
SOIL MANAGEMENT PLAN

For

**Southpoint Open Space Park (SOSP)
Southpoint Park
Roosevelt Island, NY 10044**

Prepared For:

**Roosevelt Island Operating Corporation
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1.0 INTRODUCTION

The proposed Southpoint Open Space Park Rip Rap Revetment project for Roosevelt Island ("the Project") New York includes portions of the east and west shorelines ("the Site") of Southpoint Park ("the Park"), which is located at the southern part of Roosevelt Island between Four Freedoms Park and the Goldwater Memorial Hospital (Figure 1). The Park comprises about eight acres, was constructed in 2012, and is open to the public for recreational use. The two waterfront zones (east and west shorelines) remain closed to the general public pending reconstruction and environmental remediation. The project will include the excavation and off-site disposal of more than 8,000 cubic yards of fill material from the two waterfront zones. Some of the material to be excavated has previously been characterized as hazardous. Importation of clean fill material, rip-rap stone, and top soil will also be needed.

Note that that these two waterfront zones include areas at their southerly limits which are occupied by the contiguous FDR Four Freedoms Park for the purposes of trailer staging (security, personnel office and maintenance equipment). As these areas are part of the Site, their treatment for excavation, soil management and cover materials planning or environmental capping will be generally as described herein and as shown on the drawing attachments.

In order for the reconstruction project to proceed, a comprehensive environmental sampling and testing program has been performed to characterize the excess fill for off-site disposal at NYSDEC approved landfills and/or other acceptable permitted non-hazardous and hazardous disposal sites. This Soil Management Plan ("the Plan") has been prepared to establish criteria for the performance of site earthwork and includes critical aspects for on-site fill handling and re-use, off-site disposal procedures, and final environmental capping.

2.0 PLAN OBJECTIVES

The Site and the Project are described below in detail. The objectives of the Plan will be further developed in the form of one or more sets of Construction Documents, none of which are yet available for bid and award. The objectives of the Plan are described as follows:

- 1) Support the Project, which generally consists of the excavation, demolition, and removal of the existing stone seawalls, followed by their replacement with a proposed rip-rap revetment slope (2 Horizontal: 1 Vertical (2H:1V)) along the east side shoreline and the combination of rip-rap revetment and salvage and retrofit of concrete and block walls along the west side shoreline.
- 2) Incorporate a lower pedestrian walkway along the east side shoreline to allow park visitors to visit the water's edge and enjoy views.
- 3) Characterize excavated material for on-site reuse or off-site disposal. Twenty-four test pits were previously excavated throughout the east and west shorelines to obtain representative characterization samples of historic fill material. The fill consists primarily of soil, rock, and construction debris.
- 4) Additional characterization sampling if requested by proposed off-site disposal facilities.
- 5) Develop protocols and technical specifications for the following:
 - a. removal and off-site disposal of contaminated and hazardous excess historic fill material/soil from the Site
 - b. on-site reuse of acceptable material
 - c. import of clean backfill
- 6) Development of a Landscape Plan or Cap protocol – post-construction, a natural barrier or “cap” will be permanently placed to limit the potential for human contact with the underlying soils. This cap will largely consist of clean soil/vegetation.

Additional details related to these objectives can be found within relevant sections of this document.

3.0 SITE DESCRIPTION AND ENVIRONMENTAL HISTORY

3.1 General Description and Site History

The Park is located at the southern portion of Roosevelt Island, New York. The Park property consists of approximately 7.25 acres and includes selected areas within Block 1373, Lot 1 of Manhattan Borough. The property is owned by the City of New York, leased to the State of New York, and operated and managed by the Roosevelt Island Operating Corporation (RIO), a public benefit corporation of the State of New York. The property is bounded to the east and west by the East River, to the south by the recently constructed FDR Four Freedoms Park, and to the north by former Goldwater Hospital and future Cornell Campus.

The Site consists of two waterfront strips, each about 25ft to 50ft in width, along the Park's east and west shorelines. Due to both the hazardous conditions of dilapidated stone seawalls and the presence of soil contaminants, these two waterfront strips are currently fenced and are accessible by key access only via locked gates.

Both the eastern and western sides of the park, adjacent to the rip rap revetment, will be pitched such that excess storm water will run-off over the rip rap revetment and in the East River. The site's eastern waterfront drains to the east channel of the East River and the western waterfront drains to the west channel of the East River.

3.2 Environmental Due Diligence

Phase II Site Investigation Report, dated October 2008, prepared by Earth Tech/AECOM

Soil sampling completed during this Phase II revealed that the Site is underlain by historic fill material with concentrations of the metals; lead, mercury, and barium above their corresponding New York State Department of Environmental Conservation (NYSDEC) Restricted Use - Residential Soil Cleanup Objectives (SCOs) and Protection of Groundwater in one or more samples.

3.3 2013 - 2014 Waste Characterization

3.1.1 Sampling Methodology

Langan completed three test pits on 11 March 2013 and 24 test pits between 30 and 31 January 2014 to collect environmental soil samples for laboratory testing (test pit locations are shown on Figure 2 – Test Pit Location Plan). The test pits, located throughout the east and west shorelines of the Site, were advanced using an excavator to depths ranging from 1.5 to 13.0 feet below existing grade. Five test pits were positioned along the western shoreline and twenty-two test pits were positioned along the eastern shoreline.

Once the maximum depth of the each test pit was achieved, visual observations, field screening measurements, and the collections of the environmental soil samples were completed. Subsurface conditions consisted of historic fill material with debris and demolition materials that limited test pit depth at many locations. Table 1A provides test pit specific observations, including maximum depth and field screening observations. Table 1 B lists samples collected and laboratory analysis completed. Twenty-seven soil samples (including one duplicate sample) were collected from each pit (excluding SPTP-8 due to utilities discovered upon digging into the location). Samples were analyzed for Target Compound List/Target Analyte List (TCL/TAL)+30, hexavalent chromium, and Extractable Petroleum Hydrocarbons (EPH) Category 2. Sample intervals were selected by the field engineer based on visual and/or field screening observations. The material was largely homogeneous, but special attention was given and noted to any identifiable “hot spots” or layers of fill material.

Four composite samples were collected in 2014 and analyzed for Total Characteristic Leachate Procedures (TCLP) and Resource Conservation and Recovery Act (RCRA) Characteristics. The composite samples were grouped accordingly:

- composite 1 (samples SPTP 1 – 7) Eastern Shoreline
- composite 2 (samples SPTP 8 – 13) Eastern Shoreline
- composite 3 (samples SPTP 14 – 20) Eastern Shoreline
- composite 4 (samples SPTP 21 – 24) Western Shoreline

Composite samples consisted of five discrete sample points chosen at random from the given groups above, with the exception of composite 4 which consisted of four grab samples.

Soil samples were collected into laboratory provided glassware, labeled, and shipped under standard chain of custody procedures. Samples were maintained at low temperatures, (4 degrees Celsius), by packing into an ice filled cooler and remaining as such until relinquished to the laboratory. For Quality Assurance and Quality Control (QA/QC) one duplicate sample was taken along with, one field blank, and one trip blank.

3.1.2 Eastern Shoreline Results

Pesticides/Herbicides

P,p'-DDT concentrations were reported above their NYSDEC Part 375 Restricted-Residential standards at one location (SPTP-4) at 13 mg/kg.

Semi-Volatile Organic Compounds

Benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, chrysene and indeno(1,2,3-cd)pyrene were reported above their NYSDEC Part 375 Restricted-Residential Standards and Protection of Groundwater Standards.

Dibenzo(a,h)anthracene was reported above its NYSDEC Part 375 Restricted-Residential Standards only.

Metals

Barium, lead and mercury concentrations were reported over their NYSDEC Part 375 Restricted-Residential Standards and Protection of Groundwater Standards.

TCLP Composites

TCLP analysis for composite sample 2 resulted in a lead concentration of 5.7 mg/L, which exceeds the maximum concentration of contaminants for the Toxicity Characteristic Regulatory Level of 5 mg/L. Based on this result, each sample from the 2014 investigation was further analyzed for TCLP lead. On the eastern shoreline, samples SPTP-4 and SPTP-12 reported TCLP lead concentrations of 6.6 and 24 mg/L, respectfully, which we are reporting as the "hot spots" for hazardous fill material off-site disposal.

3.1.3 Western Shoreline Results

Semi-Volatile Organic Compounds

Benzo(a)anthracene concentrations exceeded their NYSDEC Part 375 Restricted-Residential Standards and Protection of Groundwater Standards.

Benzo(a)pyrene, benzo(b)fluoranthene and indeno(1,2,3-cd)pyrene concentrations exceeded their NYSDEC Part 375 Restricted-Residential Standards only.

Chrysene concentrations exceeded their NYSDEC Part 375 Protection of Groundwater Standards only.

Metals

Lead and mercury concentrations exceeded their NYSDEC Part 375 Restricted-Residential Standards and Protection of Groundwater Standards.

Only test pit location TP-7 contained exceedances to NYSDEC Part 375 Restricted-Residential Standards and Protection of Groundwater Standards for semi-volatiles and lead.

3.4 Description of Soil Geotechnical Conditions

Boring and test pit logs revealed that the subsurface conditions consist of approximately 12 feet of fill mixed with construction debris, concrete, steel angle iron, and red brick, which is underlain by layers of medium to fine sandy fill overlying bedrock on the east shoreline. A few of the pits revealed old foundations from former structures. Test pit logs from the west shoreline noted sandy fill as well; however, with very little debris. Bedrock is described as gneiss and was encountered from 10 ft to 25 ft below grade.

4.0 Soil Management

Soil management operations should adhere to the following criteria:

1. Final surfaces, where contact to the public is possible, should be "capped" with either two feet of clean soil (i.e. meeting the requirements of 6 NYCRR Part 375-6.8(b) for Residential and Protection of Groundwater SCOs) or by an

- 8-inch thick layer of compacted clean crushed stone; in either case to be underlain by a filter fabric barrier layer.
2. Lead, mercury, and barium impacted soil was previously identified in excess of Part 375 restricted use - restricted residential use criteria. Based on environmental analysis summarized in Section 3, none of the approximately 8,000 cubic yards of excess fill to be generated by the project is deemed suitable for reuse as surface cover.
 3. Subject to confirmation by further characterization and environmental laboratory testing, some of the approximately 8,000 cubic yards of excess soil may be suitable for reuse at other New York State sites, with the exception of the hazardous fill material, if meeting the requirements of a Beneficial Use Determination (BUD) for the site importing the soil.
 4. Excess fill, except for material from the hazardous hot spots, may be used as deep fill (i.e., greater than 24 inches below the surface, provided the fill will not adversely impact groundwater or surface water). This fill must ultimately be covered by the surface cover cap as previously described. Material re-use is discussed in greater detail in Section 6 of this Soil Management Plan.
 5. Excess contaminated soil that cannot be reused off-site must be handled, shipped, and disposed of regulated and/or hazardous waste under NYSDEC 6 NYCRR Part 360 and United States Environmental Protection Agency (USEPA) regulations. Off-site disposal shall be at facilities permitted to accept the material. Any regulated waste that is handled or disposed of improperly is a violation of New York State law.

5.0 CONSTRUCTION PROJECT DESCRIPTION

5.1 General Description

The project generally consists of the demolition, removal, and replacement from foundation level of the existing failing stone and masonry seawalls with new rip-rap revetments with a slope of 2H:1V. This project will also incorporate a lower pedestrian walkway along the east and west side shorelines to bring park visitors to the waters' edge and enjoy the views. The proposed walkway is approximately 10-feet wide and grades down to an elevation of 5-feet (NAVD 88), two feet above spring high water. See drawings C-101.00 through C-104.00 (**Appendix C**) for cross section details of the revetment and sections of wall to be repaired and C-400.00 for an earthwork plan.

Incorporating the pedestrian walkway will result in an additional 12 to 16-foot loss of land along the east side shoreline, but this is mitigated by the access ability of the water's edge. The exact sequence of operations will be determined by the contractor as part of its means-and-methods of executing the contract.

