaining any approvals/permits, meeting local sewer utility discharge criteria and satisfying all other conditions and requirements of the local sewer utility, including sampling/analysis/reporting and compliance with NJDEP Treatment Works Approval for the construction and operation of on-site treatment system.

## 1.03 ON-SITE MANAGEMENT AND STORAGE OF MATERIALS

- A. The Contractor shall be responsible for proper on-site management of wastes generated in compliance with all Federal, State, and Local regulations and requirements.
- B. The Contractor shall load non-hazardous municipal trash and debris into appropriate containers for subsequent removal from the site in a timely manner.
- C. The Contractor shall load cleared vegetation and other non-impacted debris into appropriate containers for subsequent removal from the site in a timely manner.
1. Temporary on-site stockpiles of cleared material may be allowed, as approved by the City's designated representative, to facilitate the progress of the work.
- D. The Contractor shall be responsible for loading all waste containers, trucks, etc. with non-hazardous and hazardous solid waste materials removed from the work areas.
- E. The Contractor shall be responsible for movement/direction of the containers, trucks, etc. into positions required for proper loading and management of material.
- F. The Contractor shall be responsible for the on-site management of roll-off containers, storage of trash and debris from site preparation, and final site cleanup activities.
- G. The Contractor shall be responsible for coordinating with the Honeywell representative for the schedule, delivery, and pick-up of supplied waste containers. The Contractor shall also be responsible for movement and storage of containers within the site to allow the progress of the work.
- H. The Contractor shall provide a base for any temporary stockpiles using at a minimum 6 mil polyethylene sheeting to prevent direct contact and cross-contamination of the underlying soil/asphalt. The plastic sheeting shall be properly overlapped to protect against direct soil/asphalt contact.

- I. The Contractor shall cover any temporary stockpiles with at a minimum 6 mil polyethylene sheeting to prevent erosion of the stockpiles or uncontrolled runoff while promoting runoff of precipitation. The plastic sheeting shall be weighted down appropriately for expected weather conditions.
  1. Temporary stockpiles shall be located in designated Stockpile Area, as approved by the City's designated representative. The base of all stockpiles shall be contained by a siltation fence reinforced with staked straw bales. In addition to the above, asphalt berms and/or sand bags may be used to divert surface water runoff from the stockpile areas. In all cases contractor shall maintain conformance with standard methods for NJ Soil and Erosion Control and/or a Soil and Erosion Control Plan Certification.

#### 1.04 ANALYTICAL TESTING AND CLASSIFICATION OF WASTE MATERIALS

- A. No testing requirements are expected for the following non-impacted wastes:
  1. Cleared vegetation; and
  2. General trash and rubbish from outside the exclusion zone.
- B. Contractor shall be responsible for coordinating the waste classification testing of excavated soils with the Honeywell representative and other debris destined for offsite disposal as required in accordance with applicable regulations and guidance; obtaining acceptance of waste material as needed from disposal facilities; and making arrangements for waste transportation and disposal including the use of Honeywell approved waste facilities for chromium-impacted materials.
- C. For non-chromium impacted soils, Contractor shall provide for waste classification sampling and transportation/disposal/reuse as appropriate in consultation with the City's designated representative. Excavated materials identified/characterized as non-chromium impacted soil shall be stockpiled temporarily in the designated Stockpile Area, as approved by the City's designated representative.
- D. For chromium-impacted soils, Contractor shall provide for direct-loading (where possible) into trucks/containers for transportation to a Honeywell approved waste facility. If direct loading is not possible, then soils shall be stockpiled temporarily in a designated stockpile area (separate from non-chromium impacted soils). Direct loading and transportation/disposal of chromium-impacted soils is preferred whenever possible. When used, stockpiles of chromium-impacted soil shall be constructed and protected in a manner that will ensure the integrity of the stockpile is maintained and the potential for migration of chromium-impacted soil or water in contact with chromium-impacted soil is mitigated.

#### 1.05 LOADING OF WASTES

- A. The Contractor shall furnish all labor, equipment, and materials necessary to provide for the proper loading of all materials generated during the execution of the work. Refer to Section 01003 for requirements for lining of trucks.
- B. The Contractor shall be responsible for coordinating with Honeywell representative for the work/schedule with Honeywell approved Waste Facilities.
- C. The Contractor shall be responsible for any demurrage charges associated with delays in the timely loading the waste materials.

- D. Materials that contain excess water shall be mixed with a sufficient quantity of absorbent to prevent free water from developing in containers during transport to the disposal facility.
- E. Absorbents shall be approved by the disposal facility and the City's designated representative as needed to allow effective transport of materials to designated disposal facility.

1.06 TRANSPORTATION OF WASTES

- A. The Contractor shall arrange for the proper transportation and disposal of non-impacted waste (e.g., cleared vegetation, general trash and rubbish) in accordance with applicable local, state and federal regulations.
- B. The Contractor shall coordinate for the proper transportation of non-hazardous waste materials and chromium-impacted hazardous waste materials (if applicable) with the Honeywell representative to appropriate licensed/permitted disposal facilities, in accordance with applicable local, state and federal regulations.
- C. The Contractor shall be responsible for coordinating with Honeywell (or its designated contractor) and scheduling transporters for offsite transportation and disposal of chromium-impacted materials generated during execution of the work at Honeywell approved waste facilities. Honeywell (or its designated contractor) may take the lead in coordinating offsite transportation and disposal of chromium-contaminated materials, to be determined on a case-by-case basis.
- D. The Contractor shall require that the transporters arriving at the site for loading do not cause undue congestion to local streets, and shall stage trucks either within the perimeter of the site or at an off-site staging area.

1.07 DISPOSAL OF WASTES

- A. The Contractor shall be responsible for coordinating with Honeywell approved waste facilities, scheduling transporters and arranging for off-site transportation and disposal of chromium-impacted materials. Honeywell's contractor may take the lead in coordinating offsite transportation and disposal of chromium-contaminated materials at an approved waste facility, to be determined on a case-by-case basis.
- B. The Contractor shall provide for offsite transportation and disposal of non-chromium impacted waste materials in accordance with in accordance with applicable local, state and federal regulations.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

--END OF SECTION--

## **SECTION 01003: WASTE TRANSPORTATION AND DISPOSAL OF CHROMIUM-IMPACTED MATERIALS**

### **PART 1 - GENERAL**

#### **1.01 DESCRIPTION**

- A. This Section describes the Contractor's minimum responsibilities and requirements for Waste Transportation/Disposal of chromium-impacted materials, including coordination with Honeywell approved waste facilities.
- B. Contractor's work includes coordinating with the Honeywell representative for the recipient of the waste, loading wastes into trucks and containers for shipment off site, providing temporary haul roads for trucks and traffic control as needed, and coordination and scheduling with Honeywell representative and Disposal Facility to ensure timely arrival and departure of trucks.
- C. All work related to the management of chromium-impacted materials shall be done in conformance with a Health and Safety Plan (HASP), and in accordance with OSHA 1910.120. All personnel that may become exposed to impacted materials at levels above NJDEP criteria must be OSHA trained in accordance with OSHA requirements. The HASP will be reviewed by the City. Refer to the Worker Training Manual for applicable training requirements.

#### **1.02 SUBMITTALS**

- A. Prepare and submit a comprehensive detailed Materials Management Plan. This comprehensive plan shall address all waste categories: Rubbish and Construction Debris, Non-Hazardous Waste and Hazardous Waste.
- B. If required by the City, prepare and submit a Traffic Control and Transportation Plan at least 30 days prior to the excavation. The Traffic Control and Transportation Plan shall include, as a minimum: a proposed truck route from the on-site loading staging area to the disposal facility, traffic control, and alternate traffic patterns. The route(s) to and from the disposal facility shall be in accordance with the disposal facility requirements and Federal, State and local regulations, laws, and ordinances. The Contractor shall specify the weight limitations on all sections of the route(s) and indicate the maximum truck load/weight that will be maintained in accordance with route weight limits and any other applicable Federal, State and local regulations. In addition, the plan should outline the procedures that will be followed to comply with all applicable traffic and transportation regulations.
- C. Submit resume for Contractor's proposed Transportation and Disposal Coordinator.
- D. Submit technical data for the specified truck liner material and installation procedures.

## 1.03 QUALITY ASSURANCE

- A. The City in coordination with Honeywell will monitor the Contractor's activities associated with the work of this Section. This monitoring may include but not be limited to:
1. Verifying Contractor conformance with requirements for on-site management of excavated chromium-impacted materials;
  2. Reviewing requests from Contractor for off-site reuse, recycling, treatment, and disposal facilities, associated chemical testing and documentation of chromium-impacted waste materials acceptance by receiving facilities; and
  3. Verifying the appropriate Contractor-prepared paperwork accompanies each load of excavated soil and material that is transported from the site and verifying receipt of Contractor's submittal of paperwork for off-site facility receipt and processing of site materials.

## PART 2 - PRODUCTS

### 2.01 GENERAL

Not applicable.

## PART 3 - EXECUTION

### 3.01 GENERAL

- A. Transportation and Disposal Coordinator (TDC). The Contractor shall designate, by position and title, one person to act as the Transportation and Disposal Coordinator. The TDC shall be on-site full time. The TDC shall serve as the single point of contact for all environmental regulatory matters, and shall have overall responsibility for environmental compliance at the site including, but not limited to, accurate identification and classification of hazardous waste and hazardous materials, determination of proper shipping names, identification of marking, labeling, packaging and placarding requirements, completion of waste profiles, hazardous waste manifests, bills of lading, exception and discrepancy reports, and all other environmental documentation. In addition, the TDC responsibilities shall include maintaining any hazardous waste being stored in compliance with all applicable regulations (i.e. proper stockpiling) prior to shipment off-site. The TDC shall have, at a minimum, five-years of specialized experience in the management and transportation of hazardous waste. The TDC shall have appropriate DOT, OSHA and EPA training.

### 3.02 HAUL ROADS

- A. The Contractor shall construct and maintain temporary haul roads onsite from the site entrance to the locations of active excavation, stockpiles, weigh scales and truck washing facility, as needed to complete the work. Haul roads shall be maintained to permit efficient travel of fully loaded trucks. Contractor shall provide traffic control, such as signs and flaggers.
- B. Contractor shall prepare contingency plans for handling disabled vehicles, providing designated areas for queuing trucks, snow removal, lighting and any other facilities necessary to provide for efficient travel of trucks on-site.

### 3.03 COORDINATING WASTE SHIPMENTS

On a case-by-case basis, the Honeywell representative may take the lead in the coordination of waste shipments. This will be determined at the beginning of the work in agreement with the City. This does not relieve the Contractor from coordinating and assisting the Honeywell representative in performing the following:

- A. Contractor will obtain letters of acceptance/commitment from waste haulers and from the TSDFs agreeing to handle and dispose wastes. Letters shall specifically state what types and quantities of waste the facility will accept. A copy of each letter shall be maintained in the Contractor's file.
- B. Contractor shall coordinate shipment of waste to a Honeywell approved waste facility, for each class of waste. Contractor shall be responsible for determining the disposal facility's testing requirements and other acceptance requirements, and complying with those requirements for each shipment of waste.
- C. Contractor shall prepare daily and weekly schedules for shipment of waste to each disposal facility, identifying the quantities and dates of shipments.
- D. Contractor shall coordinate the supply of trucks necessary for shipment of waste from the site to the TSDF. Contractor shall coordinate the number of trucks in service to meet Contractor's schedule. The Contractor shall coordinate the schedule for vehicle arrival and material deliveries at the construction site to meet the approved project schedule. The schedule shall be compatible with the availability of equipment and personnel for material handling operations and ensure that the excavation schedule is maintained.

### 3.04 SHIPPING DOCUMENTS AND PACKAGING CERTIFICATION

On a case-by-case basis, the Honeywell representative may take the lead in the shipping documents and packing certification. This will be determined at the beginning of the work in agreement with the City. This does not relieve the Contractor from coordinating and assisting the Honeywell representative in performing the following:

- A. The Contractor shall be responsible for obtaining all permits and shipping documents (from the TSDF or regulatory authorities) to ship hazardous wastes off site, either within the USA or outside of the USA.
- B. The Contractor shall use manifests for transporting hazardous wastes as required by 40 CFR 263. Transportation shall comply with all requirements in the Department of Transportation referenced regulations in the 49 CFR series. The Contractor shall prepare manifests in accordance with the hierarchy established in 40 CFR 262, Section 21.
- C. The Contractor shall prepare hazardous waste manifests for each shipment of hazardous waste shipped off site. Manifests shall be completed using instructions in 40 CFR 262, Subpart B and any applicable state or local law or regulation. Manifests and waste profiles shall be submitted to the City and Honeywell for review and approval. The Contractor shall prepare land disposal restriction notifications as required by 40 CFR 268 or any applicable state or local law or regulation for each shipment of hazardous waste. Notifications shall be submitted with the manifest to the City and Honeywell for review and approval.