The project will initially entail demolishing the existing seawall down to the foundation as well as excavating the soil behind it. Due to the difficulties of working around the tidal cycles, it is anticipated that demolition and revetment construction operations will take place over shore lengths of at most two seawall segments, or not more than 100 feet total shoreline length, as shown on drawing DM-100.00 attached hereto in Appendix E. Excavation work below tide levels must be phased to proceed simultaneously with an ebbing tide so that mixing of harbor water with excavated soil is minimized. Soil that remains attached to the landward side of the wall blocks and stones will be scraped with the backhoe bucket; should some soil yet remain, it shall be hosed down to prevent loss of this soil to the harbor waters. Note that if water must be used for this purpose, the soil will then be allowed to settle in the excavation created behind the seawall. Final removal of soils and the existing wall base will take place simultaneously with preparation for the rip-rap revetment positioning. A filter fabric will be placed across the excavated soil slope behind the seawall to inhibit erosion of soil to the harbor waters. Beyond these waterfront zones, the asphalt driveway, walls, and fences will be preserved undisturbed as part of the functioning Park, and all material staging areas will be located within either waterfront strip of the project site.

Once foundation excavations are complete, construction of the rip-rap revetments can occur.

The project includes the provision of supplemental rip-rap along both east and west shorelines to provide scour protection to Southpoint Park. The rip-rap will generally consist of rocks in an approximate size range of 9 inches to 30 inches average dimension. As further described below, it is intended that any rocks found in the site surplus soils will be segregated from the material, cleaned and will be re-used as rip-rap for the project purposes.

Upon completion of seawalls reconstruction, the current project will backfill and regrade the site with a topography that gently slopes from the Park roads to the top of seawall. This earthwork operation will include the environmental capping activities as further

described herein. With the exception of maintenance pathways, finished grade will be re-seeded. The maintenance pathways will be finished with aggregate to allow vehicular access. A traditional metal seawall railing will be provided.

5.2 Landscape Plan

Upon completion of construction, and as part of the project final earthworks, a "cap" will be permanently placed to limit the potential for human contact with the underlying soils. Clean fill and soil caps will meet the requirements of 6 NYCRR Part 375-6.8(b) for Residential and Protection of Groundwater SCOs, as appropriate to a public park. This cap will largely consist of a minimum 24-inch depth of imported clean fill, including clean surface top-soil to support vegetation. Where maintenance pathways are required, and in the Four Freedoms Park trailer enclosure area, a clean crushed stone of at least 8-inch thickness shall be placed. Both the minimum 24-inch deep clean fill and the minimum 8-inch thick clean crushed stone pavement shall be underlain by a filter fabric layer to serve as a visual barrier in the case of future excavation.

These locations and typical cross sections of the Landscape Plan are shown on Drawings L-100.00 and L-101.00 included herein as Appendix B.

6.0 PROPOSED RE-USE OF SELECT ON-SITE MATERIAL

Based on preliminary earthwork calculations, it is estimated that the Project will result in a cut volume of approximately 10,000 cubic yards of soil, including excavations for demolition of the existing seawalls and to provide a 24-inch deep clean fill cap in landscape areas, and that up to 8,000 cubic yards of this cut volume will require off-site disposal. It is estimated that the exported materials would be shipped for reuse under a Beneficial Use Determination (BUD) at another site, or disposed of at facilities permitted to accept it. An estimated 8,000 cubic yards will require transport and disposal of hazardous waste based on lead concentrations. An estimated 3,100 cubic yards of imported soil will be required for use as a 24-inch deep clean fill cap in landscape areas.

In addition to the above soil excavation totals, demolition of the existing seawalls will generate approximately 1,000 cubic yards of material. Less than 100 cubic yards of this material is anticipated to consist of concrete debris requiring offsite disposal, whereas the great majority will consist of field-stone, hewn-stone or cut-stone granite units

weighing up to 2.5 tons each, some of which will be cleaned and recycled on-Island. Rocks sourced from the demolished stone walls will be used for rip rap, as part of the remaining seawall architectural veneer or stored on-site or on-Island for re-use in future RIOC projects. Of the 10,000 cubic yards of soil to be excavated it is anticipated that approximately 200 cubic yards will consist of large granite block to be used in the proposed granite block seawall, 350 cubic yards of hewn field stone to be used in the proposed salvaged stone walls and 350 cubic yards of rocks 9" and larger in diameter to be used as rip-rap. All existing granite block, hewn field stone and rock to be used in the proposed walls or rip rap is to be separated from excavated soil and cleaned prior to reuse. Rocks sourced from the demolished stone walls will be used for rip rap or as part of the remaining seawall architectural veneer or stored on-site or on-Island for re-use in future RIOC projects.

Stones sourced from the demolition of the walls and from excavations will be scraped with the backhoe to remove soil attached on the landward face, and hosed off with water if necessary, prior to removal from the existing seawalls to upland locations for storage and re-use. The stones will be cleaned in a manner that does not allow silt to spill directly into the East River waters. Wash water will not be allowed to create silt plumes in the harbor.

The recycling will initially consist of re-use of the largest blocks as an architectural veneer to the remaining seawalls where visible to the visiting public at the Park entrance and also on-site rip-rap use. Other large-size stone units recycling will take the form of on-site storage for use in stone walls as part of the extended Park design, or possible reuse elsewhere by RIOC in future Island-wide design projects.

It is anticipated that import of approximately 7,400 cubic yards of material, including clean fill to meet the NYSDEC-required capping system, as well as rip-rap and aggregate, are required for construction purposes. Note that the actual cut and fill quantities may vary dependent on the Contractor's selected construction means-and-methods.

In order to minimize construction costs, reduce the volume of material to be landfilled or otherwise disposed off-site, and significantly reduce the environmental impacts associated with off-site trucking and disposal of excess fill material generated as part of the project, select materials at the Site will be managed, processed, and beneficially re-

used on-site under the final cap in accordance with New York State's solid waste regulation 6 NYCRR Part 360.12 and 360.13, which state the following cease to be waste:

Fill material used as backfill for the excavation from which the fill material was taken, or as fill in areas of similar physical characteristics on the project property is exempt from regulation under this Part. If fill material exhibits historical or visual evidence of contamination (including odors), and will be used in an area with public access, the relocated fill material must be covered with a minimum of 12 inches of soil or fill material that meets the criteria for general fill, as defined in this Part. This provision does not apply to sites which are subject to a department-approved or undertaken program pursuant to Part 375 of this Title. (360.12)

Recycled aggregate or residue which meets a municipal or State specification or standard for use as commercial aggregate if generated from uncontaminated, recognizable concrete and other masonry products, brick, or rock that is separated from other waste prior to processing and subsequently processed and stored in a separate area as a discrete material stream. (360.13)

The specific requirements of these exemptions, and their applicability to the excess soil and rock material, are addressed below.

Proposed Soil Material Re-Use

Based on a review of the analytical data and on visual observations noted during the test pit activities, the material to be excavated (i.e., TPx-TPx) consist of a mixture of silty sand with some clay and varying quantities of gravel, cobbles, concrete chunks and boulders, and trace quantities of brick fragments. On the basis of the analytical data, the soil is typical of historic fill in that it exceeds the 6 NYCRR Part 375 Restricted Residential Use Criteria. Two areas TP-4 and TP-12 were reported to exceed the toxicity characteristic leachate procedure (TCLP) for hazardous lead (see Figure 3 for a summary of the soil sampling locations and exceedances of Part 375 Restricted-Residential Soil Cleanup Objectives and Maximum Concentration of Contaminants for the Toxicity Characteristic Regulatory Level). These areas will be excavated for off-site disposal and post-confirmation samples will be collected to confirm removal of the TCLP lead.

It is anticipated that soil will be beneficially re-used as on-Site fill material below the cap and that rock will be cleaned/ reused as rip-rap in accordance with the following procedures:

Rock greater than 9" diameter within the soil matrix, except from "hot spot" areas, will be visually segregated, removed, cleaned by wire brush and washed by water within a silt fence enclosure (preventing discharge to the river) to remove any adhered dirt/mud, and staged with rip-rap of the appropriate size. In addition, the great majority of stones from the demolished seawalls exceed 9" diameter in size and would also meet rip-rap specifications for re-use.

Subject to the Contractor's election as part of the means-and-methods of performing the job, other (soil and rock less than 9" in diameter, not from hot-spot areas and devoid of discernible waste material) excavated materials may be mechanically screened and/or crushed (using a Screen Machine Spyder 516T or equivalent and/or a mobile stone crusher with maximum rated capacity below 150 tons per hour) to generate the following products which have been specified for use in the project design:

- stone material in the 4" diameter to 8" diameter size range (provided that it is cleaned by wire brush and washed by water within a silt fence enclosure to remove any adhered dirt/mud);
- soil material backfill (smaller than 4" diameter if Contractor elects to segregate larger stone for rip-rap use)

Soil material (soil and rock less than 9" in diameter, not from hot-spot areas and devoid of discernible waste material) re-used for backfill purposes shall be staged only in the immediate vicinity of where excavated and shall be placed back in the same excavation zone once the corresponding seawall segment is constructed. Soil for re-use cannot be backfilled at other seawall construction zones.

Material from earthwork operations which is not geotechnically suitable for reuse, or is otherwise surplus to the project needs, will be tested and disposed of off-site in accordance with the requirements of an approved disposal facility. Any construction and demolition debris (apart from the stone seawalls to be demolished) encountered during excavation will also be disposed of off-Site in accordance with Part 360 regulations.

Processing equipment, processed materials, and materials designated for off-Site disposal would be staged as conceptually illustrated on the Shoreline Protection Plan drawing C-100.00 included herein as Appendix A for the two waterfront areas. The processed materials would be separated from each other by rock barriers wrapped with filter fabric, and placed on a layer of 6 mil polyethylene sheeting.

Should the screening/crushing operation proceed, the Contractor shall finalize the intended equipment configuration. At that time, all required approvals and/or permitting to set-up and operate the proposed screening and rock crushing operation will be obtained prior to commencing any screening and crushing activities at the Site.

Proposed Operation and Placement Location

To the extent that the Contractor elects to perform the screening/crushing operation, the recycled material will be placed in the following general locations.

- 1) Some of the large stones/blocks from the demolished seawalls, which shall be cleaned on the landward face prior to removal from the existing seawalls to upland locations, measuring up to 3' by 3' by 6' long, will remain stored on the site or elsewhere on-Island for re-use in future RIOC projects, including possible re-use in the future design to extend the Park to the waterfront on both shores; a minority of the large blocks will be re-used as an architectural veneer to the remaining concrete seawalls where visible to the visiting public at the Park entrance; in addition, some of these stones may be re-used as landscape elements and armor rip-rap (400 to 1200 pound rock) if meeting grading criteria.
- 2) Segregated from the soils, stone material 9" diameter and larger may be re-used as...
 - Armor rip-rap (400 to 1200 pound rock) to be installed at depths of up to 36" within the restructured and stabilized rip-rap shoreline; these stones must be wire-brushed and washed off (with water) in an upland area protected with a silt fence preventing discharge to the river, prior to being placed in the East River waters.

- Rip-rap (150 to 400 pound rock) to be installed at depths of up to 24" within the restructured and stabilized rip-rap shoreline; these stones must be wire-brushed and washed off (with water) in an upland area protected with a silt fence, prior to being placed in the East River waters.
- 3) Stone material in the 4" diameter to 8" diameter size range, may be re-used as geotextile bedding stone below the rip-rap in the intra-tidal zone; these stones must be wire-brushed and washed off (with water) in an upland area protected with a silt fence preventing discharge to the river, prior to being placed in the East River waters.
- 4) Material smaller than 4" diameter (or meeting the geotechnical specifications if no segregation takes place), may be re-used as general site backfill material beneath (but not part of) the clean fill environmental cap; however, re-used backfill shall be placed back in the same zone from where excavated once the new seawall segment is constructed.

These locations and typical cross sections of the seawalls, foundation work and proposed rip-rap shoreline are on the sectional drawings included herein as Appendix C, together with the other Engineering sheets included in Appendix E hereto.

It is RIOC's intention that the two waterfront strips will become part of Southpoint Park. Design details, such as landscape and hardscape for finishing these areas to merge them with the current Park are included in Appendix B. It is intended that any future phase of design and construction in this area must preserve and/or restore the environmental cap placed during the current phase.

7.0 CONSTRUCTION SCHEDULE

7.1 Project Phasing

At this time, the exact project phasing is not definitively established. As described elsewhere herein, while it is possible that some earthwork operations may precede the Rip Rap Revetment construction project in order to export excess fill, it is currently believed that earthwork and construction operations will be contracted in a single project. As such, the contractor is likely to proceed on a "staggered" basis of alternate

earthwork and foundation construction operations due to tidal, spatial and staging considerations. Furthermore, it is currently intended that the construction of rip rap revetment on both shores will proceed under the same contract.