- D. The Contractor shall verify that each truck and-or container complies with applicable permitting.

### 3.05 LOADING TRUCKS

- A. Chromium impacted waste shall be loaded into trucks or containers within the exclusion area. Trucks will include liners. When loading is complete, the liner flaps shall be placed over the top of the chromium impacted waste prior to covering the waste in a manner to prevent contact adjacent to the loading area with the road tarp.
- B. Contractor shall provide liners for trucks used to transport hazardous chromium-impacted waste materials. Contractor shall assume and use trucks and truck liners with a truck capacity of 18-cubic yards (loose). Non-hazardous chromium impacted waste materials do not require liners.
- C. When truck loading is complete, the truck shall be decontaminated.
- D. Each loaded truck shall be weighed on-site.
- E. Each truck shall have a proper manifest and placard prior to leaving the site.
- F. Each truck entering and exiting the site shall be recorded and entered into the Disposal Manifest and Management system.

### 3.06 WEIGH SCALE

- A. The Contractor shall provide a system to weigh loaded trucks before they leave the site to confirm the maximum weight restriction for anticipated travel route is not exceeded. The system can include trucks equipped with load cells or a portable truck scale or similar device approved by the City and Honeywell's Representative.

### 3.07 HAULING BY TRUCK

- A. The Contractor shall insure that the vehicle is properly decontaminated, weighed and has the proper manifests and placards before the truck leaves the site.
- B. The Contractor shall respond and remedy situations involving material spilled in transit or mud and dust tracked off-site, within a distance of one mile from the site.
- C. The Contractor shall protect trucks against contamination by properly covering and lining them with compatible material or by decontaminating them prior to any use other than hauling contaminated materials. The Contractor is responsible for inspection of transportation vehicles prior to leaving the site, to verify no material adheres to the wheels, undercarriage, tailgates, covers or other areas of transport vehicles.
- D. The Contractor shall utilize truck tarps on all trucks entering and exiting the site.

--END OF SECTION--

**APPENDIX E**

**BAYONNE RULES AND REGULATIONS  
FOR SITE WORK, EXCAVATION AND BACKFILL**

## 501. GENERAL REQUIREMENTS

The term "Design Engineer" and "Architect" are used interchangeably within the Contract Documents and are intended to refer to the Owner's Design Representative familiar with the design or construction phases of the project. The term "City" shall refer to the City of Bayonne or their Consulting Engineer, and the term "Authority" and "Engineer" shall refer to the Bayonne Municipal Utilities Authority and the Authority Consulting Engineer and are intended to refer to local agencies familiar with the approved design plans and specifications and responsible for providing review and approval of the project.

The Technical Specifications consists of sixteen (16) Items as follows:

Section 502	Site Work and Restoration
Section 503	Excavations and Backfill
Section 504	Broken Stone or Screened Gravel Foundation
Section 505	Backfill Materials
Section 506	Pre-cast Concrete Manholes
Section 507	Furnishing and Installing Ductile Iron Sewer Pipe
Section 508	Bypass of Combined/Sanitary Sewer Flows
Section 509	Pre-cast Concrete Catch Basin Inlets
Section 510	Reinforced Concrete Pipe
Section 511	PVC Sewer Pipe
Section 512	Furnishing and Installing Ductile Iron Water and Force Mains
Section 513	Furnishing and Installing Ductile Iron Fittings (Mechanical Joint) for Water and Force Mains
Section 514	Furnishing and Installing Underground Valves and Valve Boxes for Water Mains
Section 515	Furnishing and Installing Fire Hydrants
Section 516	Furnishing and Installing Water Services
Section 517	Furnishing and Installing Sewer Service Connections

Road opening permits must be obtained from the City of Bayonne Building Department prior to undertaking any construction in or along the City of Bayonne public right-of-ways. Backfill and resurfacing of County and NJDOT roadways shall be as per the requirements of the County and NJDOT. The Contractor is specifically alerted to include the requirement for traffic control, working hour restrictions, and provision of uniformed Municipal Policemen when working within municipal, County, and NJDOT rights-of-ways.

The construction schedule is to be coordinated with the Owner, the Design Engineer, the City of Bayonne, the Bayonne Municipal Utilities Authority, and the Engineer. Regularly scheduled job meetings are to occur at least monthly during the full contract period and thereafter as may be necessary.

## 501.1 Additional Information

### 501.1.1 Insurance and Time Limits

The Contractor is to refer to the appropriate sections of the Authority Rules and Regulations for insurance requirements and time limits relating to project completion.

### 501.1.2 Patents and Royalties

If any design, device, material or progress covered by letters, patent or copyright is used or installed by the Contractor, he is to secure, pay for and provide for such use by legal agreement with the holder of the patent or a duly authorized licensee of such holder, and is to save harmless the Authority and Engineer from any and all loss or expense on account of including its use by the Owner.

### 501.1.3 Guarantees

All work, materials, and equipment furnished under this Contract are to be guaranteed by the Contractor to perform the services required of them, to the full satisfaction of these Specifications, for a period of two (2) years from the date of the final acceptance.

### 501.1.4 Other Contracts

The Owner may let other contracts related to the work of the Contractor. The Contractor is to cooperate with other contractors with regard to storage of materials and execution of the work. It is the Contractor's responsibility to inspect all work by other contractors affecting his work and to report to the Owner any irregularities which will not permit him to complete his work in a satisfactory manner. His failure to notify the Owner of such irregularities indicates the work of other contractors has been satisfactorily completed to receive his work.

The Contractor is not responsible for defects of which he could not have known, which develop in the work of others after the work is completed. Where work under this Contract is to be connected to work under other contracts, it is the responsibility of the Contractor to measure the completed work in place and report to the Owner immediately any difference between completed work by others and the provisions of the Contract Documents.

### 501.1.5 Witness Testing

All testing of materials and equipment specified under the various sections of these Contract Documents is to be witnessed by the Engineer. The Contractor will give the Engineer a minimum of 72 hours of advanced notice of such testing (Saturday, Sunday, and Holidays not included) and will make reasonable accommodations for the Engineer to witness such testing.

## 501.2 Special Project Procedures

### 501.2.1 Emergency Telephone

The Contractor is to maintain telephones at all times after regular working hours, including weekends and holidays, where he or his representatives can be reached on an emergency basis. The Contractor or his representatives are to be prepared to act to correct conditions on the site deemed to constitute an emergency by either the Owner, his agent, the Design Engineer, the City of Bayonne, the Authority, or the Authority's Consulting Engineer, but he is not to wait for instructions before proceeding to properly protect both life and property. If a condition on the site requires attention after working hours, either the Owner, his agent, the Design Engineer, the City of Bayonne, the Authority, or the Authority's Consulting Engineer may call the Contractor or his representatives at the emergency telephone number, identify himself and describe the emergency condition. The Contractor is expected to dispatch men and equipment to adequately institute corrective measures within two (2) hours. If, for some reason, the Contractor or his agent cannot be reached at the emergency number after a reasonable time (1/2 hour), the Owner will have the right to immediately initiate corrective measures in accordance with the Article which follows, covering Emergency Services to Correct Hazardous Conditions, and the Contractor will be considered to have waived any right to perform emergency service.

### 501.2.2 Emergency Services to Correct Hazardous Conditions

In the event that the Contractor fails to maintain safe job conditions or traffic conditions, including, but not limited to, trench settlement and hazardous piling or storage of backfill or construction materials, the Owner, after failure of the Contractor to commence substantial steps at the job site to rectify the situation within two (2) hours of the time the contractor has been notified, pursuant to the preceding paragraph, of the unsafe conditions, may hire guards, take such precautions, make such repairs and take any other steps which the Owner or the Owner's agent, in its discretion, considers necessary to protect the property, persons, or the Owner. The cost of any of these precautions, guards, or steps will be deducted from the payments due the Contractor, and the Contractor will be billed for these services, work, and materials at prevailing rates.

### 501.2.3 Notification to Utility Companies and Owners of Buried Pipelines

The Contractor is to comply with all provisions of the "Underground Facility Protection Act" (Public Law 1994, Chapter 118). The Contractor is to give notice at least three (3) business days and not more than ten (10) business days prior to the start of any work in the vicinity of existing utilities or appurtenances to the Garden State Underground Plant Location Service (N.J. One-Call System at 1-800-272-1000). The Owner is to be furnished, in writing, with the date such notice was given and the Garden State Underground Plant Location Service "Markout Confirmation Number", prior to the

start of any work. In addition, it is the responsibility of the Contractor to notify the Owner of any utility, which is not a member of the "N.J. One-Call System".

#### 501.2.4 Work In Bad Weather

During freezing, stormy or inclement weather, no work is to be done except such as can be done satisfactorily and in a manner to secure first-class construction throughout.

When required, protection is to be provided by use of tarpaulins, wood and building paper shelters, or other approved means.

During cold weather, materials are to be preheated, if required, and the materials and adjacent structure into which they are to be incorporated are to be made and kept sufficiently warm so that a proper bond will take place and a proper curing, aging or drying will result. Protected spaces are to be artificially heated by approved means, which will result in a moist or dry atmosphere according to the particular requirements of the work being protected. Ingredients for concrete and mortar are to be sufficiently heated so that the mixture will be warm throughout when used.

The Contractor shall also take measures to prevent run-off from entering the work area.

#### 501.2.5 Explosives

Explosives are not to be stored at the site of the Project. If explosives are required, their use may be permitted after discussions with the City of Bayonne, the City Engineer, Authority, and the Engineer and written permission all parties having jurisdiction, and only under the supervision of competent licensed blasters.

### 501.3 Coordination

#### 501.3.1 General

The review and coordination of shop drawings, actual execution of the work, and testing between general construction work, equipment and piping installation, pertinent instrumentation and electrical work is the responsibility of the Contractor.

The Design Engineer and the Engineer will check each shop drawing submitted to determine whether it complies with the intent of the Contract Documents and the design. This same requirement is placed on the Contractor and his supplier.

It is the intention of the Contract Documents to place various materials of construction and related requirements in their proper place in the specifications. However, no guarantee is made that such locations are, in every instance, where the Contractor might expect to find them.

The Contractor is required to provide, or make available, all appropriate documentation to each vendor and subcontractor, both prior to bid to ensure proper Proposals, and during construction to insure compliance with the intent of the Contract Documents. This is the sole responsibility of the Contractor.

The Design Engineer and the Engineer are not responsible for project coordination between various subcontractors, which is the responsibility of the Contractor. The Engineer will observe, by attendance at regularly scheduled job meetings, the orderly flow and progress of the work. The various subcontractors and those people responsible to them are required to interact with each other to insure that the work progresses in an orderly fashion and without exceeding the time allotted in the Contract.

The Contractor is responsible for reading all the Specifications. His review of all the Contract Documents as well as shop drawings, coordination drawings and other information required to complete the project is his sole responsibility. He is to request clarification on any matters where ambiguities might exist, in order to receive instruction as to the proper documents to follow.

All products or materials which require the selection of color finishes are to be submitted early and with sufficient lead time to permit the Authority, or Owner if the proposed facilities are not going to be owned and operated by the Authority, to develop an overall color coordination system for use by the Contractor in the final installation. Delays in submitting such product or material samples or color charts at one time may delay the selection process and prevent the Contractor from granting suppliers final releases for fabrication.

#### 501.3.2 Working Hours

The Contractor should generally limit construction operations and activities between the hours of 7:00 a.m. to 4:00 p.m. unless law establishes stricter limitations. No pile driving, pulling or other noisy operations, or operations entailing the use of vibratory hammers or compactors will be permitted, other than between the hours of 8:00 a.m. to 4:00 p.m. The Contractor must also abide by the provisions of the Article of the contract entitled, "Night, Sunday, & Holiday Work".

The Contractor must also have all work completed (including backfilling, plating, and cleanup) on all County and NJDOT roads by 3:00 p.m. each afternoon. The Bayonne Municipal Utilities Authority will strictly enforce this requirement, and the Contractor shall include any hardship anticipated in his bid items.

#### 501.4 Field Engineering

##### 501.4.1 Method of Construction

Before starting the work, and from time to time during its progress as the Design Engineer or the Engineer may request, the Contractor is to outline to the Design Engineer and the Authority's Consulting Engineer the methods he plans to use in doing the work and the various steps he intends to take.

##### 501.4.2 Additional Instructions and Detail Drawings

The Design Engineer may furnish the Contractor with additional instructions and detailed drawings as may, in the opinion of the Engineer, be required to clarify the work included in the Contract. The additional drawings and instructions, thus supplied to the Contractor, will be coordinated with the Contract Documents and will be so prepared that they can be reasonably interpreted as a part thereof. The Contractor is to carry out the work in accordance with any additional detailed drawings and instructions. Additional instructions and detail drawings are not to be considered extra work.

#### 501.5 Regulations

##### 501.5.1 General

All work under this Contract is to comply with all applicable requirements of Federal, State and local statutes, regulations, and codes, and especially the safety provisions contained therein.

Certain work to be done within the scope of this Contract may be required to meet the specification of persons, municipalities or bodies other than the Owner and the Authority. The Contractor is to be responsible for obtaining the approval and acceptance of his completed work by such persons, municipalities, counties and similar bodies. Such work may include, but is not to be restricted to installation of sidewalks, curbs, pavement or utilities; plumbing, electrical and building construction work or other incidental work required to complete the Contract.

##### 501.5.2 Environmental Protection

The Contractor is to minimize environmental impact due to his construction operations during all phases of his work. This shall include, but is not limited to, prohibition of the following construction procedures.

1. Dumping of spoil material into any stream corridor, any wetlands, any surface waters, or any unspecified locations.

2. Indiscriminate, arbitrary, or capricious operation of equipment in any stream corridors, wetlands, or surface waters.
3. Pumping of silt-laden water from trenches or other excavations into catch basins, surface waters, stream corridors, or wetlands.
4. Damaging vegetation adjacent to or outside of the access road or the right of way.
5. Disposal of trees, brush, and other debris in any stream corridors, wetlands, surface waters, or at unspecified locations.
6. Permanent or unspecified alteration of any flow line of any stream.
7. Open burning of project debris.
8. Use of chemicals for dust control.
9. Use of asphaltic mulch binder.
10. Discharge of test waters with high chemical disinfectant or other pollutant concentrations.

The Contractor shall protect, to the dripline, all trees not designated by the Engineer, the City of Bayonne, or the Authority to be removed.

The Contractor is directed to the appropriate sections of the Specifications for additional information regarding environmental work and protection.

#### 501.5.3 Labor, Safety, Health and Security Regulations

The Contractor is to refer to the appropriate portions of Information for Bidders regarding Regulations.

The Contractor is to provide adequate signs, barricades, red lights and uniformed guards and take all necessary precautions for the protection of the workers, the work and the safety of the public. All traffic control shall be in accordance with the requirements of the latest edition of the USDOT "Manual of Uniform Traffic Control Devices". All barricades and obstructions are to be protected at night by suitable signal lights which are to be lit from sunset to sunrise. Barricades are to be of substantial construction and painted such as to increase their visibility at night. Suitable warning signs are to be so placed and illuminated at night as to show in advance where construction, barricades or detours exist.

The Contractor is to keep on proper lights each night between the hours of sunset and sunrise at and upon all portions of his work; upon all ranges or other stakes in

connection with the work, when deemed necessary by the Owner, the Authority, or by the proper authorities, or when required by the liability insurance coverers, and is to be responsible for all injuries and damages resulting from neglect or failure in this respect. Night lighting must be so sized, concentrated and located so as to cast sufficient illumination around new construction and excavations. All excavations and obstructions must be properly marked, lighted and provided with railing and other guards.

The Contractor is to maintain sufficient guards by day and night to prevent accidents of any kind or character whatsoever, and will be liable for any damage, which may arise from any negligence on his part or that of his agents and employees.

If, at any time, in the opinion of the Owner, the Engineer, the City, of the Authority, the work is not properly lighted, barricaded, and in all respects safe in respect to public travel, persons on or about the work, or public or private property, the Owner will have the right, but not the obligation, to order such safeguards to be erected and such precautions to be taken as he deems advisable, and the Contractor is to promptly comply with such orders. If, under such circumstances, the Contractor does not or cannot immediately put the same into proper and approved condition or if the Contractor or his representative is not upon the grounds so that he can be immediately notified of this insufficiency of safety precautions in accordance with the procedures for notification of the Contractor specified under "Emergency Telephone", then the Owner may put the work into such a condition that it shall be, in his opinion, in all respects safe and the Contractor is to pay all expenses of such labor and materials as may have been used for this purpose by him or by the Owner. Such action of the Owner, or his failure to take such action, will in no way relieve the Contractor of the entire responsibility for any cost, loss, or damage by any party sustained on account of the insufficiency of the safety precautions taken by him, by the Owner acting under authority of this Section.

#### 501.5.4 Sanitation

Sanitary conveniences, properly screened from public observation, for the use of all persons employed on the work and beginning with the first persons engaged in preliminary operations, are to be provided and maintained by the Contractor in sufficient numbers, in such a manner and at such locations as will be approved. Sanitary facilities are to be completely self-contained, chemically treated and regularly serviced.

#### 501.5.5 Fire Safety

The Contractor is held responsible and is to maintain conditions, which promote fire safety in his operations at all times. Materials that could constitute a fire hazard such as gasoline, paints, wood and paper products are to be safely stored.

## 501.6 Project Meetings

### 501.6.1 Pre-construction Conferences

The Contractor shall schedule a pre-construction conference with the Owner, the Engineer, the City, and Authority to discuss the proposed schedule for construction and to coordinate construction observation and shop drawing submissions.

### 501.6.2 Job Meetings

The Owner may schedule regular job meetings at least monthly during the life of the Contract. The time and location of meetings is to be set by the Owner. The Contractor, unless otherwise notified by the Owner, is to have an authorized representative attend each meeting.

The purpose of these meetings is for maintaining communication between the Owner, Engineer, City, Authority, and Contractor, including the Contractor's subcontractors and suppliers. The meetings are to be used to coordinate various parts of the work, update construction schedules, prepare progress estimates and respond to questions which may be raised by the various participants.

## 501.7 Submittals

### 501.7.1 General

This section covers a variety of different types of documents, drawings, and material which the Contractor is to provide to the Engineer or Owner, and the Authority for their approval, information, or use. Submittals will include, but not be limited to: bonds, shop drawings, samples, color charts, operating and maintenance manuals, parts lists, spare parts and materials, special tools, and guarantees.

These items are to be submitted as specified in this Section and other Sections of the Specifications, in the proper quantities, and in a timely manner.

### 501.7.2 Shop, Coordination, Setting and Installation Drawings and Samples

The Contractor shall promptly submit to the Design Engineer, and the Engineer one (1) reproducible and four (4) copies of detailed shop drawings, guaranteed test curves, and manufacturer's specifications for all equipment, tools and furnishings to be supplied under this Contract. Detailed shop drawings shall be submitted for items such as backfill material, manholes, piping, ducts, miscellaneous metals, reinforced plastics, structural steel, reinforcing steel, mechanical equipment, fabricated items, electrical components, instrumentation and other work, whether or not mentioned in this section.

The Contractor shall submit these data with such promptness as to avoid delay in the work. **Unless otherwise approved in writing by the Authority, all materials,**

**equipment, and appurtenance shop drawings required by the construction of this project must be submitted and approved by the Engineer prior to the placement of any manufacturer or supplier orders.** Mechanical items, electrical items, instrumentation, reinforcing steel, and other items requiring long lead times and extensive review time shall be submitted first. In order for the Contractor to be deemed to have fulfilled this requirement, his individual submissions must be complete in every respect so that a logical and orderly review might follow. Piecemeal submissions are not acceptable. Final submissions for approval must be complete in all respects.

When dimensions are of particular importance, the drawing must be certified by the manufacturer as correct for this project.

The Engineer, and Design Engineer will review submitted data within a reasonable time after receipt of such data considering the complexity and completeness of such submissions. He shall determine at his sole discretion whether the data submitted are sufficient to render a decision. Resubmission of drawings by the Contractor for the Engineer's or Design Engineer's approval must be completed within ten (10) days of the return of the previous submission by the Engineer, or Design Engineer, unless the Authority Engineer specifically agrees to the contrary.

No materials, equipment or specialties are to be purchased, fabricated or released until the Engineer has approved the shop or working drawings as conforming to the contract requirements. All materials and work involved in the construction shall then be as represented by such drawings.

Shop drawings are to be not smaller in size than 8 1/2" x 11" nor larger than 30" x 42". Reproductions of the Design Engineer's drawings will not be acceptable as shop drawings. Before submitting shop drawings, the Contractor must check and sign all drawings, noting thereon any deviation from the Specifications.

One (1) reproducible and four (4) copies of shop drawings, test curves, or other material are to be submitted for approval. Following his review, the Engineer will return two (2) copies to the Contractor. If shop drawings are checked "Amend and Resubmit" by the Engineer, the Contractor must resubmit one (1) reproducible and four (4) copies of the revised shop drawings, of which two (2) will be returned to the Contractor by the Engineer.

The Contractor is to be responsible for furnishing subcontractors with approved shop drawings as required. No shop drawings are to be used for construction, ordering, fabrication, or other reasons unless marked "No Exceptions Taken" or "Make Corrections Noted" by the Engineer.

The Contractor is to note the difference in action expected by the Design Engineer or the Engineer with regard to Authority required drawings such as shop, coordination and installation drawings, and those that are presented by the Contractor, by his own choice, and for his convenience. Authority required drawings are to be construed as those,

which define shop systems work, parts drawings, fabrication drawings, test reports, certifications, and manufacturer's installation requirements. These will be reviewed and stamped appropriately by the Engineer after detailed review.

Contractor's coordination and/or installation drawings which are presented at his option are to be construed as those which assist the Contractor in his orderly execution of the work. Such drawings will be reviewed by the Engineer only as a convenience afforded the Contractor and shall not be stamped by the Engineer.

All Authority required drawings are to be stamped by the Contractor certifying his review and approval thereof. The stamp is to bear the following information:

APPROVED FOR CONTRACT REQUIREMENTS

The Contractor's signature below indicates that he has checked the drawing with the Specifications and found it to meet all requirements of same including dimensions, and that the Contractor's guarantee fully applies to the specified material or equipment.

RE: Specification Section \_\_\_\_\_ Page No. \_\_\_\_\_ Paragraph No.

Drawing Sheet \_\_\_\_\_ By: \_\_\_\_\_  
Signature/Contractor

Approval of any shop drawings, manufacturer's specifications, or other material by the Design Engineer, or Engineer, does not relieve the Contractor of the responsibility for:

- a) Errors of any sort in shop or setting drawings or schedules.
- b) Deviations from Specifications unless the Contractor has given written notice to the Design Engineer and Engineer of any such deviations at the time of submission.
- c) Responsibility for proper performance of his work.
- d) Coordination with other trades.
- e) Safety and security on the job site.

Data must include dimensions, detailed drawings, and manufacturer's specifications for all items. Specific data required are set forth under the various Specifications items, but in general, are to include characteristics and efficiency curves for all motors and pumps, as well as weights of equipment to be delivered.

When required by the specifications, the Contractor is to furnish duplicate samples of materials, finishes or other items proposed to be used in the work. All materials, finishes and workmanship incorporated in the work are to be similar and equal to the approved samples. The Engineer shall retain such samples until final acceptance of the project and return only those samples specifically requested.

### 501.7.3 Operating and Maintenance Instructions

The Contractor is to furnish six (6) sets of approved operating and maintenance instructions, completely covering the operation and maintenance of all equipment. In addition, he is to neatly frame one (1) set of concise operating and maintenance instructions for each piece of equipment and deliver them to the Owner. Manuals are to be bound in hard covers and include, as a minimum, the following for each piece of equipment and device:

1. Manufacturer's descriptive literature.
2. Maintenance instructions, including recommended lubricants and lubrication schedule, spare parts, parts lists and assembly drawings.
3. Troubleshooting and repair information and charts.
4. Performance data.
5. Copies of all approved Shop Drawings.
6. Recommended spare parts lists, including part numbers.
7. Provided spare parts listing, including part numbers.

All operating and maintenance instructions are to be submitted prior to the Contract reaching fifty (50%) percent of completion.

### 501.7.4 Special Tools

The Contractor is to furnish with each equipment item furnished, all special tools required and recommended by the manufacturer. This requirement is in no way intended to cover the furnishing of readily available tools for mechanical work.

### 501.7.5 Packing

All equipment requiring packing is to be furnished newly packed with the packing recommended by the equipment manufacturer. The Contractor is to furnish six (6) copies of a schedule listing the type and manufacturer of the packing recommended for each piece of equipment. He is also to furnish sufficient packing to repack each piece of equipment once, or as otherwise specified.

### 501.7.6 Lubrication

The Contractor is to furnish and use, for each piece of equipment, the type of oil and grease recommended by the manufacturer of the equipment. He is to furnish six (6) copies of a schedule listing the type, frequency of application, and manufacturer of the

oil and grease recommended for each piece of equipment. At the time of turning the installation over to the Owner, the Contractor is to furnish sufficient quantities of lubricants to cover the period of start-up from regular break-in to the first oil change and time to reorder after takeover by the Owner.

501.7.7 Record Drawings – The Contract is to keep accurate records of all deviations of his work from that shown on the approved drawings, and indicate the actual construction with colored lines on a set of wet drawings. The as-built drawings shall be provided to the Design Engineer who will then prepare the As-Built Drawings for submission to the Authority as required under the Authority's Rules and Regulations.