7.2 Earthwork Operations for Excess Soil Export

Due to past stockpiling of fill in the vicinity of the east seawall, there is an estimated excess of up to 2,000 cubic yards of the 10,000 cubic yards of soil to be excavated that must be excavated before proper staging of materials and machinery on this shore, and before the foundation- depth excavations, leading to seawall demolition and replacement with rip-rap revetments, can begin. Thus, initial contractor scope will consist of preliminary earthwork operations for excavation and offsite removal of some or all of this quantity.

We seek approval for the option to re-use as much of the excavated material as is economically possible. Granite boulders larger than 9" can be reused for rip-rap. Mechanical crushing of rocks into stones of lesser sizes for use as rip-rap bedding layers, and general backfill below the cap may be economically feasible.

Earthwork operations shall also address the ultimate Project requirements as described herein. These requirements include the soil erosion and sediment controls, geotechnical requirements for bearing, long-term stability, long-term armoring against coastal forces, environmental soil concerns including the need for capping, and all related permitting and regulatory issues. Accordingly, any such earthwork operations will need to be professionally designed in the form of contract drawings and specifications issued by the Engineer. Currently, this design work is being finalized, and will follow the principles of this Soil Management Plan in its NYCDEC-approved form.

8.0 POLLUTION PREVENTION & EROSION/SEDIMENT CONTROLS

Soil erosion and sediment control measures for the site have been designed using the general principles of the New York Standard and Specifications for Erosion and Sediment Control (NYSDEC).

The SPDES General Permit No. GP-0-15-002 requires that this construction activity Storm Water Pollution Prevention Plan (SWPPP) be prepared prior to the beginning of construction and be amended whenever there is a change in the contractor(s), or a

change in design, operation or maintenance of the site which has not otherwise been addressed in the plan, or if the actions required by the SWPPP fail to prevent pollution. In particular, an Erosion/Sediment Control & Pollution Prevention Plan, showing specific controls, will need to be implemented for any and all phases of the work. In accordance with requirements of the General Permit, a Notice of Intent (NOI) for Storm water Discharges Associated with Construction Activities will be sent to the NYSDEC.

The project Soil Erosion and Sediment Control Plan drawings, referenced above as forming part of the SWPPP, are attached hereto as drawings C-200.00 and C-201.00 in Appendix D. These drawings show general control measures and notes which will serve to protect the various earthwork operations described herein, such as excavations, material stockpiles and cover operations. The control measures will require relocation and maintenance as the construction proceeds from one area to the next.

The Contractor shall be responsible for the installation and maintenance of all temporary erosion and sediment control measures. The Contractor shall also be responsible for the installation of permanent control measures. The Owner, or a legal entity delegated for that purpose, shall be responsible for the maintenance of all permanent control measures.

9.0 OTHER CONTROLS

9.1 Waste Disposal

Contractor shall be responsible for disposal of all waste in a proper manner in accordance with local, state and federal regulations. It is prohibited to burn, bury or pour out onto ground or into river any solvents, paints, stains, gasoline, diesel fuel, used motor oil, hydraulic fluid, cement curing compounds and other toxic or hazardous waste. Wash out for cement trucks should occur in a diked, designated area where the waste can collect and be disposed of properly when it hardens. Storage tanks should be located in dike areas away from any drainage channels.

9.2 Dust Control

Generation of dust shall be minimized through the use of dust control measures as specified within the contract specifications. These measures include the wind-screen fabric attached to the upper 6' of the 8' high chain-link construction fence which will

separate the two waterfront construction zones from the Park interior. This fencing is shown on the Soil Erosion and Sediment Control drawings C-200.00 and C-201.00, attached hereto in Appendix D.

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Table 1
Test Pit Observations
Seawalls Reconstruction Project
Southpoint Park
Roosevelt Island, NY

Sample Number x	Analysis	TCLP Lead (ppm)		Sample Depth	Sample Date
		Limit	Result		
SUBSURFACE SOIL					
TP-2	Metals, PCBs, Pesticides, VOCs, SVOCs	---	---	10-12'	3/11/2013
TP-3	Metals, PCBs, Pesticides, VOCs, SVOCs	---	---	10'	3/11/2013
TP-7	Metals, PCBs, Pesticides, VOCs, SVOCs	---	---	9-11'	3/11/2013
SPTP-1	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	1.2	3-3.5'	1/30/2014
SPTP-2	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	2.9	5.5-6'	1/30/2014
SPTP-3	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	0.64	7-7.5'	1/30/2014
SPTP-4	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	6.6	6.5-7'	1/30/2014
SPTP-5	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	0.95	9.5-10'	1/30/2014
SPTP-6	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	0.5	4-4.5'	1/30/2014
SPTP-7	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	0.49	7-7.5'	1/30/2014
SPTP-8	No Sample Collected	---	---	---	---
SPTP-9	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	0.85	1.5-2'	1/30/2014
SPTP-10	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	ND	7-7.5'	1/30/2014
SPTP-11	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	0.32	6.5-7'	1/30/2014
SPTP-12	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	24	7-7.5'	1/30/2014
SPTP-13	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	1.5	8-8.5'	1/30/2014
SPTP-14	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	1.4	5-5.5'	1/31/2014
SPTP-15	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	2.3	6-6.5'	1/31/2014
SPTP-16	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	0.85	5-5.5'	1/31/2014
SPTP-17	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	2.7	6.5-7'	1/31/2014
SPTP-18	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	0.27	1.5-2'	1/31/2014
SPTP-19	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	0.21	4-4.5'	1/31/2014
SPTP-20	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	0.97	7-7.5'	1/31/2014
SPTP-21 (Dup)	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	ND	9-9.5'	1/31/2014
SPTP-22	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	0.061	8-8.5'	1/31/2014
SPTP-23	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	0.38	7-7.5'	1/31/2014
SPTP-24	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5	0.098	9-9.5'	1/31/2014
Composite 1	TCLP/RCRA	5	0.65	---	1/30/2014
Composite 2	TCLP/RCRA	5	5.7	---	1/30/2014
Composite 3	TCLP/RCRA	5	2.3	---	1/31/2014
Composite 4	TCLP/RCRA	5	0.19	---	1/31/2014

Full TAL/TCL: full target analyte list/target compound list

VOCs: Volatile Organic Compounds

EPH: Extractable Petroleum Hydrocarbons

TCLP: Toxicity Characteristic Leaching Procedure

Above TCLP Lead Standard

Table 1
Test Pit Sample Summary
Seawalls Reconstruction Project
Southpoint Park
Roosevelt Island, NY

Sample Number	Analysis	Sample Depth	Sample Date
SUBSURFACE SOIL			
TP-2	Metals, PCBs, Pesticides, VOCs, SVOCs	10-12'	3/11/2013
TP-3	Metals, PCBs, Pesticides, VOCs, SVOCs	10'	3/11/2013
TP-7	Metals, PCBs, Pesticides, VOCs, SVOCs	9-11'	3/11/2013
SPTP-1	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	3-3.5'	1/30/2014
SPTP-2	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5.5-6'	1/30/2014
SPTP-3	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	7-7.5'	1/30/2014
SPTP-4	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	6.5-7'	1/30/2014
SPTP-5	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	9.5-10'	1/30/2014
SPTP-6	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	4-4.5'	1/30/2014
SPTP-7	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	7-7.5'	1/30/2014
SPTP-8	No Sample Collected	---	---
SPTP-9	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	1.5-2'	1/30/2014
SPTP-10	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	7-7.5'	1/30/2014
SPTP-11	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	6.5-7'	1/30/2014
SPTP-12	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	7-7.5'	1/30/2014
SPTP-13	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	8-8.5'	1/30/2014
SPTP-14	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5-5.5'	1/31/2014
SPTP-15	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	6-6.5'	1/31/2014
SPTP-16	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	5-5.5'	1/31/2014
SPTP-17	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	6.5-7'	1/31/2014
SPTP-18	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	1.5-2'	1/31/2014
SPTP-19	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	4-4.5'	1/31/2014
SPTP-20	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	7-7.5'	1/31/2014
SPTP-21 (Dup)	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	9-9.5'	1/31/2014
SPTP-22	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	8-8.5'	1/31/2014
SPTP-23	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	7-7.5'	1/31/2014
SPTP-24	VOCs, TCL/TAL, Hex Chrome, EPH Cat 2	9-9.5'	1/31/2014
Composite 1	TCLP/RCRA	---	1/30/2014
Composite 2	TCLP/RCRA	---	1/30/2014
Composite 3	TCLP/RCRA	---	1/31/2014
Composite 4	TCLP/RCRA	---	1/31/2014

Full TAL/TCL: full target analyte list/target compound list

VOCs: Volatile Organic Compounds

EPH: Extractable Petroleum Hydrocarbons

TCLP: Toxicity Characteristic Leaching Procedure

Table 2
Summary of Test Pit Detections/Exceedences
Southpoint Park
Roosevelt Island, NY