## 501.8 Quality Control

### 501.8.1 Conformance and Specifications

All work is to be built in a thoroughly substantial and workmanlike manner, in accordance with the Specifications and directions given from time to time by the Design Engineer or the Engineer. In no case will any work in excess of the requirements of the Specifications be paid for, unless ordered in writing by said Owner.

### 501.8.2 Lines, Grades and Measurements

It is the Contractor's responsibility to obtain and keep proper lines and grades as required by the project.

### 501.8.3 Dimensions of Existing Structures

The Contractor is to verify in the field, the dimensions and locations of existing structures, where an error or incomplete information relative to the location or dimension of existing structures would affect the construction to be done under this Contract. The Contractor is to verify such dimensions and locations before continuing with the construction work to the point where it would be affected.

### 501.8.4 Datum

All elevations used in the project shall be based on a NAVD 1988 datum.

### 501.8.5 Standard Specifications

All standard specifications referred to herein, such as NJDOT, ANSI, ASTM, AWWA, and the like, unless otherwise noted are to be the latest revision thereof, at the time of bidding.

#### 501.8.6 Services of Testing Laboratories and Special Consultants

The Authority may require and the Owner may retain the services of an independent testing laboratory to do such sampling and to make such tests as the Authority or Engineer may deem necessary to verify that the materials and equipment proposed for or incorporated into the work conform to the requirements of the Contract Documents. Any materials found not in compliance with the Authority's Rules and Regulations shall be removed and replaced at no additional cost to the Contract.

#### 501.8.7 Watertightness

The attention of the Contractor is called to the specific requirements of this Contract whereby the most rigid supervision will be required to insure an absolute minimum of leakage or infiltration in the case of liquid conveying or liquid containing structures.

In general, all structures and all pipe and appurtenant structures are to be of watertight construction. Any leakage is to be repaired in accordance with the appropriate sections of the Specifications.

The Contractor is to provide, maintain and operate suitable and adequate dewatering equipment to insure satisfactory construction and maximum progress.

In certain instances dewatering permits may be required by regulatory agencies. The Owner shall obtain such permits from the New Jersey Department of Environmental Protection.

#### 501.8.8 Clean-Up

During the course of construction all efforts must be made to maintain a neat and orderly project. Clean-up is to be pursued on a regular basis and in conjunction with the construction. The Contractor is to be responsible for clean-up during the life of this Contract with the full cooperation of all subcontractors. Upon completion of all construction, final clean-up is to include removal of all excess materials, equipment, backfill, etc., and the site is to be restored to a condition equal to or better than that existing prior to construction. Should the Contractor fail to remove such material, equipment and supplies, the Owner has the right to remove them at the expense of the Contractor.

At the completion of construction, the Contractor must tear down and remove all temporary structures unless expressly directed otherwise, and remove remaining rubbish of all kinds from all Contract structures, and from the site occupied during the progress of the work. The Contractor is to remove all concrete and ballast droppings and leave the site and the adjacent property which may have been affected by his operations in a neat and satisfactory condition. All structures and parts thereof constructed by the Contractor are to be thoroughly cleaned and left in first-class condition.

## 501.9 Construction Facilities and Temporary Utilities

### 501.9.1 Maintenance of Structures, Utilities, and Natural or Man-Made Surroundings

All existing utilities and/or process systems are to be kept in operation at all times during construction operations unless prior arrangements have been made to provide alternative service.

From the commencement of work, the Contractor is to be solely responsible for the care of the work during its progress for materials delivered and intended to be used, and for the protection to existing structures and trees or shrubs on or adjacent to the site of the work. Any injury or damage to the same is to be made good at the Contractor's expense.

Bypassing of sanitary flows are prohibited. Should any inadvertent bypassing of sanitary flows occur, the Contractor shall immediately notify the Authority, and appropriate notification is to be given to the NJDEP.

### 501.9.2 Occupying Private Land

The Contractor is not to enter or occupy with workers, tools, materials, or equipment, any land outside the easements or property of the Owner, unless written consent from said private property owner has been given to the Contractor and a copy of the consent provided to the Owner beforehand.

### 501.9.3 Existing Construction and Facilities

When new construction is adjacent to, or crosses streets or utilities under the jurisdiction of State, County, City or other public agency, public utility or private entity, the Contractor must secure written permission from the proper authority before executing such new construction. A copy of this written permission must be filed with the Authority before any work is done. The Contractor is to replace or repair all existing construction damaged in the execution of this contract. The Contractor will be required to furnish a release from the proper authority before final acceptance of the work.

### 501.9.4 Public Convenience

The Contractor is at all times to conduct his work so as to insure the least possible obstruction to traffic and inconvenience to the general public and residents in the vicinity of the work, and to insure the protection of persons and property. No road or street is to be closed to the public except with the permission of the proper authorities.

Fire hydrants on or adjacent to the work are to be kept accessible to fire-fighting equipment at all times. Temporary provisions are to be made by the Contractor to insure the use of sidewalks and the proper functioning of all gutters, sewer inlets, drainage ditches, and irrigation ditches, which are not to be obstructed.

The Contractor is solely responsible for satisfactorily maintaining flows in the existing utilities, affected by the work, at all times during the course of construction, unless otherwise indicated in the Contract Documents.

The Contractor is to review his construction schedule with the Authority, the City Engineer, and the Bayonne Police Department with respect to interruption of traffic and revise it accordingly if the City Engineer or the Police Department so requires.

#### 501.9.5 Temporary Utilities

Unless otherwise agreed to by the Owner, the Contractor is to make all necessary arrangements for temporary utilities required or herein specified. No specific payment will be made for the costs of such utilities, but the costs thereof are to be included in the price bid for the work. Upon completion of the work, the temporary utilities are to be removed.

- a) Telephone: The Contractor is to provide a job site telephone or use public pay phones at no charge to the Owner.
- b) Electric: The Contractor shall provide temporary electricity for himself and his subcontractors.
- c) Water: The Contractor may be allowed to use City water for temporary water required during construction. The Contractor shall obtain written approval from the Authority for use of any hydrants for this project, prior to their use. (A copy of this letter shall be sent to the Owner and Design Engineer.) The cost of temporary utilities, including any setup or connection costs, are to be borne by the Contractor and included in the price bid.

#### 501.10 Material and Equipment

##### 501.10.1 Construction Equipment

Contractors are to familiarize themselves thoroughly with the type and nature of the equipment required in the proper execution of the work, and are to use and employ only first-class equipment. Previously used equipment must be in safe, first-class working order and condition. Sufficient equipment must be furnished and used by the contractor to permit the completion of the work within the time specified. The equipment used on

any portion of the work is to be such that no injury or damage to the streets, adjacent property, or utilities will result from its use.

#### 501.10.2 Materials

Unless otherwise specified, only new materials are to be incorporated into the work. All materials furnished by the Contractor to be incorporated into the work may be subjected to the inspection and approval of the Engineer. No material is to be processed, fabricated, or delivered to the work without the prior approval of the Engineer, except at the risk of the Contractor.

The Contractor is to submit, to the Design Engineer and Engineer, data relating to materials he proposes to furnish for the work. Such data are to be in sufficient detail to enable the Engineers to identify the particular product in question and to form an opinion as to its conformity to the Authority Rules and Regulations. This data must be submitted for review and approval as soon as possible and prior to the ordering of any materials for construction.

Facilities and labor for the handling and inspection of all materials are to be furnished by the Contractor. Defective materials must immediately be removed from the site of the work.

If the Engineer so requires, either prior to beginning, or during the progress of the work, the Contractor is to submit samples of materials for such specific tests as may be necessary to demonstrate that the materials conform to the Specifications. Such samples are to be furnished, taken, stored, packed, and shipped as directed, at the expense of the Contractor. Except as otherwise noted, the Owner will make arrangements for and pay for tests.

All samples are to be packed so as to reach their destination in good condition and are to be so labeled as to indicate the materials represented, the name of the building or work and location for which the material is intended, and the name of the Contractor submitting the sample. To ensure consideration of samples, the Contractor is to notify the Engineer by letter that the samples have been shipped and is to properly describe the samples in the letter. In no case is the letter of notification to be enclosed with the samples.

The Contractor is to submit data and samples, or place his orders, sufficiently early to permit consideration, inspection, testing, and approval before the materials are necessary for incorporation in the work. Any delay resulting from his failure to do so is not to be used as the basis of a claim against the Owner, the Design Engineer, the Authority, or the Authority's Consulting Engineer.

When required, the Contractor is to furnish to the Engineer, in quadruplicate, sworn copies of manufacturer's shop or mill tests, or reports from independent testing laboratories relative to material data.

In accordance with the "Buy American" provision in Public Law 95-217 (Section 215 of the Public Law 92-500 as amended) N.J. Public Contracts Law 40A:11-18, and implementing EPA regulations and guidelines, the Contractor agrees that preference will be given to domestic construction material by the Contractor, subcontractor, material suppliers, and equipment suppliers in the performance of this contract.

The Contractor is to certify that the purchased products and materials are in accordance with the above referenced "Buy American" clause and, in addition, is to provide all information required to justify the use of any foreign made product.

#### 501.10.3 Cutting and Patching

The Contractor is to do all necessary cutting and patching of the work that may be required to properly receive the work of the various trades or as may be required by the Specifications to complete the structures. He is to restore all such cut or patched work to a condition, which receives the approval of the Engineer. Cutting of structures that may endanger the work, adjacent property, workers or the public is not to be done.

#### 501.10.4 Delivery and Storage

The Contractor is to deliver equipment and materials to the site and store them in original containers suitably sheltered from the elements, but readily accessible for inspection until installed. He is to store all items subject to moisture damage (such as controls and electrical equipment) in dry, heated spaces. All excavated materials, construction equipment and materials to be incorporated in the new work are to be so placed as not to damage the work and so placed that free access may be had at any time to all parts of the work and to all public utility installations in the vicinity of the work. If insufficient area is available, the Contractor is to provide off-site areas at his own expense. Materials are to be kept neatly piled and compacted and conveniently stored so as to inconvenience, as little as possible, public travel and adjoining tenants.

#### 501.10.5 Service of Manufacturer's Representatives

The Contractor is to provide the services of a skilled and experienced representative of each manufacturer supplying equipment under this Contract, for such periods as, are satisfactory to the Engineer, are essential for the proper and satisfactory installation and testing of the equipment, and training of the Owner's personnel in its use. In certain instances, particular specification sections may indicate the minimum number of visits and/or hours required to comply with the intent of the specifications regarding services of manufacturer's representatives.

#### 501.10.6 General Mechanical Design

All equipment is to be adequately designed for the work to be done and the loads to be sustained, and is to be proportioned for ample stability and rigidity. Design is to be neat and is to provide necessary clearances for erection, repairs and adjustment. Best modern practice is to be followed in all respects.

Design of similar units is to be such that they present a uniform appearance and be similar in operation. Fittings and fixtures on the units are to be of the same make wherever possible. Parts are to be interchangeable wherever feasible.

#### 501.10.7 Housings and Guards

All exposed moving parts are to be covered by neatly detailed sheet metal housing or guards of approved thickness and design. Housings are to be as compact as possible, and are to be detailed to be readily removable and to allow convenient lubrication. Housings, unless otherwise specified, are to be not less than 14 gauge, and complete with all necessary bracing. Bracing preferably is to be on the inside of the housing. All housings and guards are to be in compliance with the latest Occupational and Safety Health Act regulations.

All equipment requiring the changing of fluid lubricants is to be provided with drain cocks and necessary piping to permit the draining of lubricants into a container.

Drip pans and splash plates are to be furnished where required, to prevent unsanitary or unsightly conditions. All such pans and plates are to be neatly detailed and accessible for cleaning. All housing, guards, drip pans, and splash plates are to be of aluminum or stainless steel.

#### 501.10.8 Grease Fittings

The Contractor is to ensure that all grease fittings on each piece of equipment furnished under the Contract are standardized so that only the "Alemite" button head type of fitting is utilized. Fittings are to be standard or giant size according to the type of service performed.

#### 501.10.9 Templates and Foundation Bolts

In order to insure the proper setting of all foundation bolts or fastenings, the Contractor is to furnish all templates for the equipment or fastenings, and furnish and set all bolts, guides, and fastenings required for the installation of the equipment at such times as the progress of the Contract work requires. All anchor bolts and nuts shall be of stainless steel.

If bolts or fastenings must be reset, or if drilling is required in the final installation, such work is to be done without further payment than is included in the lump sum price bid for the work of this Contract.

#### 501.11 Special Conditions

##### 501.11.1 General

The Contractor is to review the Specifications to determine the extent of the work. The Contractor is specifically alerted to this section concerning inspection of the existing field conditions. The Contractor is to visit and inspect the project prior to preparing his bid in order to clearly familiarize himself with all field conditions, and the extent of all work. After his review and inspection is complete, and before he submits his bid, if the Contractor has any questions regarding the extent and details of the work, he is to submit them to the Engineer in writing.