CLIENT ID: LAB ID: COLLECTION DATE: SAMPLE MATRIX: SAMPLE UNITS:					TP-2 AC71156-001 3/11/2013 Soil mg/Kg		TP-3 AC71156-002 3/11/2013 Soil mg/Kg		TP-7 AC71156-003 3/11/2013 Soil mg/Kg		SPTP-1 AC76856-001 1/30/2014 Soil mg/Kg		SPTP-2 AC76856-002 1/30/2014 Soil mg/Kg		SPTP-3 AC76856-003 1/30/2014 Soil mg/Kg		SPTP-4 AC76856-004 1/30/2014 Soil mg/Kg		SPTP-5 AC76856-005 1/30/2014 Soil mg/Kg		SPTP-6 AC76856-006 1/30/2014 Soil mg/Kg		SPTP-7 AC76856-007 1/30/2014 Soil mg/Kg	
Analyte	mg/Kg	mg/Kg	mg/Kg	mg/Kg	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Metals																								
Aluminum	NA	NA	NA	NA	7,900	240	6,800	230	7,100	230	10,000	230	7,700	230	9,400	230	5,100	250	7,500	230	7,600	220	8,500	230
Antimony	NA	NA	NA	NA	ND	2.4	ND	2.3	ND	2.3	ND	0.23	ND	0.23	ND	0.23	ND	0.25	ND	0.23	ND	0.22	ND	0.23
Arsenic	16 f	16 f	16 f	13 c	3.4	2.4	5.4	2.3	7.2	4.6	5.1	4.6	5.1	4.5	6.5	4.6	14	5	7.7	4.6	5.7	4.5	8.7	4.5
Barium	400	400	820	350 c	77	12	130	11	240	11	250	11	150	11	170	11	370	12	170	11	140	11	96	11
Beryllium	72	590	47	7.2	ND	0.71	ND	0.69	ND	0.69	ND	0.23	ND	0.23	ND	0.23	ND	0.25	0.26	0.23	ND	0.22	0.24	0.23
Cadmium	4.3	9.3	7.5	2.5 c	ND	0.71	1.5	0.69	ND	0.69	ND	0.46	0.46	0.45	0.53	0.46	2.6	0.5	1.3	0.46	0.62	0.45	ND	0.45
Calcium	NA	NA	NA	NA	4,400	1,200	8,500	1,100	2,900	1,100	16,000	1,100	13,000	1,100	15,000	1,100	33,000	1,200	13,000	1,100	9,500	1,100	5,000	1,100
Chromium	180	1500	NA	30 c	13	6	15	5.7	18	5.7	31	5.7	22	5.7	29	5.7	17	6.2	20	5.7	26	5.6	19	5.7
Cobalt	NA	NA	NA	NA	6.1	3	6.4	2.9	7.3	2.9	10	2.9	7.9	2.8	11	2.9	6.5	3.1	9.2	2.9	11	2.8	8.8	2.8
Copper	270	270	1720	50	38	6	52	5.7	63	5.7	49	5.7	44	5.7	65	5.7	140	6.2	53	5.7	53	5.6	43	5.7
Iron	NA	NA	NA	NA	14,000	240	15,000	230	17,000	230	19,000	230	16,000	230	18,000	230	17,000	250	17,000	230	19,000	220	18,000	230
Lead	400	1000	450	63 c	210	6	1,200	5.7	1,200	5.7	730	5.7	850	5.7	490	5.7	7,100	25	1,500	5.7	420	5.6	295	5.7
Magnesium	NA	NA	NA	NA	3,500	600	3,100	570	3,600	570	8,900	570	4,900	570	6,300	570	4,400	620	5,600	570	5,000	560	3,200	570
Manganese	2000 f	10000 d	2000 f	1600 c	260	12	270	11	270	11	410	11	240	11	340	11	220	12	400	11	310	11	320	11
Mercury	0.81 j	2.8 j	0.73	0.18 c	0.78	0.099	2.6	0.096	1.2	0.096	0.62	0.096	0.5	0.095	0.85	0.096	1.5	0.1	1.3	0.096	0.32	0.094	0.4	0.095
Nickel	310	310	130	30	12	6	17	5.7	17	5.7	22	5.7	18	5.7	25	5.7	19	6.2	18	5.7	24	5.6	19	5.7
Potassium	NA	NA	NA	NA	1,500	600	1,300	570	1,300	570	4,200	570	2,100	570	2,800	570	1000	620	1,900	570	2,600	560	1,900	570
Selenium	180	1500	4 f	3.9 c	ND	2.1	ND	2.1	ND	2.1	ND	2.3	ND	2.3	ND	2.3	ND	2.5	ND	2.3	ND	2.2	ND	2.3
Silver	180	1500	8.3	2	ND	1.8	ND	1.7	ND	1.7	ND	0.23	ND	0.23	ND	0.23	0.52	0.25	0.3	0.23	ND	0.22	ND	0.23
Sodium	NA	NA	NA	NA	1,200	300	530	290	340	290	ND	290	ND	290	ND	280	760	310	ND	290	ND	280	ND	280
Thallium	NA	NA	NA	NA	ND	1.4	ND	1.4	ND	1.4	ND	1.7	ND	1.7	ND	1.7	ND	1.9	ND	1.7	ND	1.7	ND	1.7
Vanadium	NA	NA	NA	NA	20	12	30	11	28	11	38	11	31	11	40	11	68	12	30	11	39	11	39	11
Zinc	10000 d	10000 d	2480	109 c	65	12	220	11	230	11	200	11	190	11	450	11	1,100	12	510	11	180	11	130	11
PCBs																								
Aroclor (Total)	1	1	3.2	0.1	ND	0.03	ND	0.029	ND	0.029	ND	0.029	ND	0.028	ND	0.029	ND	0.031	ND	0.029	ND	0.028	ND	0.028
Pesticides																								
Chlordane	4.2	24	2.9	0.094	ND	0.03	ND	0.029	ND	0.029	0.41	0.29	ND	0.14	ND	0.14	ND	3.1	ND	0.29	ND	0.028	ND	0.028
p,p'-DDD	13	92	14	0.0033 b	ND	0.003	ND	0.0029	ND	0.0029	ND	0.0029	ND	0.014	0.0240	0.014	1.59	0.31	0.110	0.029	0.049	0.0028	0.0046	0.0028
p,p'-DDE	8.9	62	17	0.0033 b	ND	0.003	0.036	0.0029	ND	0.0029	0.19	0.0029	0.12	0.014	0.13	0.014	0.66	0.31	0.075	0.0029	0.0028	0.0028	0.0028	0.0028
p,p'-DDT	7.9	47	136	0.0033 b	ND	0.003	0.041	0.0029	0.013	0.0029	0.77	0.0029	0.25	0.014	0.52	0.014	13	0.31	2.2	0.029	0.12	0.0028	0.0028	0.0028
TPH																								
C9-C40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	520	69	380	68	220	69	2,300	380	280	69	340	67	110	68
Volatiles																								
:TotalVolatileTic	NA	NA	NA	NA	ND	NA	ND	NA	ND	NA	0.17J	NA	0.031J	NA	ND	NA	0.016J	NA	0.010J	NA	0.010J	NA	ND	NA
Wet Chemistry																								
% Solids	NA	NA	NA	NA	84(Percent)		87(Percent)		87(Percent)		87(Percent)		88(Percent)		87(Percent)		80(Percent)		87(Percent)		89(Percent)		88(Percent)	
Cyanide (Reactive)	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Cyanide	27	27	40	27	ND	0.29	ND	0.28	0.29	0.28	ND	0.28	ND	0.27	ND	0.28	ND	0.3	0.31	0.28	ND	0.27	ND	0.27
Cr (Hexavalent)	110	400	19	1b	NA		NA		NA		ND	1.1	ND	1.1	ND	1.1	ND	1.2	ND	1.1	ND	1.1	ND	1.1
pH	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfide (Reactive)	NA	NA	NA	NA	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Semivolatiles																								
:TotalSemiVolatileTic	NA	NA	NA	NA	36.0J	NA	38.0J	NA	40.0J	NA	50.0J	NA	49.0J	NA	39.0J	NA	180.0J	NA	45.0J	NA	38.0J	NA	38.0J	NA
1,1'-Biphenyl	NA	NA	NA	NA	0.061	0.04	ND	0.11	ND	0.11	ND	0.11	ND	0.19	ND	0.11	0.6	0.21	ND	0.11	ND	0.11	ND	0.038
2,4-Dimethylphenol	NA	NA	NA	NA	0.048	0.04	ND	0.11	ND	0.11	ND	0.029	ND	0.047	ND	0.029	0.055	0.052	ND	0.029	ND	0.028	ND	0.0095
2-Methylnaphthalene	NA	NA	NA	NA	0.3	0.04	ND	0.11	ND	0.11	0.3	0.11	ND	0.19	ND	0.11	1.8	0.21	ND	0.11	ND	0.11	ND	0.038
3&4-Methylphenol	NA	NA	NA	NA	0.074	0.0099	ND	0.029	ND	0.029	0.031	0.029	ND	0.047	ND	0.029	0.13	0.052	ND	0.029	ND	0.028	ND	0.0095
Acenaphthene	100 a	500 b	98	20	0.6	0.04	0.26	0.11	ND	0.11	0.85	0.11	0.64	0.19	0.23	0.11	8.9	0.21	0.53	0.11	0.18	0.11	0.072	0.038
Acenaphthylene	100 a	500 b	107	100 a	0.072	0.04	ND	0.11	0.39	0.11	ND	0.11	ND	0.19	ND	0.11	0.97	0.21	ND	0.11	ND	0.11	ND	0.038
Anthracene	100 a	500 b	1000 c	100 a	1.2	0.04	0.56	0.11	0.2	0.11	1.8	0.11	1.1	0.19	0.48	0.11	19	0.21	1	0.11	0.38	0.11	0.19	0.038
Benzo[a]anthracene	1 f	5.6	1 f	1c	1.8	0.04	1.6	0.11	1.3	0.11	4.2	0.11	3.3	0.19	1.6	0.11	42	1.7	2.8	0.11	1.4	0.11	0.76	0.038
Benzo[a]pyrene	1 f	1 f	22	1c	1.2	0.04	1.3	0.11	1.2	0.11	3.3	0.11	2.7	0.19	1.4	0.11	33	1.7	2.3	0.11	1.3	0.11	0.7	0.038
Benzo[b]fluoranthene	1 f	5.6	1.7	1c	1.5	0.11	1.8	0.11	1.3	0.11	4.1	0.11	3.4	0.19	1.8	0.11	40	1.7	3.1	0.11	1.7	0.11	0.92	0.038
Benzo[g,h,i]perylene	100 a	500 b	1000 c	100	0.59	0.04	0.81	0.11	0.77	0.11	2.1	0.11	1.8	0.19	0.98	0.11	20	0.21	1.5	0.11	0.91	0.11	0.44	0.038
Benzo[k]fluoranthene	3.9	56	1.7	0.8 c	0.52	0.04	0.52	0.11	0.4	0.11	1.6	0.11	1	0.19	0.51	0.11	14	0.21	0.83	0.11	0.48	0.11	0.3	0.038
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	ND	0.11	0.12	0.11	ND	0.11	ND	0.11	ND	0.19	ND	0.11	ND	0.21	ND	0.11	ND	0.11	0.63	0.038
Carbazole	NA	NA	NA	NA	0.53	0.04	0.25	0.11	ND	0.11	0.84	0.11	0.4	0.19	0.2	0.11	5.3	0.21	0.38	0.11	0.16	0.11	0.075	0.038
Chrysene	3.9	56	1 f	1c	1.7	0.04	1.5	0.11	1.3	0.11	3.3	0.11	2.6	0.19	1.3	0.11	37	1.7	2.4	0.11	1.2	0.11	0.65	0.038
Dibenzo[a,h]anthracene	0.33 e	0.56	1000 c	0.33 b	0.22	0.04	0.32	0.11	0.29	0.11	0.64	0.11	0.54	0.19	0.28	0.11	7.1	0.21	0.44	0.11	0.26	0.11	0.14	0.038
Dibenzofuran	59	350	210	7	0.49	0.0099	0.14	0.029	ND	0.029	0.54	0.029	0.28	0.047	0.098	0.029	4	0.052	0.19	0.029	0.06	0.028	0.03	0.0095
Di-n-butylphthalate	NA	NA	NA	NA	ND	0.02	ND	0.058	ND	0.058	ND	0.058	ND	0.095	ND	0.095	ND	0.1	ND	0.058	ND	0.057	0.02	0.019
Fluoranthene	100 a	500 b	1000 c	100 a	3.3	0.04	3	0.11	1.2	0.11	7.6	0.11	4.7	0.19	2.4	0.11	75	1.7	5.1	0.11	2.3	0.11	1.1	0.038
Fluorene	100 a	500 b	386	30	0.47	0.04	0.22	0.11	ND	0.11	0.89	0.11	0.52	0.19	0.18	0.11	8.2	0.21	0.43	0.11	0.14	0.11	0.06	0.038
Indeno[1,2,3-cd]pyrene	0.5 f	5.6	8.2	0.5 c	0.61	0.04	0.78	0.11	0.66	0.11	1													

Notes

Volatiles were not detected in any samples
PCBs were not detected in any samples

Table 2
Summary of Test Pit Detections/Exceedences
Southpoint Park
Roosevelt Island, NY