Before proceeding with any work, the Contractor is to confirm methods of construction and obtain field measurements as required.

Failure of the Contractor to familiarize himself with all conditions existing at the site of construction will not relieve him of his obligation to furnish all material and labor necessary to carry out the provisions of the Standard Specifications and to complete the contemplated work.

The Contractor is cautioned that existing utilities are to be kept in operation during the project unless otherwise approved by the Authority or utility owner.

The Contractor is alerted to the fact that the Authority assumes no responsibility for actual conditions of the areas affected by work indicated or called for by the Contract Documents.

##### 501.11.2 Construction Sequence

The Contractor shall undertake work under this Contract only in accordance with the following sequence of construction activities. This sequence may be modified as required by the Engineer or Authority, but the Contractor shall not depart from the sequence indicated below without prior written permission from the Engineer or Authority to do so. Construction sequence follows below:

1. Mobilization.
2. Installation of erosion control measures.
3. Installation of traffic control devices in approved work areas.

4. Installation of water and/or sewer utilities and related appurtenances, backfilling and temporary pavement.
5. Testing and acceptance of pipelines and related appurtenances.
6. Restoration of unpaved areas at regular intervals as approved by the City of Engineer.
7. Final pavement restoration.

501.11.3 Asbestos-Containing Material and Hazardous Material

The Contractor shall not supply, provide or bring onto the construction site any asbestos containing material or hazardous material (either in kind, as a component of equipment to be used or furnished under the Contract, or as a component of another material to be used or furnished under the Contract) without the express advance, written consent of the Owner. The term, "hazardous material" shall have the meaning ascribed in Federal Standard No. 313B in effect on the date of the Contract.

The Contractor shall submit to the Authority and the Owner (with a copy to the Engineers) a Material Safety Data Sheet (Department of Labor Form OSHA-20) together with a complete written description of the intended usage for any such material for which the Owner's consent is required, at least thirty (30) days before the delivery of such material.

Such consent shall not be given if materials or equipment not containing asbestos or hazardous material are available, and the Contractor shall not be entitled to any adjustment in time or compensation for providing non-asbestos-containing and non-hazardous materials.

## 502.0 SITE WORK AND RESTORATION

Site and access clearing shall consist of all materials, labor and equipment necessary to complete the work of clearing the site of the Project within the limits of the construction site, or hereinafter specified, including the removal of trees, grubbing and pruning, shrubs, and stripping and stockpiling topsoil.

The Contractor shall also furnish all labor, materials and equipment required to control within reasonable limits, soil erosion resulting from construction operations and prevent excessive flow of sediment from the construction site. Such work shall include, but not be limited to the installation of water diversion structures, diversion ditches, sediment basins, snow fencing, silt fencing, seeding, mulching, matting or sodding Critical Areas to provide temporary protection.

### 502.1 Site and Access Clearing

Prior to commencing of the project the Contractor shall determine, and if necessary obtain, a tree permit per Chapter 14 of City Ordinance. Only that portion of the project area which is absolutely necessary and essential for the completion of the contract and which has been approved by the Design Engineer shall be cleared for construction. The ground surface shall be cleared of all trees, brush, weeds, roots, matted leaves, debris and other unsuitable matter, except as otherwise hereinafter provided. Tree stumps shall be grubbed out.

Straggling roots should be pruned. Trees, which must be pruned shall be cut cleanly and painted with tree paint. If the tree is damaged, the wood shall be repaired and painted with an approved material.

It is intended to protect and save trees from removal wherever possible. Where methods of construction or minor relocation will avoid tree removal such methods will be employed without additional compensation. Trees outside of the project area shall in no case be disturbed, and approved boxing shall be provided as may be required to protect trees adjacent to the project.

Trees, shrubs and other landscape features within the limits of the construction, which do not interfere with the Project shall not be removed, but shall be protected during the progress of the work in a manner satisfactory to the Engineer.

The Contractor shall be responsible for the preservation of all existing trees, plants and other vegetation that are to remain within or adjacent to the construction site and shall use every precaution necessary to prevent damage or injury thereto. The Contractor shall give special attention to the protection of the natural vegetation and other existing landscape features and surroundings. The Contractor shall repair all injuries to bark, trunk, limbs, and roots or remaining vegetation by properly dressing, cutting, bracing and painting, using only approved tree surgery methods, tools and materials.

The removal and disposal of elm trees in all counties of the state are subject to provisions of State laws and to regulations of the State Department of Agriculture. Before removing any elm trees, the Contractor shall consult the Plant Pathologist of said Department and shall comply with his instructions relating to the removal of elm trees and the marking segregation and disposal of elm wood. The Contractor shall submit to the said Plant Pathologist an "Application for Instructions for Disposal of Encountered Elm Wood."

Materials accumulated by clearing, grubbing and pruning as above described shall be disposed of by the Contractor at sites to be provided by him outside of the work. No burial of materials shall be permitted.

After interfering vegetation has been removed, the Contractor shall strip any and all topsoil from the area to be excavated and stockpile it for future use as specified elsewhere utilizing these specifications. Stripped topsoil shall not be intermixed with other excavated material. Stockpiles in all areas shall be protected during construction.

#### 502.2 Erosion Control

Erosion control procedures, inclusive of mulching, shall be utilized in all project areas. Erosion control measures shall be taken, as required, starting immediately after site and access clearing, continuing during sewer construction, site demolition, and until the site has been satisfactorily restored.

The Contractor shall continuously control erosion during construction. Critical Areas shall be protected at all times by temporary seeding, mulching, or sodding, or the slope lengths shall be reduced by the installation of diversions or other means. Where topography permits, debris basins shall be constructed at points of water concentration from Critical Areas. Earth berms or diversions shall be constructed to intercept and divert runoff water away from Critical Areas. Diversion outlets shall be stabilized by paving or other means acceptable to the Engineer, if required.

Structures proposed for erosion control shall be designed by the Contractor and approved by the Engineer and constructed in accordance with the Engineering Practice Standards for diversions, waterways, and debris basins as defined by "Standards for Soil Erosion and Sediment Control in New Jersey," prepared by the New Jersey State Soil Conservation Committee.

In Critical areas, particularly along steep slopes and wetlands, site clearing shall be delayed until absolutely necessary for the continuation of construction.

#### 502.3 Sediment Control

Sediment shall be settled or filtered out of all surface or subsurface water encountered during construction before such water enters any surface waters. Dewatering operations shall direct pumpage as far from stream banks as possible. Care should be

taken not to damage or kill vegetation by excessive watering or silt accumulation in the discharge area. Settling basins or sediment traps shall be constructed and used where necessary to protect vegetation and to achieve environmental objectives.

Construction staging areas, and areas for stockpiling material, shall be selected so as to be consistent with environmental objectives and constraints. All such areas shall be located so as to avoid erosion and siltation. Locations of staging areas used for stockpiling shall be approved by the Owner and modified as required by other authorities.

#### 502.4 General

After the trench or project area has been backfilled, and properly graded, the area shall be prepared immediately for restoration of vegetation. Erosion control measures shall be utilized as required and final restoration shall be undertaken as soon as an area is no longer needed for construction, stockpile, or access. Excavated stones and boulders too large to be incorporated in backfilling shall be removed from the construction site. Excess soil in the area shall be graded or removed. When construction access roads are no longer needed, road fill shall be removed and the access area shall be restored according to the specifications contained herein. Care should be taken to avoid damage to adjacent vegetation and to prevent the formation of depressions that would form ponds of stagnant water.

#### 502.5 Grading

Contractor shall rough grade areas disturbed by construction to a uniform finish which will form the bases for terraces, banks, lawns, and paved areas. Areas to be paved shall be graded to depth required for placing of sub-base and paving materials. Areas to be top soiled and seeded shall be graded to 6-inches below indicated finish contour elevations as shown on contract drawings. Contractor shall provide additional approved grading material if required to meet proposed grades.

#### 502.6 Restoration

Environmental restoration shall consist of permanent replacement of vegetation over the entire area cleared for construction. The restoration shall be accomplished by one or more of the methods described within the various subdivisions of this Item. The restoration shall be permanent in all respects.

Permanent restoration of vegetation cover shall commence as soon as practical after backfill so that completion of restoration work will follow backfilling by a maximum of 10 calendar days. Time extension beyond the 10-day requirement may be requested in writing for specific areas or sections of the alignment. Approval of any such extensions shall be based on the potential of the particular area to present adverse environmental results if left barren over the extended period.

502.7 Topsoiling, Fertilizing, and Seeding

Topsoiling, fertilizing and seeding shall include all labor equipment and materials necessary for preparing topsoil stripped and stockpiled on the site for use as topsoil and placing it, furnishing and placing topsoil required in excess of that obtained from stripping, furnishing and placing seed mixtures and grain seed, fertilizer, ground limestone and any other materials specified herein. The Contractor shall restore the site under this item when existing lawns, parks or otherwise improved grass areas are disturbed during construction.

502.8 Topsoil

The topsoil shall be spread over the surface in a uniform 6-inch minimum layer. Ground limestone shall be added where necessary to produce a soil Ph of 6.5 in the upper 3-inches of topsoil. All stone, roots, debris and other unsuitable material shall be raked out. 10-20-10 commercial designated fertilizer shall be applied at the rate of 500 pounds per acre. All topsoil acquired from off-site locations shall be best quality screened topsoil of a similar color and texture as the existing topsoil and shall as minimum conform to Ph and organic content as required by the NJDOT Standard Specifications for Road and Bridge Construction, 1989 or latest edition.

502.9 Seeding Improved Areas

The seed mixture shall be sown at the rate of 100 pounds per acre together with rye or oat grain at the rate of 10 pounds per acre. Where slopes are greater than 2:1, rye or oat grain shall be used at the rate of 25 pounds per acre. When seeding in the spring, oats shall be used and in the fall, rye. On extremely steep slopes, the Engineer may order the addition of other seeds to the mixture.

No permanent seeding shall be done when the soil is wet or frozen.

A satisfactory stand of grass shall be established on all areas. All areas where a satisfactory stand of grass is not produced shall be re-fertilized and reseeded until a satisfactory stand is produced, with no additional payment.

Grass seed mixture shall be as follows:

	<u>Seed</u>	<u>Minimum Purity %</u>	<u>% of Total Minimum Weight of Germination Mixture</u>
Kentucky Blue Grass	85	75	20
Red Fescues	95	80	35
Kentucky 31	95	80	20
Redtop	92	85	10
Perennial Ryegrass	98	95	10
White Clover	97	90	5

The Contractor shall be required to water the seeded areas as necessary to produce a thick growth.

#### 502.10 Seeding Unimproved Areas

The seed in unimproved areas shall be perennial rye sown at the rate of 100 pounds per acre. A thick stand of grass shall be established on all areas, and if a satisfactory stand is not produced after the initial seeding, the area shall be reseeded until a satisfactory stand is developed.

No seeding shall be done when the soil is wet or frozen.

Grass shall be watered if necessary to provide a satisfactory growth. Slope restoration shall be in accordance with other sections of these specifications.

#### 502.11 Slope Restoration

Slope boards shall be used where necessary to hold topsoil on steep slopes. Satisfactory placement of topsoil on all construction areas is the responsibility of the Contractor and no additional payment for slope boards shall be made. Hay bales shall be placed at the base of the slope prior to ground disturbance. Steep slopes that have been disturbed, if not sodded, shall be seeded and mulched immediately after construction is complete.

#### 502.12 Mulching

Mulching shall include all labor, materials and equipment necessary for the furnishing, spreading and binding of hay and salt hay on areas that have been seeded.

All designated seeded areas shall be mulched with hay uniformly spread in a layer 1 to 1-1/2 inches thick, loose measurement. Hay shall be blown on in its natural length. Chopped hay shall not be used. No designated seeded areas shall remain un-mulched longer than seven (7) days.

All mulch shall be bound in place with one application of binder applied at a temperature of 145EF to 155EF. After the hay mulch has been spread, the binder shall be applied at a rate of 0.04 gallons per square yard on slopes of less than 10% and a rate of 0.075 gallons per square yard over the entire area of slopes of 10% or steeper. The use of asphaltic mulch binders is prohibited.

If any mulch is displaced before the grass has made a growth of 1-1/2 inches, it shall be replaced and rebound without additional compensation.

502.13 Matting for Slope Stabilization & Restoration

The Contractor shall provide all labor, materials and equipment for the installation of matting for soil stabilization and restoration.