CLIENT ID: LAB ID: COLLECTION DATE: SAMPLE MATRIX: SAMPLE UNITS:	SPTP-9 AC76856-008 1/30/2014 Soil mg/Kg				SPTP-10 AC76856-009 1/30/2014 Soil mg/Kg				SPTP-11 AC76856-010 1/30/2014 Soil mg/Kg				SPTP-12 AC76856-011 1/30/2014 Soil mg/Kg				SPTP-13 AC76856-012 1/30/2014 Soil mg/Kg				SPTP-14 AC76856-013 1/31/2014 Soil mg/Kg				SPTP-15 AC76856-014 1/31/2014 Soil mg/Kg				SPTP-16 AC76856-015 1/31/2014 Soil mg/Kg				SPTP-17 AC76856-016 1/31/2014 Soil mg/Kg				SPTP-18 AC76856-017 1/31/2014 Soil mg/Kg			
Part375 Restricted	Commercial	Protection of Ground-Water	Part375 Unrestricted	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL			
mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg			
Aluminum	NA	NA	NA	NA	10,000	230	12,000	240	8,900	230	5,700	220	9,700	230	3,500	220	8,600	230	9,000	230	5,600	240	8,900	230																
Antimony	NA	NA	NA	NA	ND	0.23	ND	0.24	ND	0.23	ND	0.22	ND	0.23	ND	0.22	ND	0.23	ND	0.23	ND	0.24	ND	0.23																
Arsenic	16 f	16 f	16 f	13 c	6.4	4.5	ND	4.8	ND	4.5	8.1	4.5	ND	4.6	ND	4.4	5.8	4.6	7.3	4.5	ND	4.7	ND	4.6																
Barium	400	400	820	350 c	170	11	100	12	80	11	470	11	490	11	200	11	210	11	230	11	840	12	130	11																
Beryllium	72	590	47	7.2	0.24	0.23	0.27	0.24	ND	0.23	ND	0.22	0.26	0.23	ND	0.22	0.24	0.23	ND	0.23	ND	0.24	ND	0.23																
Cadmium	4.3	9.3	7.5	2.5 c	ND	0.45	ND	0.48	ND	0.45	2.9	0.45	0.77	0.46	0.65	0.44	1.5	0.46	ND	0.45	0.8	0.47	ND	0.46																
Calcium	NA	NA	NA	NA	11,000	1,100	2,600	1,200	5,100	1,100	16,000	1,100	3,700	1,100	41,000	1,100	14,000	1,100	12,000	1,100	35,000	1,200	12,000	1,100																
Chromium	180	1500	NA	30 c	29	5.7	26	6	18	5.7	18	5.6	22	5.7	11	5.6	26	5.7	38	5.7	33	5.9	27	5.7																
Cobalt	NA	NA	NA	NA	9.6	2.8	8.5	3	7.6	2.8	7.5	2.8	11	2.9	4.1	2.8	9.4	2.9	9.9	2.8	8.4	2.9	8.2	2.9																
Copper	270	270	1720	50	49	5.7	21	6	48	5.7	210	5.6	41	5.7	43	5.6	73	5.7	98	5.7	140	5.9	40	5.7																
Iron	NA	NA	NA	NA	19,000	230	20,000	240	15,000	230	17,000	220	19,000	230	9,700	220	22,000	230	19,000	230	14,000	240	17,000	230																
Lead	400	1000	450	63 c	490	5.7	49	6	230	5.7	3,200	5.6	4,400	5.7	1,700	5.6	1,300	5.7	610	5.7	2,000	5.9	330	5.7																
Magnesium	NA	NA	NA	NA	4,900	570	5,600	600	3,500	570	2,900	560	4,000	570	4,400	560	5,300	570	4,700	570	8,700	590	4,600	570																
Manganese	2000 f	10000 d	2000 f	1600 c	230	11	310	12	310	11	230	11	420	11	160	11	320	11	230	11	220	12	220	11																
Mercury	0.81 j	2.8 j	0.73	0.18 c	0.27	0.095	0.11	0.099	0.88	0.095	82	1.9	0.37	0.096	0.32	0.093	0.64	0.096	0.41	0.095	0.24	0.098	0.42	0.096																
Nickel	310	310	130	30	21	5.7	17	6	15	5.7	17	5.6	20	5.7	12	5.6	23	5.7	28	5.7	53	5.9	22	5.7																
Potassium	NA	NA	NA	NA	2,500	570	2,500	600	1,400	570	990	560	1,800	570	690	560	2,300	570	2,800	570	1,500	590	2,800	570																
Selenium	180	1500	4 f	3.9 c	ND	2.3	ND	2.4	ND	2.3	ND	2.2	ND	2.3	ND	2.2	ND	2.3	ND	2.3	ND	2.4	ND	2.3																
Silver	180	1500	8.3	2	ND	0.23	ND	0.24	ND	0.23	1.9	0.22	ND	0.23	0.31	0.22	0.78	0.23	ND	0.23	ND	0.24	ND	0.23																
Sodium	NA	NA	NA	NA	ND	280	670	300	ND	280	ND	280	610	290	ND	280	ND	290	ND	280	440	290	690	290																
Thallium	NA	NA	NA	NA	ND	1.7	ND	1.8	ND	1.7	ND	1.7	ND	1.7	ND	1.7	ND	1.7	ND	1.7	ND	1.8	ND	1.7																
Vanadium	NA	NA	NA	NA	41	11	38	12	27	11	27	11	32	11	18	11	41	11	37	11	31	12	35	11																
Zinc	10000 d	10000 d	2480	109 c	140	11	79	12	110	11	680	11	120	11	230	11	290	11	330	11	640	12	180	11																
PCBs																																								
Aroclor (Total)	1	1	3.2	0.1	ND	0.028	ND	0.03	ND	0.028	ND	0.028	ND	0.029	ND	0.028	ND	0.029	ND	0.028	ND	0.029	0.71	0.029																
Pesticides																																								
Chlordane	4.2	24	2.9	0.094	ND	0.028	ND	0.03	ND	0.028	ND	0.14	ND	0.029	ND	0.028	ND	0.029	ND	0.028	0.29	ND	0.029																	
p,p'-DDD	13	92	14	0.0033 b	0.0066J	0.0028	ND	0.003	ND	0.0028	0.020J	0.014	ND	0.0029	ND	0.0028	0.0029J	0.0029	0.0043J	0.0028	0.34	0.0029	0.0041J	0.0029																
p,p'-DDE	8.9	62	17	0.0033 b	0.11	0.0028	ND	0.003	0.013	0.0028	0.5	0.014	0.032	0.0029	0.072	0.0028	0.094	0.0029	0.091	0.0028	0.68	0.0029	0.026J	0.0029																
p,p'-DDT	7.9	47	136	0.0033 b	0.11	0.0028	ND	0.003	0.02	0.0028	0.29	0.014	0.038	0.0029	0.075	0.0028	0.12	0.0029	0.2	0.0028	1.4	0.0029	0.027J	0.0029																
TPH																																								
C9-C40	NA	NA	NA	NA	71	68	ND	71	130	68	150	67	ND	69	93	67	110	69	210	68																				

Table 2
Summary of Test Pit Detections/Exceedences
Southpoint Park
Roosevelt Island, NY

CLIENT ID: LAB ID: COLLECTION DATE: SAMPLE MATRIX: SAMPLE UNITS:					SPTP-19 AC76856-018 1/31/2014 Soil mg/Kg		SPTP-20 AC76856-019 1/31/2014 Soil mg/Kg		SPTP-21 AC76856-020 1/31/2014 Soil mg/Kg		SPTP-22 AC76856-021 1/31/2014 Soil mg/Kg		SPTP-23 AC76856-022 1/31/2014 Soil mg/Kg		SPTP-24 AC76856-023 1/31/2014 Soil mg/Kg		DUP AC76856-030 1/31/2014 Soil mg/Kg		FB AC76856-028 1/31/2014 Aqueous mg/Kg		TB AC76856-029 1/31/2014 Aqueous mg/Kg	
Part375 Restricted	Commercial	Protection of Ground-Water	Part375 Unrestricted	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	
mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	
Analyte																						
Metals																						
Aluminum	NA	NA	NA	NA	9,600	230	12,000	230	10,000	240	9,400	230	8,700	230	11,000	230	11,000	240				
Antimony	NA	NA	NA	NA	ND	0.23	ND	0.23	ND	0.24	ND	0.23	ND	0.23	ND	0.23	ND	0.24				
Arsenic	16 f	16 f	16 f	13 c	9.4	4.5	6.6	4.5	ND	4.9	ND	4.5	ND	4.6	ND	4.5	ND	4.7				
Barium	400	400	820	350 c	130	11	170	11	85	12	88	11	82	11	83	11	81	12				
Beryllium	72	590	47	7.2	ND	0.23	ND	0.23	0.3	0.24	ND	0.23	0.27	0.23	0.23	0.23	0.27	0.24				
Cadmium	4.3	9.3	7.5	2.5 c	ND	0.45	ND	0.46	ND	0.49	ND	0.45	ND	0.46	ND	0.45	ND	0.47				
Calcium	NA	NA	NA	NA	6,100	1,100	4,300	1,100	ND	1,200	1,900	1,100	15,000	1,100	3,000	1,100	1,400	1,200				
Chromium	180	1500	NA	30 c	34	5.7	37	5.7	17	6.1	17	5.7	16	5.7	19	5.7	18	5.9				
Cobalt	NA	NA	NA	NA	11		12	2.9	21	3	9.3	2.8	7.2	2.9	9.8	2.8	8.4	2.9				
Copper	270	270	1720	50	99	5.7	58	5.7	31	6.1	32	5.7	32	5.7	29	5.7	26	5.9				
Iron	NA	NA	NA	NA	19,000	230	23,000	230	28,000	240	20,000	230	16,000	230	21,000	230	22,000	240				
Lead	400	1000	450	63 c	330	5.7	410	5.7	20	6.1	67	5.7	390	5.7	99	5.7	50	5.9				
Magnesium	NA	NA	NA	NA	4,900	570	6,100	570	3,400	610	4,700	570	4,500	570	5,800	570	4,400	590				
Manganese	2000 f	10000 d	2000 f	1600 c	350	11	480	11	1,100	12	320	11	340	11	390	11	310	12				
Mercury	0.81 j	2.8 j	0.73	0.18 c	0.41	0.095	0.49	0.096	ND	0.1	1.1	0.095	1.5	0.096	0.41	0.095	0.4	0.098				
Nickel	310	310	130	30	27	5.7	27	5.7	27	6.1	16	5.7	16	5.7	18	5.7	15	5.9				
Potassium	NA	NA	NA	NA	2,200	570	4,000	570	1,200	610	3,000	570	1,800	570	3,400	570	2,000	590				
Selenium	180	1500	4 f	3.9 c	ND	2.3	ND	2.3	ND	2.4	ND	2.3	ND	2.3	ND	2.3	ND	2.4				
Silver	180	1500	8.3	2	ND	0.23	ND	0.23	ND	0.24	ND	0.23	ND	0.23	ND	0.23	ND	0.24				
Sodium	NA	NA	NA	NA	ND	280	700	290	970	300	350	280	640	290	950	280	860	290				
Thallium	NA	NA	NA	NA	ND	1.7	ND	1.7	ND	1.8	ND	1.7	ND	1.7	ND	1.7	ND	1.8				
Vanadium	NA	NA	NA	NA	55	11	50	11	31	12	26	11	27	11	32	11	27	12				
Zinc	10000 d	10000 d	2480	109 c	150	11	230	11	54	12	60	11	110	11	72	11	59	12				
PCBs																						
Aroclor (Total)	1	1	3.2	0.1	ND	0.028	ND	0.029	ND	0.03	ND	0.028	ND	0.029	ND	0.028	ND	0.029				
Pesticides																						
Chlordane	4.2	24	2.9	0.094	ND	0.028	ND	0.029	ND	0.03	ND	0.028	ND	0.029	ND	0.028	ND	0.029				
p,p'-DDD	13	92	14	0.0033 b	0.0037d	0.0028	ND	0.0029	ND	0.003	ND	0.0028	ND	0.0029	ND	0.0028	ND	0.0029				
p,p'-DDE	8.9	62	17	0.0033 b	0.0051	0.0028	0.0061	0.0029	ND	0.003	ND	0.0028	0.0047	0.0029	ND	0.0028	ND	0.0029				
p,p'-DDT	7.9	47	136	0.0033 b	0.0036	0.0028	0.0097	0.0029	ND	0.003	ND	0.0028	0.0082	0.0029	ND	0.0028	ND	0.0029				
TPH																						
C9-C40	NA	NA	NA	NA	70	68	ND	69	ND	73	ND	68	ND	69	ND	68	ND	71				
Volatiles																						
:TotalVolatileTic	NA	NA	NA	NA	0.012J	NA	0.0074J	NA	ND	NA	0.011J	NA	0.012J	NA	0.0070J	NA	0.0059J	NA	ND	NA	ND	NA
Wet Chemistry																						
% Solids	NA	NA	NA	NA	88(Percent)		87(Percent)		82(Percent)		88(Percent)		87(Percent)		88(Percent)		85(Percent)					
Cyanide (Reactive)	NA	NA	NA	NA																		
Cyanide	27	27	40	27	ND	0.27	ND	0.28	ND	0.29	ND	0.27	ND	0.28	ND	0.27	ND	0.28				
Cr (Hexavalent)	110	400	19	1b	ND	1.1	ND	1.1	ND	1.2	ND	1.1	ND	1.1	ND	1.1	ND	1.2				
pH	NA	NA	NA	NA																		
Sulfide (Reactive)	NA	NA	NA	NA																		
Semivolatiles																						
:TotalSemiVolatileTic	NA	NA	NA	NA	27.0J	NA	20.0J	NA	20.0J	NA	20.0J	NA	24.0J	NA	24.0J	NA	32.0J	NA				
1,1'-Biphenyl	NA	NA	NA	NA	ND	0.076	ND	0.038	ND	0.041	ND	0.038	ND	0.038	ND	0.038	ND	0.039				
2,4-Dimethylphenol	NA	NA	NA	NA	ND	0.019	ND	0.0096	ND	0.01	ND	0.0095	ND	0.0096	ND	0.0095	ND	0.0098				
2-Methylnaphthalene	NA	NA	NA	NA	ND	0.076	ND	0.038	ND	0.041	ND	0.038	ND	0.038	ND	0.038	ND	0.039				
3&4-Methylphenol	NA	NA	NA	NA	ND	0.019	ND	0.0096	ND	0.01	ND	0.0095	ND	0.0096	ND	0.0095	ND	0.0098				
Acenaphthene	100 a	500 b	98	20	ND	0.076	ND	0.038	ND	0.041	ND	0.038	ND	0.038	ND	0.038	ND	0.039				
Acenaphthylene	100 a	500 b	107	100 a	ND	0.076	ND	0.038	ND	0.041	ND	0.038	ND	0.038	ND	0.038	ND	0.039				
Anthracene	100 a	500 b	1000 c	100 a	ND	0.076	0.067	0.038	ND	0.041	ND	0.038	ND	0.038	ND	0.038	ND	0.039				
Benzo[a]anthracene	1 f	5.6	1 f	1c	0.37	0.076	0.29	0.038	ND	0.041	0.074	0.038	0.18	0.038	0.066	0.038	0.1	0.039				
Benzo[a]pyrene	1 f	1 f	22	1c	0.35	0.076	0.27	0.038	ND	0.041	0.079	0.038	0.15	0.038	0.059	0.038	0.085	0.039				
Benzo[b]fluoranthene	1 f	5.6	1.7	1c	0.46	0.076	0.34	0.038	ND	0.041	0.11	0.038	0.2	0.038	0.074	0.038	0.12	0.039				
Benzo[g,h,i]perylene	100 a	500 b	1000 c	100	0.29	0.076	0.21	0.038	ND	0.041	0.074	0.038	0.11	0.038	0.045	0.038	0.062	0.039				
Benzo[k]fluoranthene	3.9	56	1.7	0.8 c	0.13	0.076	0.11	0.038	ND	0.041	ND	0.038	0.066	0.038	ND	0.038	ND	0.039				
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	ND	0.076	ND	0.038	ND	0.041	ND	0.038	ND	0.038	ND	0.038	ND	0.039				
Carbazole	NA	NA	NA	NA	ND	0.076	ND	0.038	ND	0.041	ND	0.038	ND	0.038	ND	0.038	ND	0.039				
Chrysene	3.9	56	1 f	1c	0.34	0.076	0.27	0.038	ND	0.041	0.081	0.038	0.16	0.038	0.057	0.038	0.092	0.039				
Dibenz[a,h]anthracene	0.33 e	0.56	1000 c	0.33 b	0.084	0.076	0.056	0.038	ND	0.041	ND	0.038	ND	0.038	ND	0.038	ND	0.039				
Dibenzofuran	59	350	210	7	ND	0.019	0.014	0.0096	ND	0.01	ND	0.0095	ND	0.0096	ND	0.0095	ND	0.0098				
Di-n-butylphthalate	NA	NA	NA	NA	ND	0.038	ND	0.019	ND	0.02	ND	0.019	ND	0.019	ND	0.019	ND	0.02				
Fluoranthene	100 a	500 b	1000 c	100 a	0.46	0.076	0.47	0.038	ND	0.041	0.11	0.038	0.29	0.038	0.1	0.038	0.15	0.039				
Fluorene	100 a	500 b	386	30	ND	0.076	ND	0.038	ND	0.041	ND	0.038	ND	0.038	ND	0.038	ND	0.039				
Indeno[1,2,3-cd]pyrene	0.5 f	5.6	8.2	0.5 c	0.25	0.076	0.18	0.038	ND	0.041	0.063	0.038	0.095	0.038	0.039	0.038	0.053	0.039				
Naphthalene	100 a	500 b	12	12	ND	0.019	ND	0.0096	ND	0.01	ND	0.0095	0.01	0.0096	ND	0.0095	ND	0.0098				
Phenanthrene	100 a	500 b	1000 c	100	0.24	0.076	0.32	0.038	ND	0.041	0.062	0.038	0.19	0.038	0.053	0.038	0.078	0.039				
Phenol	100 a	500 b	0.33 e	0.33b	ND	0.076	ND	0.038	ND	0.041	ND	0.038	ND	0.038	ND	0.038	ND	0.039				
Pyrene	100 a	500 b	1000 c	100	0.75	0.076	0.58	0.038	ND	0.041	0.14	0.038	0.35	0.038	0.12	0.038	0.18	0.039				
Eh																						
pH	NA	NA	NA	NA	8.1(PH)		8.1(PH)		7.3(PH)		8.2(PH)		8.6(PH)		8.5(PH)		7.8(PH)					
Burning Rate (mm/sec)	NA	NA	NA	NA																		
Flame Propagation (POS/NEG)	NA	NA	NA	NA																		
Ignitability Screen (POS/NEG)	NA	NA	NA	NA																		

Notes

Volatiles were not detected in any samples
PCBs were not detected in any samples

Table 3
Test Pit Composite Sample Results
Southpoint Park
Roosevelt Island, NY

CLIENT ID:		COMP1		COMP2		COMP3		COMP4	
LAB ID:		AC76856-024		AC76856-025		AC76856-026		AC76856-027	
COLLECTION DATE:		1/30/2014		1/30/2014		1/31/2014		1/31/2014	
SAMPLE MATRIX:		TCLP		TCLP		TCLP		TCLP	
SAMPLE UNITS:		mg/L		mg/L		mg/L		mg/L	
Analyte	TCLP	Result	RL	Result	RL	Result	RL	Result	RL
	mg/L								
Herbicides									
2,4-D	10	ND	0.005	ND	0.005	ND	0.005	ND	0.005
Silvex	1	ND	0.005	ND	0.005	ND	0.005	ND	0.005
Metals									
Mercury	0.2	ND	0.0007	ND	0.0007	ND	0.0007	ND	0.0007
Arsenic	5	ND	0.1	ND	0.1	ND	0.1	ND	0.1
Barium	100	0.66	0.25	0.74	0.25	0.66	0.25	0.37	0.25
Cadmium	1	ND	0.05	0.051	0.05	ND	0.05	ND	0.05
Chromium	5	ND	0.1	ND	0.1	ND	0.1	ND	0.1
Lead	5	0.65	0.05	5.7	0.05	2.3	0.05	0.19	0.05
Nickel	NA	ND	0.1	ND	0.1	ND	0.1	ND	0.1
Selenium	1	ND	0.1	ND	0.1	ND	0.1	ND	0.1
Silver	5	ND	0.05	ND	0.05	ND	0.05	ND	0.05
Pesticides									
Chlordane	0.03	ND	0.001	ND	0.001	ND	0.001	ND	0.001
Endrin	0.02	ND	0.0001	ND	0.0001	ND	0.0001	ND	0.0001
gamma-BHC	0.4	ND	0.0001	ND	0.0001	ND	0.0001	ND	0.0001
Heptachlor	0.008	ND	0.0001	ND	0.0001	ND	0.0001	ND	0.0001
Heptachlor Epoxide	0.008	ND	0.0001	ND	0.0001	ND	0.0001	ND	0.0001
Methoxychlor	10	ND	0.0001	ND	0.0001	ND	0.0001	ND	0.0001
Toxaphene	0.5	ND	0.0025	ND	0.0025	ND	0.0025	ND	0.0025
SemiVolatiles									
2,4,5-Trichlorophenol	400	ND	0.008	ND	0.008	ND	0.008	ND	0.008
2,4,6-Trichlorophenol	2	ND	0.008	ND	0.008	ND	0.008	ND	0.008
2,4-Dinitrotoluene	0.13	ND	0.008	ND	0.008	ND	0.008	ND	0.008
2-Methylphenol	200	ND	0.002	ND	0.002	ND	0.002	ND	0.002
3&4-Methylphenol	200	ND	0.002	ND	0.002	ND	0.002	ND	0.002
Hexachlorobenzene	0.13	ND	0.008	ND	0.008	ND	0.008	ND	0.008
Hexachlorobutadiene	0.5	ND	0.008	ND	0.008	ND	0.008	ND	0.008
Hexachloroethane	3	ND	0.008	ND	0.008	ND	0.008	ND	0.008
Nitrobenzene	2	ND	0.008	ND	0.008	ND	0.008	ND	0.008
Pentachlorophenol	100	ND	0.04	ND	0.04	ND	0.04	ND	0.04
Pyridine	5	ND	0.04	ND	0.04	ND	0.04	ND	0.04
Volatiles									
1,1-Dichloroethene	0.7	ND	0.001	ND	0.001	ND	0.001	ND	0.001
1,2-Dichloroethane	0.5	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005
1,4-Dichlorobenzene	7.5	ND	0.001	ND	0.001	ND	0.001	ND	0.001
2-Butanone	200	ND	0.001	ND	0.001	ND	0.001	ND	0.001
Benzene	0.5	ND	0.0005	ND	0.0005	ND	0.0005	ND	0.0005
Carbon tetrachloride	0.5	ND	0.001	ND	0.001	ND	0.001	ND	0.001
Chlorobenzene	100	ND	0.001	ND	0.001	ND	0.001	ND	0.001
Chloroform	6	ND	0.001	ND	0.001	ND	0.001	ND	0.001
Tetrachloroethene	0.7	ND	0.001	ND	0.001	ND	0.001	ND	0.001
Trichloroethene	0.5	ND	0.001	ND	0.001	ND	0.001	ND	0.001
Vinyl chloride	0.2	ND	0.001	ND	0.001	ND	0.001	ND	0.001

TCLP limits are in mg/L (PPM) unless otherwise noted.

Result in excess of standard

Table 4
TCLP Soil Sample Results
Southpoint Park
Roosevelt Island, NY

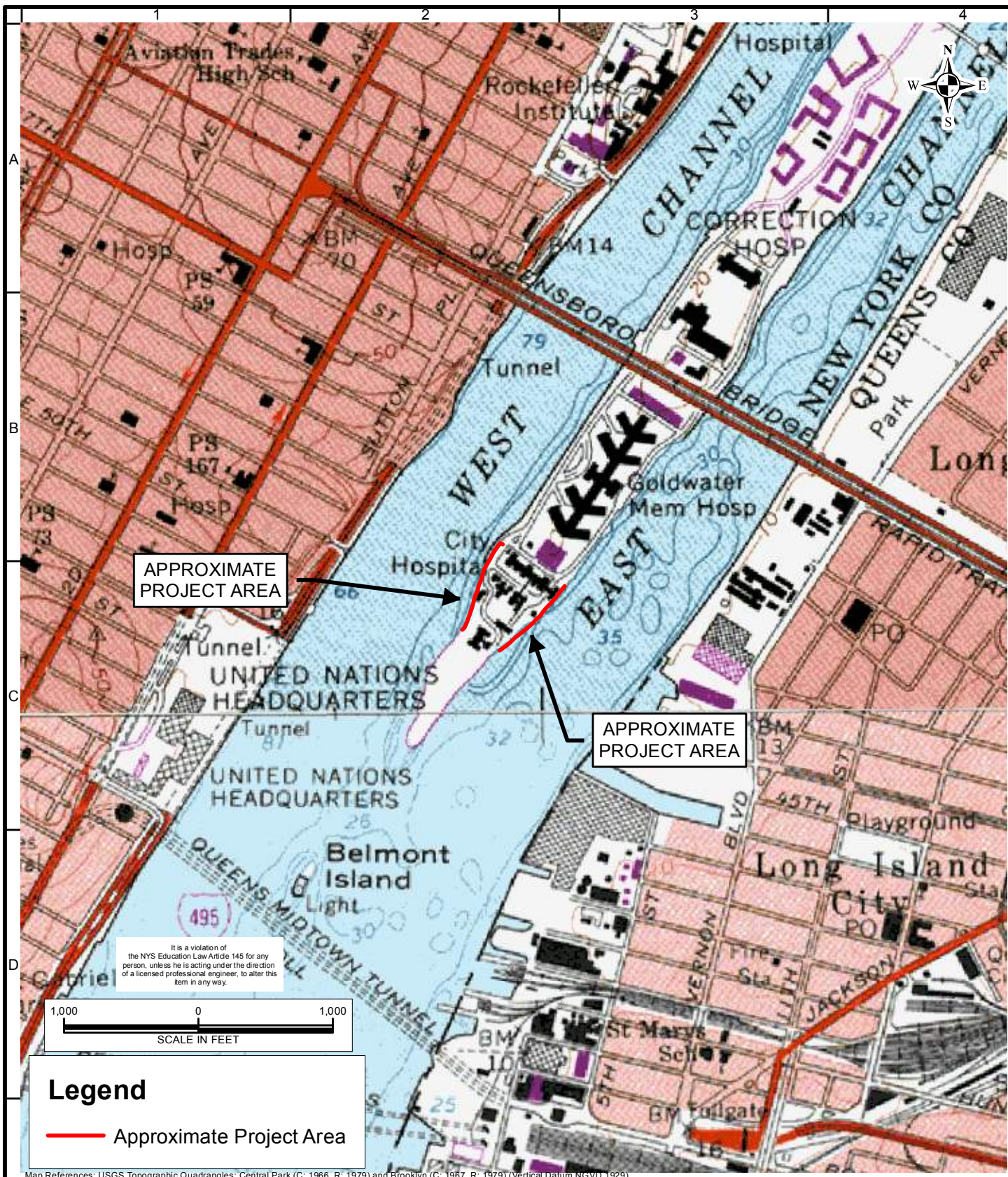
CLIENT ID: LAB ID: COLLECTION DATE: SAMPLE MATRIX: SAMPLE UNITS:		SPTP-1 AC77226-001 1/30/2014 TCLP mg/L		SPTP-2 AC77226-002 1/30/2014 TCLP mg/L		SPTP-3 AC77226-003 1/30/2014 TCLP mg/L		SPTP-4 AC77226-004 1/30/2014 TCLP mg/L		SPTP-5 AC77226-005 1/30/2014 TCLP mg/L		SPTP-6 AC77226-006 1/30/2014 TCLP mg/L		SPTP-7 AC77226-007 1/30/2014 TCLP mg/L		SPTP-9 AC77226-008 1/30/2014 TCLP mg/L					
Analyte	TCLP	Result		RL	Result		RL	Result		RL	Result		RL	Result		RL	Result		RL		
	mg/L																				
Metals																					
Lead	5	1.2	0.1		2.9	0.1		0.64	0.1		0.95	0.1		0.5	0.1		0.49	0.1		0.85	0.1
TCLP Metals Extraction		Complete(N/A)			Complete(N/A)			Complete(N/A)			Complete(N/A)			Complete(N/A)			Complete(N/A)			Complete(N/A)	