Jute mat shall be cloth of a uniform plain weave of un-dyed and unbleached single jute yarn, 48 inches in width plus or minus 1 inch and weighing an average of 1.2 pounds per linear yard of cloth with a tolerance of plus or minus 5 percent, with approximately 78 warp ends per width of cloth and 41 weft ends per linear yard of cloth. The yarn shall be of a loosely twisted construction having an average twist of not less than 1.6 turns per inch and shall not vary in thickness by more than one half of its normal diameter.

Excelsior mat shall be wood excelsior, 48 inches in width plus or minus 1 inch and weighing 0.8 pounds per square yard plus or minus 10 percent. The excelsior material shall be covered with a netting to facilitate handling and to increase strength.

Staples for anchoring soil stabilization matting shall be made of 12-to-20 inch lengths of No. 8 plain iron wire.

Shape and grade the area to be protected as required by the Contract Plans and Specifications. In general all areas shall be returned to the grades which existed prior to construction unless otherwise ordered by the Engineer. Remove rocks, clods over 1-1/2 inches in diameter, sticks and other material that will prevent contact of the matting with the soil surface.

Lime, fertilizer and/or seed in accordance with the applicable seeding standard except that for jute matting one half of the seed may be applied prior to laying the matting and the remaining seed applied after laying the matting.

Matting shall be laid from the top of the slope and unrolled downgrade so that the strip extends 12 inches past the toe of slope or to un-cleared land. For jute matting, allow at least a 2-inch overlap at all joints. Excelsior matting may be butted.

Bury the top end of jute strips in a trench 4 inches or deeper and tamp the trench full of soil. Reinforce with a row of staples driven through the jute 4 inches downhill from the trench. These staples should be 10 inches apart. Staple the overlap at all joints with staples three feet part. Closer stapling along the edges is required where concentrated water may flow down the slope. Edges of excelsior matting shall be stapled on 12-inch centers.

At any point, jute matting may be folded for burying in slit trenches and secured as were the upper ends. This checks water flow and erosion that may begin under the matting and improves tie-down. This procedure is required on the steeper slopes in sandy soil and gentler slopes subject to seepage.

Where diversion channels are constructed, the channel shall be protected with matting used in the same manner as on slopes.

Contact between matting and soil shall be obtained by rolling after laying stapling and seeding are complete. Complete contact is vital to keep water flow over, not under, the matting.

## 503.0 EXCAVATION AND BACKFILL

### 503.1 Character of Material

Any and all fill imported to the site shall be certified as clean fill. An original copy of such certification, and/or laboratory analysis reports, must be provided to the Authority prior to the material being brought to the site.

### 503.2 Excavations, Clearances and Trimming

Excavations shall be of sufficient width to permit work to be done competently, in the manner and of the size specified and shown, and limits shall be such as to permit the use of outside forms, unless permission for an alternate procedure is specifically granted. In no case shall excavations be carried below grade by machine and backfill used to bring the grade to the proper elevation for bottom slabs, footings or pipelines.

In all excavations for pipe, boulders, rock, masonry, or other similar materials shall be excavated to a level at least six inches below the invert of the pipe, and carefully refilled with 3/4 inch stone or other approved material. Rock or boulders shall be removed from sides of trenches to a plane 12 inches beyond the outside wall of the pipe, manholes, etc., unless permission to do otherwise is expressly given.

The trench width just above the top of the pipe shall be maintained as narrow as possible and in general shall not exceed the outside diameter of pipe plus two (2) feet.

### 503.3 Unauthorized Excavation

If any excavation is caused by the Contractor's error, or wherever the excavation is carried beyond or below the lines and grade given by the Engineer, the Contractor shall, at his own expense, refill all such excavated space with such material and in such manner as may be directed, in order to insure the stability of the various structures. Beneath all structures, the space excavated without Engineer shall be refilled with 4,000 lb. concrete.

### 503.4 Sheeting and Bracing

Where necessary, particularly to prevent disturbance, damage, or settlement of adjacent structures, pipelines, utilities, improvements, or paving, excavation shall be adequately sheeted and braced. In areas where excavations exceed five (5) feet in depth, the Contractor shall assume full responsibility for the design and installation of sheeting and bracing of excavations such that the sheeting and bracing design meets all the latest requirements of the New Jersey Construction Safety Code and the Federal Occupational Safety and Health Act.

Sheeting and bracing shall be furnished and installed, and if ordered by the Engineer, left permanently in place. If sheeting is not ordered to be left in place it shall be removed.

All permanent steel sheet piling and accessories shall be new and conform to the requirements of ASTM A6-99, "Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling". All steel sheet piling shall be interlocking steel sheeting as shown on Contract Drawings and conform to the ASTM Designation A572-99a, "Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel" (GR 50).

All payment for furnishing, and placing permanent new sheet piling and bracing or other excavation protection which is specified in the Specifications, to be left in place and not removed, are included under the lump sum bid for this project and not considered Extra Work. All permanent sheeting shall be cutoff to the lines and grades as required.

All payments for furnishing, placing and removing sheeting and bracing, for use of trench boxes or other excavation protection, are included under the prices bid.

#### 503.5 Removal of Water and Protection from Flooding

The Contractor shall remove all water from the excavation promptly and continuously throughout the progress of the work and shall keep the excavation dry at all times by approved methods such as sumps, under-drains, or well points, until the structures to be built therein are completed. Pumping shall be continuous where ordered by the Engineer to protect the work and/or to maintain satisfactory progress. If the removal of water impairs water wells it is the Contractors responsibility to provide an alternate source of potable water until recovery of the well. Should the anticipated or actual volume of water pumped during dewatering exceed 3 million gallons per month, the Contractor shall be responsible for obtaining a water diversion permit from NJDEP.

Precautions shall be taken to protect uncompleted work from flooding during storms or from other causes. All pipelines or structures not stable against uplift during construction or prior to completion shall be thoroughly braced or otherwise protected.

All necessary precautions shall be taken to prevent disturbance of and to properly drain the areas upon which concrete is to be poured, and upon which pipe is to be laid.

Contractor's plant and equipment shall be adequate to keep all concrete work dry until properly set.

#### 503.6 Topsoil

In unpaved area(s), all topsoil shall be stripped and stockpiled and replaced. No topsoil shall be removed from the job site, but shall be stockpiled in the vicinity of the area

from which it is removed. Topsoil shall be replaced in the location and to the depth from which it was removed.

#### 503.7 Compacting Foundation

Wherever the development of suitable foundation conditions requires it, the contractor shall take the proper means of compacting such foundation material. After excavation to grade, the surface shall be tamped, or otherwise consolidated to adequately prepare the bottom for the loads to come upon it, the method depending upon the quality and condition of the material. Where so required to stabilize the surface, screened gravel shall be placed on the surface and shall be compacted into the sub-grade in such thickness as may be required by the Engineer.

#### 503.8 Additional Excavation

Wherever, in the opinion of the Engineer, the material found at the grades for the slabs, wall footings, or pipe inverts, is not satisfactory, the Contractor shall make any additional excavations as directed by the Engineer, and shall refill the same to two inches above the required grade with selected material.

#### 503.9 Backfilling

As soon as practicable, after the pipe or masonry has been placed and the masonry has acquired a suitable degree of hardness, the backfilling shall begin and shall thereafter be prosecuted expeditiously.

All lumber, rubbish, and braces shall be carefully removed from behind walls or other structures, unless ordered left in place by the Engineer. Backfill under the pipe haunches, around the pipe, and up to a cover of at least 18 inches over the top of the pipe shall be placed by hand in 6-inch layers, each layer to be thoroughly compacted by mechanical tampers of an approved type.

All other backfill shall be compacted and tamped in maximum 6 inch to 12-inch lifts to obtain 90 to 95% of relative density. Smaller lifts shall be compacted if 90 to 95% of relative density is not obtained compacting 6 inch to 12-inch lifts. No heavy stones or boulders shall be allowed to drop in the trench.

All excavated soil within roadways and other paved areas shall be replaced with quarry process NJDOT I-5 stone. Backfill between a plane 18 inches above the top of the pipe and the finished surface grade shall be placed in successive layers of not over 6 inches compacted thickness. Each layer shall be thoroughly compacted using approved tamping machines.

In rights-of-way, easements, and paper streets, backfill between a plane 18 inches above the top of the pipe and the finished surface grade, the Contractor shall keep settlement to a minimum and shall promptly restore to proper grade any settlement that

might occur. Backfill in this zone shall be placed in successive layers of not over two (2) feet compacted thickness, or as directed by the Engineer. Each layer shall be thoroughly compacted using approved tamping machines.

All excavated material outside the roadways i.e., easements, shall be stockpiled at the site, outside the roadway. The stockpiled materials shall not interfere with vehicular, bicycle or pedestrian traffic, interfere with drainage or cause sight distance problems for vehicular bicycle or pedestrian traffic.

The trench outside the roadway shall be backfilled with only acceptable excavated material. Where in the opinion of the Engineer the excavated material is unsuitable for backfilling the excavated material shall be disposed of at approved off site locations and the trench backfilled with sub-base material Type I-5 as directed by the Engineer.

All backfill in embankments shall be thoroughly compacted by rollers of approved size and weight or by other approved methods.

#### 503.10 Disposal of Material

Only excavated material acceptable to the Engineer shall be disposed of in backfilling, outside roadways, i.e. easements and to the lines and grades established by the Design Engineer. All other excess material and all material within roadways shall be disposed of by the Contractor in approved locations outside of the working areas.

Temporary storage of excavated material shall not be on environmentally sensitive areas. Also excess fill shall not be used for the top 6 inches of topsoil.

The contractor shall restore all grades to those elevations existing, prior to construction. The Contractor shall be responsible for removal and disposal of all excess excavated material. Approval by the City Engineer must be obtained prior to disposal of excess excavated material to sites within the City.

Prior to disposal of excess material, the Contractor shall notify and obtain approval from the City of Bayonne regarding the location of the disposal site. All permits, surveys, etc., required for disposal of material, by the City of Bayonne, State of New Jersey, or any other agency shall be obtained by the contractor. Under no circumstances shall material be disposed of in flood plain, wetlands, or any other environmentally sensitive area.

#### 503.11 Solid Waste Disposal

The Contractor is directed to Public Law NJAC 7:26-1 et seq. Rules of the Bureau of Solid Waste Management, 1974. In general, this law requires that all solid wastes (concrete, black top, demolition or construction debris, etc.) must be disposed in an approved, licensed landfill site. Also, any truck hauling this type of material to a landfill must have a permit issued by the Bureau of Solid Waste Management.

### 503.12 Temporary Bridges and Crossings

The Contractor shall, where required to expedite the work, or where required to maintain traffic, or where otherwise ordered by the Engineer, construct temporary bridges, or walkways, of adequate sized members to safely carry the loads which may reasonably be anticipated, and the sizes of the members used shall meet with the approval of the Engineer.

Temporary bridges shall be removed when they are no longer needed and the area shall be restored. Erosion and sediment control procedures are to be included as described in the specifications.

### 503.13 Protection and Restoration of Existing Structures & Pipe Lines

The contractor shall carefully protect all existing structures, both above and underground, including but not limited to poles, curbs, driveways, parking areas, privately owned pavements, signs, sumps, pits, catch basins, manholes, underground tanks, and building foundations; pipe lines, including gas mains, water mains, hydrants, drain lines, storm sewers, sanitary sewers, service connections, conduits, and miscellaneous underground pipe lines; and shall restore same to a condition equivalent to conditions existing prior to his operation.

The contractor is specifically directed to the requirements of protecting all trees along the route of the work in an approved manner.

The work of protecting and restoring existing utilities and facilities and including trees where no definite physical interference exists, or where the interference is avoidable, shall be the responsibility of the Contractor.

Ample precautions shall be taken to prevent settlement of existing improvements.

The work will be located so as to avoid interference to the greatest degree practicable, based upon data available as to depth and location of existing utilities and other existing facilities.

The Contractor shall, insofar as possible, determine in advance of excavation of trenching machines, the location of all utilities and other subsurface structures and facilities and shall accurately mark same so that they may be avoided by the machine.

Where existing utilities or other sub-surface facilities adjacent to the trench or crossing through the trench require temporary support or protection, the work shall be the responsibility of the Contractor.

Where definite physical interference would be unavoidable in the final work and necessitates the removal, alteration, replacement or extension of existing utilities, the

Contractor shall make all excavations for such work and shall cooperated with other forces engaged in the work.

The labor, pipe and other material necessary for removing, altering, replacing, or extending such utilities, other than for excavation, will, unless otherwise ordered, be coordinated by the Contractor with the respective utility companies or other owners involved. In specific cases, the Contractor may be ordered to perform such work unless otherwise completed by the utility.