CLIENT ID:		SPTP-10		SPTP-11		SPTP-12		SPTP-13		SPTP-14		SPTP-15		SPTP-16		SPTP-17	
LAB ID:		AC77226-009		AC77226-010		AC77226-011		AC77226-012		AC77226-013		AC77226-014		AC77226-015		AC77226-016	
COLLECTION DATE:		1/30/2014		1/30/2014		1/30/2014		1/30/2014		1/31/2014		1/31/2014		1/31/2014		1/31/2014	
SAMPLE MATRIX:		TCLP		TCLP		TCLP		TCLP		TCLP		TCLP		TCLP		TCLP	
SAMPLE UNITS:		mg/L		mg/L		mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Analyte	TCLP																
	mg/L	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Metals																	
Lead	5	ND	0.1	0.32	0.1	24	0.1	1.5	0.1	1.4	0.1	2.3	0.1	0.85	0.1	2.7	0.1
TCLP Metals Extraction		Complete(N/A)		Complete(N/A)		Complete(N/A)		Complete(N/A)		Complete(N/A)		Complete(N/A)		Complete(N/A)		Complete(N/A)	

CLIENT ID:		SPTP-18		SPTP-19		SPTP-20		SPTP-21		SPTP-22		SPTP-23		SPTP-24	
LAB ID:		AC77226-017		AC77226-018		AC77226-019		AC77226-020		AC77226-021		AC77226-022		AC77226-023	
COLLECTION DATE:		1/31/2014		1/31/2014		1/31/2014		1/31/2014		1/31/2014		1/31/2014		1/31/2014	
SAMPLE MATRIX:		TCLP		TCLP		TCLP		TCLP		TCLP		TCLP		TCLP	
SAMPLE UNITS:		mg/L		mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Analyte	TCLP	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
	mg/L														
Metals															
Lead	5	0.27	0.1	0.21	0.1	0.97	0.1	ND	0.1	0.061	0.1	0.38	0.1	0.098	0.1
TCLP Metals Extraction		Complete(N/A)		Complete(N/A)		Complete(N/A)		Complete(N/A)		Complete(N/A)		Complete(N/A)		Complete(N/A)	

TCLP limits are in mg/L (PPM) unless otherwise noted.
Result in excess of the standard

FIGURES



LANGAN

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Langan Engineering & Environmental Services, Inc.
Langan Engineering, Environmental, Surveying and
Landscape Architecture, D.P.C.
Langan International LLC
Collectively known as Langan

NJ CERTIFICATE OF AUTHORIZATION No. 24GA27996400

Project

**ROOSEVELT ISLAND
SEA WALL**

NEW YORK CITY

MANHATTAN

NEW YORK

Drawing Title

**USGS SITE
LOCATION MAP**

Project No.
100332701

Date
07/26/2013

Scale
1"=1,000'

Drawn By
ARL

Submission Date
XX/XX/XXXX

Figure

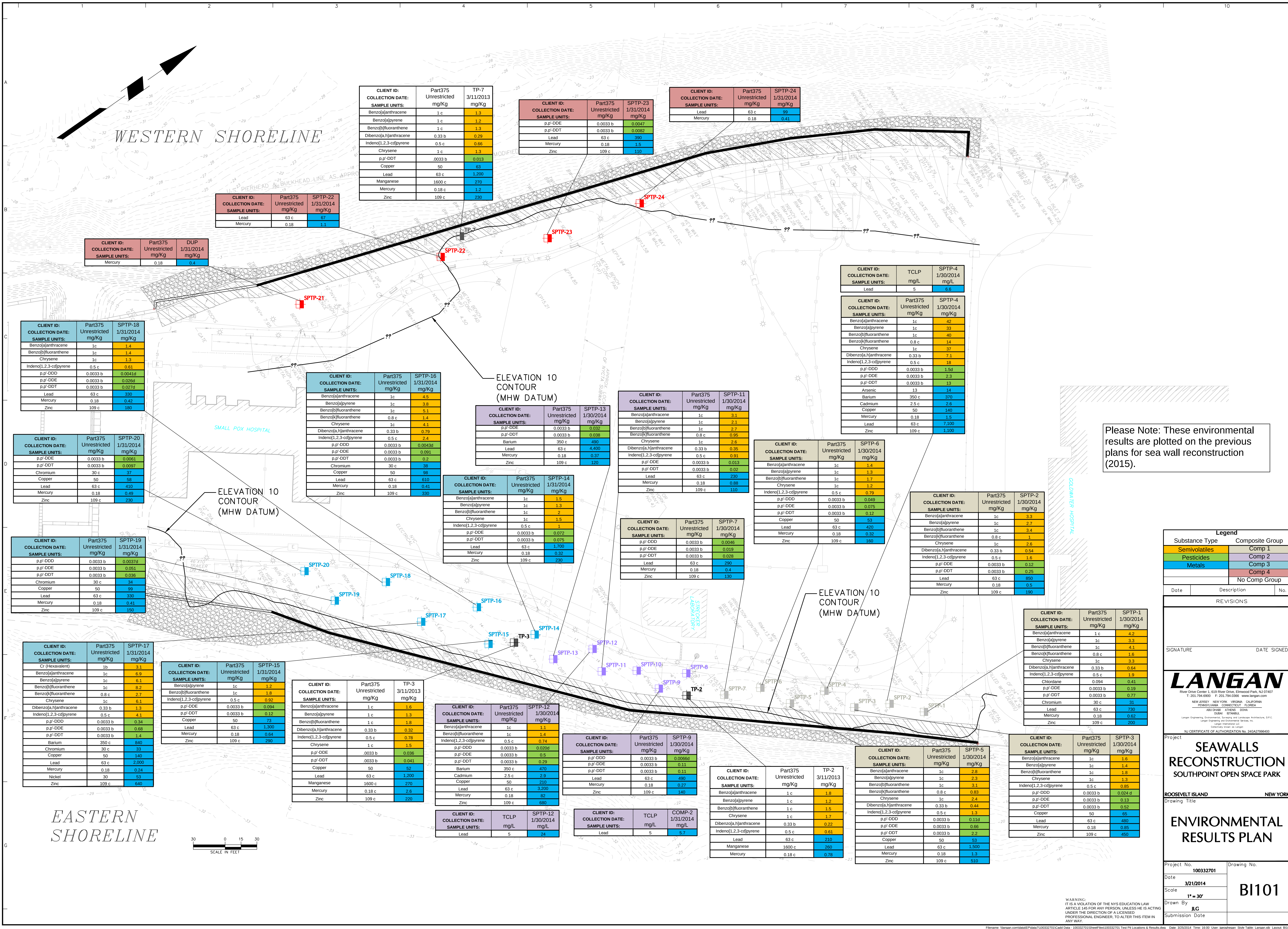
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Sheet ### of ###



TEST PIT LOCATION PLAN	
Project No. 100332701	BI101
Date 1/29/2014	
Scale 1" = 30'	
Drawn By MCT	
Submission Date	

Filename: Wangan.com\data\EP\data\100332701\Cadd Data - 100332701\SheetFiles\100332701 Test Pit Locations.dwg Date: 3/18/2014 Time: 15:37 User: jzeodhegan Style Table: Langan.sbt Layout: B1102



Legend		
Substance Type	Composite Group	
Semivolatiles	Comp 1	
Pesticides	Comp 2	
Metals	Comp 3	
	Comp 4	
	No Comp Group	
Date	Description	No.

REVISIONS

SIGNATURE	DATE	SIGNED
-----------	------	--------

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NEW JERSEY NEW YORK VIRGINIA CALIFORNIA
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KULUVERA KATOWICE DUBAI ISTANBUL
Langan Engineering, Environmental, Planning and Architecture, P.A.C.
Langan International LLC
Langan Korea Inc. (LKI)
NJ CERTIFICATE OF AUTHORIZATION NO. 245427956400

Project
SEAWALLS RECONSTRUCTION
SOUTHPOINT OPEN SPACE PARK
ROOSEVELT ISLAND NEW YORK
Drawing Title

ENVIRONMENTAL RESULTS PLAN

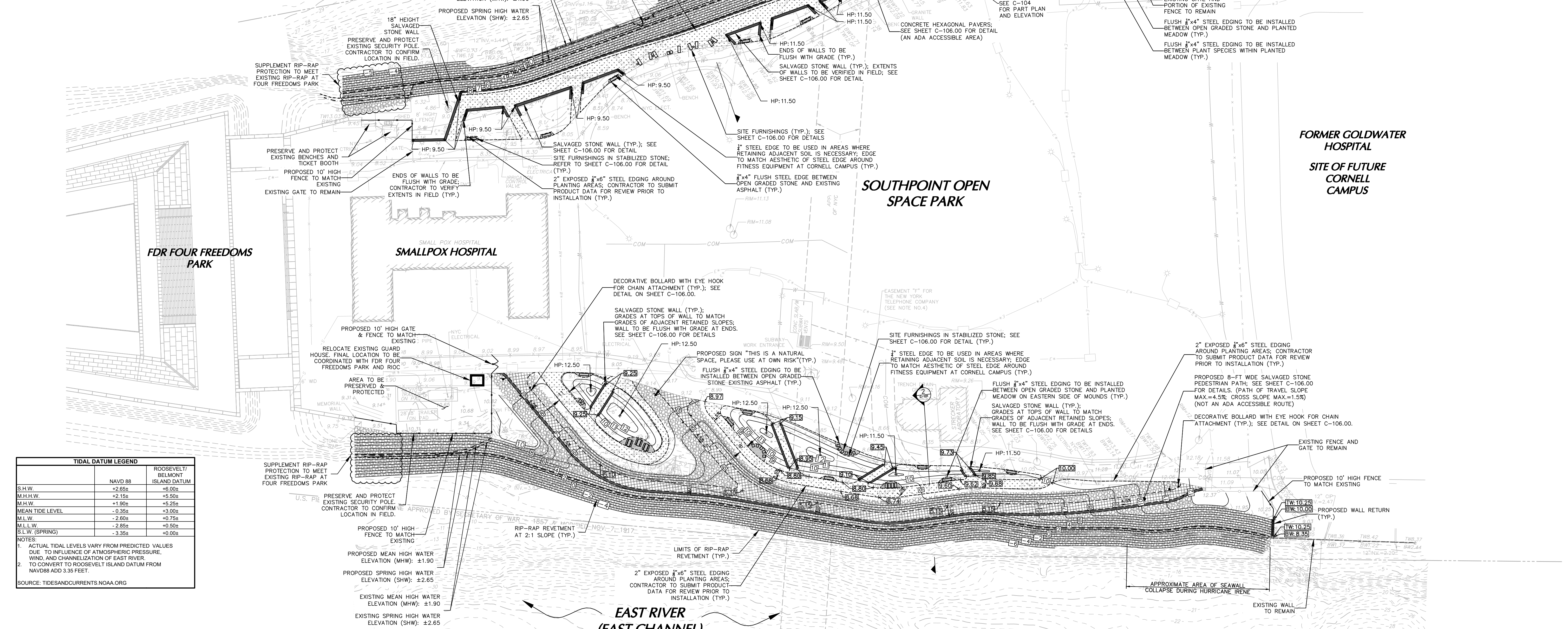
Project No.	100332701	Drawing No.	B1101
Date	3/21/2014	Scale	
Scale	1" = 30'	Drawn By	
Drawn By	ILG	Submission Date	

WARNING:
IT IS A VIOLATION OF THE NYS EDUCATION LAW
ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING
UNDER THE DIRECTION OF A LICENSED
PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN
ANY WAY.