The Contractor shall be responsible for protecting all existing Bayonne Municipal Utilities Engineer (BMUA) appurtenances including, but not limited to catch basin inlets, sanitary/combined/storm manhole covers, and water valve boxes or manhole covers hereafter referred to as utility castings. The Contractor shall accurately mark out the location of all utility casings in advance of milling of the roadway. Care shall be exercised during the milling/paving operations to avoid damage to the utility castings by the milling/paving machines. Following the milling operation and prior to pavement, the Contractor shall inspect all utility castings within the roadway to assure that they were not hit and displaced during the milling activity and that no millings have entered the utility castings. The Contractor shall be responsible for removing any and all millings from the valve box or other utility castings and shall assure that complete and clear access is available to all valves and other utility appurtenances. In addition, the Contractor shall remove and reinstall/replace to the satisfaction of the BMUA all utility castings which have been dislodged by the milling or paving operations.

The Contractor shall also be responsible for raising all utility castings located in the roadway to the proposed finished grade in areas where the roadway is scheduled for additional pavement above the existing rim elevations. The work and materials associated with altering, replacing or extending such utility castings shall be the sole responsibility of the contractor and shall be coordinated by the Contractor with the Bayonne Municipal Utilities Engineer prior to the work being undertaken.

The BMUA shall be contacted within 48 hours of final paving to schedule an inspection of all the utility castings within the project area to assure compliance with this specification. All utility castings determined to have been buried, damaged, moved or in any other way affected by the project shall be reinstalled, replaced or uncovered to the satisfaction of the BMUA within two weeks of notification by the MUA.

#### 503.14 Removal and Restoration of Pavement, Curbing, and Sidewalks

All sidewalks, curbs, lawns, private driveways, pavements, drainage swales, and other improvements damaged or removed due to the Contractor's operations shall be restored to a condition at least equivalent to conditions existing prior to the Contractor's operations. Replacement or restoration shall be done in accordance with applicable provisions of this specification and in conformity with the requirements of the authorities in charge; all work to be done to the satisfaction of the Engineer. Work on

City, County or NJDOT roadways shall be conducted in accordance with City, County or NJDOT requirements and details.

#### Temporary Pavement

Pavement restoration in City right-of-ways shall be started immediately after trenches have been backfilled. The Contractor shall place a six (6) inch thick layer of compacted bituminous stabilized base (Mix I-2) in two courses. The surface of the bituminous stabilized base course shall be flush with the existing pavement. This base shall be maintained in place and in a usable condition by placement of additional bituminous stabilized base as required for settlement, wear or erosion, with no additional payment.

#### Permanent Pavement

Permanent surface pavement in City right-of-ways shall be installed after the base pavement has been in place and maintained by the Contractor for a period of not less than two (2) months. This period may be shortened by a written directive from the Engineer.

Permanent surface pavement replacement shall consist of a compacted two (2) inch course of FABC (Mix I-5). Prior to installing the final pavement, the entire trench area shall be proof rolled to locate soft areas and bridging, with a single axle truck carrying a load of 10 tons or more. All existing pavement edges shall be saw cut back evenly along a neat line so as to provide an undisturbed shoulder of twelve (12) inches along both sides of the excavation.

The base pavement shall be removed to a depth of two inches. Prior to the application of the finished (permanent) surface course, the edge of the existing pavement shall be coated with a tack coat of cutback asphalt. Said tack coat shall also cover the surface of the remaining base pavement so as to produce a bond between the stabilized base course and the permanent surface course. The completed pavements shall be neat and have straight edges.

The Contractor shall maintain the permanent surface course until the completion of the maintenance period. Any sections of the trench which settle shall be properly restored to required final grade. Any sections which are defective shall be cut out completely and the sub-base reconstructed and the pavement replaced as hereinbefore specified.

#### Concrete Sidewalk

The Contractor shall remove sidewalk as required for construction at existing expansion joints. Should no expansion joint exist within a distance of 10 feet on either side of the construction area, the contractor shall saw cut existing sidewalk and remove the existing sidewalk in a neat and workmanlike manner. It is the contractor's responsibility to protect all sidewalks not removed for the duration of the construction

period. Concrete sidewalks shall be reconstructed in accordance with the City of Bayonne's requirements.

#### Bituminous Sidewalk

The contractor shall saw cut the existing sidewalk and remove the existing sidewalk within the construction area in a neat and workmanlike manner. It is the contractor's responsibility to protect all sidewalks not removed for the duration of the construction period. Bituminous sidewalk shall be reconstructed in accordance with the City of Bayonne's requirements or as directed by the Engineer.

#### Curbing

Curb shall be removed at the existing expansion joint. Should no joints exist within 10 feet of either side of the construction area, the contractor shall saw cut the existing curb and remove the curb in a neat and workmanlike manner. All curb not removed must be protected from damage during the course of the project. All curb removed or damaged during construction shall be reconstructed in accordance with the City of Bayonne's requirements.

All sidewalks and pavements, including pavements on roads, shall be maintained during the period of trench consolidation, and the contractor shall be expected to keep his trench adequately protected at all times. Pavement cutters shall be used prior to excavation to reduce the pavement disturbance to a minimum.

#### 503.15 Trench Maintenance

The Contractor shall use barricades, lights and adequate signs to indicate that the trench is soft and upon settling of the trench shall immediately bring the trench up to the required grade. Where the trench has reached some degree of consolidation and may be used for vehicular traffic, the Contractor shall fill in any holes or ruts which may occur (prior to placement of temporary pavement) with crushed stone to maintain a safe and satisfactory condition at all times.

#### 503.16 Work in Private Easements

Where the work is in easements located within privately owned areas, rear yards, etc., the Contractor shall make every effort to minimize disturbance to the area. All trees shall be boxed or fenced to dripline. Excavated material shall be stored on tarpaulins or other means used to prevent it from being spread on the ground. Backfill shall be completed on the same day. Topsoil shall be removed and stored separately, and upon completion of backfill shall be evenly spread over the disturbed area. If settlement occurs, the Contractor shall bring in additional topsoil of an approved variety to bring the trench up to grade.

All disturbed lawns, trees, shrubs, bushes, planting, fences, walls, driveways, walkways, etc., shall be restored to the satisfaction of the owner. It is required that the Contractor take "before and after" photographs of all such areas. Any disturbance or damage to existing structures and/or any site enhancement, shall be immediately repaired in kind by the contractor without compensation.

#### 503.17 Methods

Methods of excavation and construction must be in accordance with the State of New Jersey, Department of Labor & Industry, Bureau of Engineering & Safety, CONSTRUCTION SAFETY CODE, and all other local, state, or federal requirements. Methods of excavation shall be as required by job conditions; in general, excavation may be done by suitable power equipment, but in cases where working room is limited or where necessary to prevent damage to existing structures, hand methods shall be used.

In cases where tunneling is adopted, either by option of the Contractor or by requirement of a utility or governmental authority having jurisdiction, and with the approval of the Authority, and in accordance with the requirements of these specifications. The Contractor shall perform work as required below.

#### 503.18 Tunneling

Proposed methods and schedule for tunneling operations shall be submitted to the Authority for approval, and shall meet all requirements of the authority having jurisdiction. Tunneling operations shall be conducted in such a manner as to prevent settling or other damage to the roadway or other surface improvements. Shoring shall be provided and installed as required by ground conditions to prevent settling or loss of ground. Tunnel cross-sections shall be held to a minimum practicable size.

Immediately following installation and testing of the section of the pipe in the tunnel, the entire tunnel shall be solidly backfilled with a stiff sand-cement mixture containing not less than two (2) bags of cement per cubic yard of mixture. Extreme care shall be taken to insure that all voids are filled; the backfill mixture shall be rammed in place from both sides, working progressively from the center to the ends of the tunnel.

#### 503.19 Blasting

No blasting will be permitted at locations near existing structures or near water, sewer, drain, oil, gas cable or other utilities. Where blasting is permitted, the Contractor shall take every precaution to protect all portions of the work already constructed or being constructed and shall use small charges and give ample notice so as not to endanger persons or property. Copies of local and state permits shall be provided to the Authority prior to the start of work.

Prior to blasting for rock excavation along any street, pavement shall be cut and removed. Blasting may then proceed provided all other requirements are met as specified and steel blasting mats are used to shield the blast area.

The Contractor, in addition to observing all of the requirements set forth and all municipal and, county ordinances, and State laws relative to the transportation, storage, handling and use of explosives, shall also conform to any further regulations that the Authority may deem necessary in this respect. The Contractor shall be liable for all damage to persons or property caused by blast or explosion.

Where blasting is not permitted, the rock shall be removed with air driven hammers or other methods approved by the City or Authority.

Prior to performing blasting operations the Contractor shall have complete surveys performed on all homes and structures along the sewer alignment where blasting is proposed. Written preblast surveys shall promptly be provided (in a form acceptable to the City) to the City upon completion of the survey.

The Contractor shall monitor all blasting by use of approved seismic instrumentation to ensure that frequency and peak particle velocity standards are strictly adhered to in accordance with Local and New Jersey State Standards.

#### 503.20 Connection to Existing Manholes

Where new connections to existing manholes are required, the Contractor shall core drill a hole in the existing manhole to accept the pipe and a flexible gasket around the pipe with stainless steel appurtenances to hold the gasket in place. The Contractor shall properly reconstruct the existing manhole channel and benching to accommodate the new sanitary sewer upon testing and acceptance of the sewer.

Where it is determined by the Authority to be unfeasible to core drill an existing manhole, the Contractor shall use a hammer drill to create an adequately sized opening to accept the incoming sewer at the invert specified on the plans. A waterstop as manufactured by Fernco or approved equal shall be provided on the clean end of the new pipe. The water stop shall be positioned so that it is centered on the manhole wall. Non-shrink grout shall be placed around the waterstop to fill the voids between the manhole walls and the waterstop. The non-shrink grout shall be Five Star Structural Concrete, or approved equal. Prior to placement of the grout, the manhole surface shall be roughened to facilitate adherence of the grout.

#### 503.21 Abandonment of Existing Sewers or Water Mains

Where deemed necessary and approved by the Authority in the approved plans and specifications, the Contractor shall undertake the abandonment of existing sewers or water mains. The abandonment of existing sewers and water mains must be coordinated with the Authority and must be approved by the system operator. The cast

iron frames, covers and castings on all manholes and drain inlets or water appurtenances to be abandoned shall be removed and transported to the Bayonne Municipal Utilities Authority Oak Street Pumping Station, or as designated by the Authority for future use.

The downstream end of the existing sewer to be abandoned shall be plugged with concrete or capped with a mechanical plug. All structures within a minimum distance of 12-inches from existing grade shall be demolished and removed. All sewers, manholes and drain inlets to be abandoned shall then be filled with pea gravel or sand and capped with a minimum of 4-inches of concrete. The upstream end of the pipes shall then be capped or plugged and the ground surfaces adjacent to all inlets or manholes shall be restored to their original condition.

504.0 BROKEN STONE OR SCREENED GRAVEL FOUNDATION

Broken stone or screened gravel shall be clean, hard aggregate as approved by the Engineer; shall be accurately leveled to required grades, and where required shall be compacted by tamping or other approved means.

In general, 3/4 inch clean broken stone or screened gravel will be required for foundation bedding and haunch purposes. In special cases, where large volumes of water are encountered and the greater consolidation effects of broken stone may be considered of less importance, clean, sound screened gravel, 3/4 inch to 1-1/4 inch in size may, at the option of the Engineer, be permitted.

505.0 BACKFILL MATERIAL

505.1 Quarry Process

Where specified or required by the Authority or Engineer, the Contractor shall furnish, place and compact quarry process. Quarry process, Type I5, N.J.D.O.T. Standard Specification, free of clay and foreign material, as approved by the Engineer; shall be accurately leveled to required grades, and shall be compacted by tamping or other approved means to the required grade.

Gradation shall be as follows;

<u>Sieve Size</u>	<u>Percentage by Weight Passing Square Mesh Sieve</u>
2"	100
3/4"	70-100
No. 4	30-80
No. 50	10-35
No. 200	5-12

505.2 Sand and Gravel

Where required by the Authority or Engineer, the Contractor shall furnish, place, and compact bank run sand and gravel. Bank run sand and gravel shall be bank run supply, Type I-3, N.J.D.O.T Standard Specification, free of clay and foreign material, as approved by the Engineer; shall be accurately leveled to required grades, and shall be compacted by tamping or other approved means to the required grade.

Gradation shall be as follows;

<u>Sieve Size</u>	<u>Percentage by Weight Passing Square Mesh Sieve</u>
4"	100
3/4"	60-100
No. 1	30-100
No. 50	5-35
No. 200	0-5

**APPENDIX F**

**NJDEP SEWER PROTOCOL**

## APPENDIX B

### SEWER PROTOCOL

#### A. Investigation and Warning

1. The responsible party will investigate the sewer sites and delineate those areas of the Pipeline where Chromium Materials are present.

2. The responsible party will provide the utility with a map of those sections of sewer where Chromium Materials have been determined to be present and will fund training for utility employees on (a) recognition of Chromium Materials; (b) appropriate steps to be taken for worker protection; and (c) emergency utility repair procedures .

3. The responsible party and utility will develop administrative procedures to identify when Chromium Materials containing areas of the pipeline are scheduled for repair.

#### B. Remediation Protocols

1. Chromium Materials at the Surface. Whenever Chromium Materials or soils contaminated by Chromium Materials exceed the applicable standard for hexavalent chromium within the top 3 feet of soil, the presumptive remedy will consist of a capping system that includes, at a minimum, the following in vertical profile from top to bottom:

- Asphalt or concrete cover,
- Gravel subbase materials
- Geocomposite drainage layer, e.g. geonet, as a capillary break
- Linear Low Density Polyethylene (LLDP) liner
- Geotextile Fabric.

2. Chromium Materials Beneath the Surface. Whenever Chromium Materials or soils contaminated by Chromium Materials exceed the applicable standard for hexavalent chromium at a depth of 3 feet or more below the surface, the presumptive remedy consists of a capping system that includes the top three feet of clean fill as an engineering control. In addition, an orange demarcation layer (orange snow fence) will be installed below the surface as a warning not to disturb the engineering control.

3. Chromium Materials Beneath a Public Street or Highway. Whenever Chromium Materials or soils contaminated by Chromium

Materials exceed the applicable standard for hexavalent chromium beneath a public street or highway, the presumptive remedy consists of a capping system that includes the street itself as an engineering control.

4. **Chromium Materials Excavation and Removal** It is understood that repair or replacement of sections of a pipeline may be required from time to time to maintain efficient operation over the years. Whenever such normal operating repairs or replacement requires the removal of Chromium Materials or soils contaminated by chromium exceeding the applicable standard for hexavalent chromium, the responsible party will remove the Chromium Materials and/or contaminated soil.

5. **Emergency Repairs** The responsible party and the utility will develop procedures to be followed in the event of an emergency repair to any utility in an area where Chromium Materials were placed as bedding or fill around the utility. Such procedures will include: (a) appropriate steps to be taken to ensure worker safety; (b) the provision of notice to DEP and the responsible party as soon as practicable after the repair is made; (c) provisions for handling and disposal of any COPR Materials or chromium contaminated soil removed during the repair; and (d) provisions for restoring any remedial measures taken pursuant to the Sewer Protocol.

**APPENDIX G**

**SUBSURFACE WORK AUTHORIZATION FORM**

## SUBSURFACE WORK AUTHORIZATION FORM / DIGGING AND EXCAVATION PERMIT

Site 153 Morris Canal – Chromium Remedy – Work Performed by BMUA

Prior to Performing Work (Completed by BMUA or Contractor)			
<b>Project Name:</b>			
<b>Request Date:</b>		<b>Est. Start Date:</b>	<b>Est. Duration:</b>
<b>General Work Description:</b>			
<b>Depth of Digging/Excavation:</b>			
<b>Contractor Performing Work:</b>			
<b>Contractor Supervisor:</b>		<b>Phone No.:</b>	
<b>BMUA Project Contact:</b>		<b>Phone No.:</b>	
<b>Location of Work:</b>	<input type="checkbox"/> Site 153 North (next to NJCU) <input type="checkbox"/> Site 153 South		
Prior to Performing Work <sup>1</sup> (Completed by BMUA and Honeywell)			
<input type="checkbox"/> Contact Honeywell to review proposed work activity. <input type="checkbox"/> Provide drawings showing proposed subsurface work or design drawings (if applicable). <input type="checkbox"/> Schedule project meeting to review proposed work and coordination with Honeywell.			
<b>Yes</b> <input type="checkbox"/>	<b>No</b> <input type="checkbox"/>	Does proposed work involve disturbance to engineering controls? If yes, review deed notice requirements for disturbances, restoration, notification, reporting; and confirm that workers receive and review Worker Training Manual and Standard Operating Procedure for Site 153.	
<b>Yes</b> <input type="checkbox"/>	<b>No</b> <input type="checkbox"/>	NJDEP to be notified per Deed Notice. Estimated date of notification: _____	
<b>Yes</b> <input type="checkbox"/>	<b>No</b> <input type="checkbox"/>	Plaintiffs to be notified if applicable per Consent Decree requirements. Estimated date of notification: _____	
Field Work Phase (Prior to Digging) (Completed by BMUA and Honeywell)			
1. Honeywell field oversight or contractor coordination required?	<b>Yes</b> <input type="checkbox"/>	- coordinate with Honeywell representative.	
	<b>No</b> <input type="checkbox"/>	- proceed with work/no further input from Honeywell.	
2. Will the project involve excavation and offsite disposal of chromium soils?	<b>Yes</b> <input type="checkbox"/>	- coordinate with Honeywell representative.	
	<b>No</b> <input type="checkbox"/>	- proceed with work/no further input from Honeywell.	
HONEYWELL AND BMUA APPROVAL REQUIRED TO PROCEED WITH WORK.			
Comments (Completed by Contractor, BMUA and Honeywell)			
<b>Contractor Signature:</b>		<b>Date:</b>	
<b>BMUA Signature:</b>		<b>Date:</b>	
<b>Honeywell Signature:</b>		<b>Date:</b>	

**COMPLETE PAGE 1 BEFORE FIELD WORK COMMENCES**

**SUBSURFACE WORK AUTHORIZATION FORM / DIGGING AND EXCAVATION PERMIT**

Site 153 Morris Canal – Chromium Remedy – Work Performed by BMUA

**COMPLETE THIS SECTION ONLY IF THERE ARE DESIGN OR FIELD CHANGES**

<b>Field Work Changes</b> (Completed by Contractor, BMUA and Honeywell)			
<b>IN THE EVENT OF ANY DESIGN OR FIELD CHANGES DURING WORK IMPLEMENTATION, PROVIDE A BRIEF DESCRIPTION OF DESIGN AND/OR FIELD CHANGE AND OBTAIN HONEYWELL AND BMUA APPROVAL TO PROCEED WITH WORK.</b>			
<b>Describe Changed Conditions</b> (Completed by Contractor, BMUA and Honeywell)			
<b>Contractor Signature:</b>		<b>Date:</b>	
<b>BMUA Signature:</b>		<b>Date:</b>	
<b>Honeywell Signature:</b>		<b>Date:</b>	

**COMPLETE THE SECTION BELOW AFTER WORK IS COMPLETE**

<b>Post-Work Phase/Closeout Requirements</b> (Completed by Contractor, BMUA and Honeywell)			
<b>Actual Start Date:</b>		<b>Actual Finish Date:</b>	
Actual NJDEP Notification Date:		Actual Plaintiff Notification Date:	
<input type="checkbox"/>	1. Compile representative photographs showing work progress, restoration of engineering controls.		
<input type="checkbox"/>	2. Prepare as-built figure or other appropriate drawing(s) showing work area, relevant site features.		
<input type="checkbox"/>	3. Prepare and submit deed notice disturbance report.		
<b>HONEYWELL AND BMUA SIGN-OFF REQUIRED AT COMPLETION OF WORK.</b>			
<b>Comments</b> (Completed by Contractor, BMUA and Honeywell)			
<b>Contractor Signature:</b>		<b>Date:</b>	
<b>BMUA Signature:</b>		<b>Date:</b>	
<b>Honeywell Signature:</b>		<b>Date:</b>	

- Notes:**
- (1) Field Work Restrictions:
- Field verification of the exact location of remedy components including the warning layer and liner (where present) is required in all intrusive activities.
  - Mechanical digging is restricted. Excavation within 12 inches of the force main or warning layer (where present) must be performed using soft dig techniques or other method approved by the BMUA and Honeywell.
  - Driving of fence posts or use of drilling/Geoprobe is also restricted and shall not be initiated unless the approach is approved by Honeywell.

## SUBSURFACE WORK AUTHORIZATION FORM / DIGGING AND EXCAVATION PERMIT

Site 153 Morris Canal – Chromium Remedy – Work Performed by Non-BMUA Entities

<b>Prior to Performing Work (Completed by Honeywell)</b>			
<b>Project Name:</b>			
<b>Request Date:</b>		<b>Est. Start Date:</b>	<b>Est. Duration:</b>
<b>General Work Description:</b>			
<b>Depth of Digging/Excavation:</b>			
<b>Contractor Performing Work:</b>			
<b>Contractor Supervisor:</b>		<b>Phone No.:</b>	
<b>Utility Contact:</b>		<b>Phone No.:</b>	
<b>Location of Work:</b>	<input type="checkbox"/> <b>Site 153 North (next to NJCU)</b>		<input type="checkbox"/> <b>Site 153 South</b>
<b>Prior to Performing Work<sup>1</sup> (Completed by Honeywell)</b>			
<input type="checkbox"/> Honeywell and contractor to review proposed work activity. <input type="checkbox"/> Contractor to provide drawings showing proposed subsurface work or design drawings (if applicable). <input type="checkbox"/> Schedule project meeting to review proposed work and coordination requirements.			
<b>Yes</b> <input type="checkbox"/>	<b>No</b> <input type="checkbox"/>	Does proposed work involve disturbance to engineering controls? If yes, review deed notice requirements for disturbances, restoration, notification, reporting; and confirm that workers receive and review Worker Training Manual and Standard Operating Procedure for Site 153.	
<b>Yes</b> <input type="checkbox"/>	<b>No</b> <input type="checkbox"/>	NJDEP to be notified per Deed Notice. Estimated date of notification: _____	
<b>Yes</b> <input type="checkbox"/>	<b>No</b> <input type="checkbox"/>	Plaintiffs and BMUA to be notified if applicable per Consent Decree requirements. Estimated date of notification: _____	
<b>Field Work Phase (Prior to Digging) (Completed by Honeywell and Contractor)</b>			
1. Honeywell field oversight or contractor coordination required?	<b>Yes</b> <input type="checkbox"/>	- coordinate with Honeywell representative.	
	<b>No</b> <input type="checkbox"/>	- proceed with work/no further input from Honeywell.	
2. Will the project involve excavation and offsite disposal of chromium soils?	<b>Yes</b> <input type="checkbox"/>	- coordinate with Honeywell representative.	
	<b>No</b> <input type="checkbox"/>	- proceed with work/no further input from Honeywell.	
HONEYWELL AND CONTRACTOR APPROVAL REQUIRED TO PROCEED WITH WORK.			
<b>Comments (Completed by Contractor, BMUA and Honeywell)</b>			
<b>Contractor Signature:</b>		<b>Date:</b>	
<b>Honeywell Signature:</b>		<b>Date:</b>	

**COMPLETE PAGE 1 BEFORE FIELD WORK COMMENCES**

**SUBSURFACE WORK AUTHORIZATION FORM / DIGGING AND EXCAVATION PERMIT**

Site 153 Morris Canal – Chromium Remedy – Work Performed by Non-BMUA Entities

**COMPLETE THIS SECTION ONLY IF THERE ARE DESIGN OR FIELD CHANGES**

<b>Field Work Changes</b> (Completed by Honeywell and Contractor)			
<b>IN THE EVENT OF ANY DESIGN OR FIELD CHANGES DURING WORK IMPLEMENTATION, PROVIDE A BRIEF DESCRIPTION OF DESIGN AND/OR FIELD CHANGE AND OBTAIN HONEYWELL APPROVAL TO PROCEED WITH WORK.</b>			
<b>Describe Changed Conditions</b> (Completed by Honeywell and Contractor)			
<b>Contractor Signature:</b>		<b>Date:</b>	
<b>Honeywell Signature:</b>		<b>Date:</b>	

**COMPLETE THE SECTION BELOW AFTER WORK IS COMPLETE**

<b>Post-Work Phase/Closeout Requirements</b> (Completed by Honeywell and Contractor)			
<b>Actual Start Date:</b>		<b>Actual Finish Date:</b>	
<b>Actual NJDEP Notification Date:</b>		<b>Actual Plaintiff Notification Date:</b>	
<input type="checkbox"/>	1. Compile representative photographs showing work progress, restoration of engineering controls.		
<input type="checkbox"/>	2. Prepare as-built figure or other appropriate drawing(s) showing work area, relevant site features.		
<input type="checkbox"/>	3. Prepare and submit deed notice disturbance report.		
<b>HONEYWELL AND CONTRACTOR SIGN-OFF REQUIRED AT COMPLETION OF WORK.</b>			
<b>Comments</b> (Completed by Honeywell and Contractor)			
<b>Contractor Signature:</b>		<b>Date:</b>	
<b>Honeywell Signature:</b>		<b>Date:</b>	

- Notes:**  
(1) Field Work Restrictions:
- Field verification of the exact location of remedy components including the warning layer (where present) is required in all intrusive activities.
  - Mechanical digging is restricted. Excavation within 12 inches of the force main or warning layer (where present) must be performed using soft dig techniques or other method approved by the BMUA and Honeywell.
  - Driving of fence posts or use of drilling/Geoprobe is also restricted and shall not be initiated unless the approach is approved by Honeywell.