Appendix A – Shoreline Protection Plan

REFER TO SHEET G-002 & SOIL MANAGEMENT
PLAN TO SEE RIP-RAP REPLACEMENT NOTES

CUT AND FILL PARAMETERS	
SOUTH POINT SPACE PARK RIP-RAP REVETMENT	
Cut Fill parameters referenced to Overall Project	
Demolish and Stockpile existing Seawall Material = 1,000 CY	
Total Mass Grading Cut Volume = 10,000 CY	
Total Mass Grading Fill Volume = 1,000 CY	
Total Soil Removal Volume = 8,000 CY	
Total Rip-Rap Import = 4,300 CY (5,300 CY - 1,000 CY on-site material)	
Total Topsoil Import for Clean Cap = 3,100 CY	
Cut Fill parameters referenced to below SHW	
Total Cut Volume = 900 CY	
Total Fill Volume = 2,200 CY	
Overall Net Fill Volume = 1,300 CY	
Total Cut Area = 8,000 SF	
Total Fill Area = 20,000 SF	
Overall Net Fill Area = 12,000 SF	
Cut Fill parameters referenced to below MHW	
Total Cut Volume = 800 CY	
Total Fill Volume = 2,100 CY	
Overall Net Fill Volume = 1,300 CY	
Total Cut Area = 8,000 SF	
Total Fill Area = 19,900 SF	
Overall Net Fill Area = 11,900 SF	



TIDAL DATUM LEGEND		
	NAVD 88	ROOSEVELT/ BELMONT ISLAND DATUM
SHW	+2.65±	+6.00±
M.H.H.W.	+2.15±	+5.50±
M.H.W.	+1.90±	+5.25±
MEAN TIDE LEVEL	-0.35±	+3.00±
M.L.W.	-2.60±	+0.75±
M.L.L.W.	-2.85±	+0.50±
S.L.W. (SPRING)	-3.35±	+0.00±
NOTES:		
1. ACTUAL TIDAL LEVELS VARY FROM PREDICTED VALUES DUE TO INFLUENCE OF ATMOSPHERIC PRESSURE, WIND, AND CHANNELIZATION OF EAST RIVER.		
2. TO CONVERT TO ROOSEVELT ISLAND DATUM FROM NAVD88 ADD 3.35 FEET.		
SOURCE: TIDESANDCURRENTS.NOAA.ORG		

GENERAL NOTES

SURVEY NOTES

- THIS SURVEY IS BASED UPON EXISTING PHYSICAL CONDITIONS FOUND AT THE SUBJECT SITE, AND THE FOLLOWING REFERENCES:
 - "SEAWALL RECONSTRUCTION SOUTHPOINT OPEN SPACE PARK", PARTIAL TOPOGRAPHIC SURVEY, PROJECT NO.100332701, DATE 5/29/2013, DRAWING NO. VT100.
 - HYDROGRAPHIC DATA SUPPLIED BY ROGERS SURVEYING, INC., JULY 6, 2018.
- THE MERIDIAN OF THIS SURVEY IS REFERENCED TO NY LONG ISLAND STATE PLANE SYSTEM NAD83.
- ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD88) BASED UPON GPS METHODS (SEE CONVERSION CHART).
- PLANIMETRIC INFORMATION SHOWN HEREON HAS BEEN OBTAINED FROM GROUND SURVEYS BY LANGAN ENGINEERING, ENVIRONMENTAL, SURVEYING, LANDSCAPE ARCHITECTURE AND GEOLOGY, D.P.C. DURING JULY 2018.

1/8/20	SUBMISSION TO SBS	3.
5/29/19	SUBMISSION TO SBS	2.
2/20/19	SUBMISSION TO SBS	1.
Date	Description	No.
REVISIONS		

SIGNATURE
LEONARD D. SAVINO
PROFESSIONAL ENGINEER NY Lic. No. 090013-1

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Landscape Architecture and Geology, D.P.C.
21 Penn Plaza, 360 West 31st Street, 8th Floor
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Project

**SOUTHPOINT OPEN
SPACE PARK
RIP-RAP REVETMENT
SBS # 20193722**

ROOSEVELT ISLAND

NEW YORK

Drawing Title

**SHORELINE
PROTECTION PLAN**

Project No.

100332702

Date

11/26/2018

Drawn By

EAJ/VP

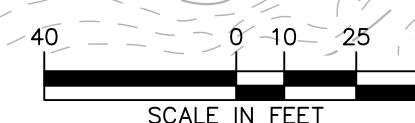
Checked By

JF/CO

Drawing No.

C-100.00

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Appendix B – Landscape Plan

SEE IRRIGATION DETAILS ON L-111.00

IRRIGATION NOTES:

1. THE IRRIGATION CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF THE IRRIGATION INSTALLATION PLAN AND CUT-SHEETS FOR ALL COMPONENTS FOR REVIEW AND APPROVAL BY THE PROJECT LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION. THE IRRIGATION INSTALLATION PLAN SHALL BE COMPLETE WITH ZONE DESIGNATIONS AND WATER USAGE IN GALLONS PER MINUTE PER ZONE, RUN TIME SCHEDULE, LEGEND OF COMPONENTS AND PLAN GRAPHICS WITH QUANTITIES, MINIMUM SYSTEM REQUIREMENTS INCLUDING STATIC PRESSURE AT THE WATER CONNECTION POINT, ESTIMATED WATER BUDGET, CONSTRUCTION DETAILS AND IRRIGATION NOTES. THE PLAN SHALL ALSO INCLUDE LOCATIONS OF ALL PROPOSED SLEEVES AND THEIR SIZES, LOCATIONS OF ALL LATERAL LINE SIZE STEP-DOWNS WITH SIZE INDICATIONS, LOCATION OF ALL SOIL MOISTURE SENSORS, CONTROLLER, VALVES AND ALL OTHER COMPONENTS NECESSARY FOR THE SYSTEMS OPERATION.
2. LANDSCAPE AREAS SHALL BE IRRIGATED WITH POP-UP SPRAY AND ROTARY IRRIGATION HEADS IN SUFFICIENT DENSITY TO COVER THE ENTIRE AREA.
3. CONTRACTOR TO AVOID DISTURBANCE OF EXISTING PLANT MATERIAL WHEN LOCATING VALVES AND PIPE LINES. ANY PLANT MATERIAL DAMAGED AS A RESULT OF IRRIGATION INSTALLATION SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER.
4. ALL EXCAVATION MATERIAL SHALL BE PLACED BACK IN TRENCHES.
5. ALL DISTURBED LANDSCAPE AND PAVED AREAS SHALL BE RESTORED TO THE CONDITION FOUND PRIOR TO START OF INSTALLATION.
6. DEPTH OF TRENCHES SHALL BE SUFFICIENT OR PROVIDE A MINIMUM COVER ABOVE THE TOP OF PIPE AS FOLLOWS:
 - 12" OVER NON-PRESSURE LATERAL LINES
 - 18" OVER NON-PRESSURE LATERAL LINES UNDER PAVING
 - 18" OVER CONTROL WIRES
 - 18" OVER MAIN LINE
 - 24" OVER MAIN LINE UNDER PAVING
7. THE IRRIGATION CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE LOCATION OF THE PLUMBING TIE-INS, SLEEVES UNDER PAVEMENTS (AS NECESSARY), AND CONTROL DEVICES WITH THE GENERAL CONTRACTOR, OWNER, AND OWNER'S REPRESENTATIVE.
8. CONTRACTOR TO COORDINATE INSTALLATION OF IRRIGATION SYSTEM WITH EXISTING AND PROPOSED UTILITIES, SITE DRAINAGE SYSTEMS, AND PAVING.
9. CONTRACTOR SHALL PROMPTLY NOTIFY THE OWNER'S REPRESENTATIVE SHOULD ANY UTILITIES, NOT SHOWN ON THE PLANS, BE FOUND DURING INSTALLATION WORK.
10. WATERPROOF ALL WIRE CONNECTORS USING 3M "DIP" WATERPROOF CONNECTORS OR EQUIVALENT.
11. DRAIN VALVES ARE TO BE PROVIDED AT SUFFICIENT INTERVALS TO PROVIDE COMPLETE DRAINAGE OF ALL PIPING.
12. COORDINATE THE LOCATION OF CONTROLS, IRRIGATION CONTROLLER, AND SOIL MOISTURE SENSORS WITH THE PROJECT MEP AND OWNER PRIOR TO INSTALLATION.
13. IRRIGATION CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS TO IRRIGATION DESIGN WHERE REQUIRED TO PROVIDE 100% COVERAGE OF ALL LANDSCAPE AREAS, AS DESIGNATED ON THIS PLAN.
14. INSTALLATION MUST COMPLY WITH ALL LOCAL CODES AND CONDITIONS.
15. ALL IRRIGATION WORK SHALL BE GUARANTEED FOR 1 YEAR AFTER COMPLETION OF ALL WORK.
16. CONTRACTOR TO PROVIDE THREE (3) COPIES OF AS-BUILTS, SERVICE MANUALS AND INSTRUCTIONS TO THE OWNER OR OWNERS REPRESENTATIVE.
17. ALL SPRINKLER HEADS SHALL BE SET BACK 4" MINIMUM FROM BACK OF ALL CURBS.
18. CONTRACTOR MAY SUBMIT ALTERNATE EQUIVALENT MATERIALS FOR REVIEW AND APPROVAL BY OWNER'S REPRESENTATIVE OR PROJECT LANDSCAPE ARCHITECT.

EAST RIVER
(WEST CHANNEL)

U.S. PIERHEAD & BULKHEAD LINE AS APPROVED BY THE SECRETARY OF WAR - 1857 & MODIFIED NOV. 7, 1917

AREA TO BE IRRIGATED (TYP.)
CONTRACTOR TO REVIEW IRRIGATION AS-BUILT AND EXTEND EXISTING SYSTEM AS NECESSARY; CONTRACTOR TO SUBMIT FULL SHOP DRAWINGS AND PRODUCT DATA FOR IRRIGATION SYSTEM; REFER TO IRRIGATION NOTES FOR DETAILS (TYP.)

AREA TO BE IRRIGATED (TYP.)
CONTROLLER LOCATION; CONTRACTOR REVIEW EXISTING CONTROLLER TO CONFIRM ADDITIONAL ZONES CAN BE ADDED TO SYSTEM

FORMER GOLDWATER HOSPITAL
SITE OF FUTURE CORNELL CAMPUS

SOUTHPOINT OPEN SPACE PARK

CONTRACTOR TO REVIEW IRRIGATION AS-BUILT AND EXTEND EXISTING SYSTEM AS NECESSARY; CONTRACTOR TO SUBMIT FULL SHOP DRAWINGS AND PRODUCT DATA FOR IRRIGATION SYSTEM; REFER TO IRRIGATION NOTES FOR DETAILS (TYP.)
AREA TO BE IRRIGATED (TYP.)

AREA TO BE IRRIGATED (TYP.)

U.S. PIERHEAD & BULKHEAD LINE APPROVED BY SECRETARY OF WAR - 1857 & MODIFIED NOV. 7, 1917

EAST RIVER
(EAST CHANNEL)

TIDAL DATUM LEGEND		
	NAVD 88	ROOSEVELT / BELMONT ISLAND DATUM
S.H.W.	+2.66±	+6.00±
M.H.W.	+2.15±	+5.50±
M.H.W.	+1.90±	+5.25±
MEAN TIDE LEVEL	+0.35±	+3.00±
M.L.W.	-2.60±	+0.75±
M.L.L.W.	-2.85±	+0.50±
S.L.W. (SPRING)	-3.35±	+0.00±

NOTES:
1. ACTUAL TIDAL LEVELS VARY FROM PREDICTED VALUES DUE TO INFLUENCE OF ATMOSPHERIC PRESSURE, WIND, AND CHANNELIZATION OF EAST RIVER.
2. TO CONVERT TO ROOSEVELT ISLAND DATUM FROM NAVD88 ADD 3.35 FEET.
SOURCE: TIDESANDCURRENTS.NOAA.ORG

1/8/20	SUBMISSION TO SBS	3.
5/29/19	SUBMISSION TO SBS	2.
2/20/19	SUBMISSION TO SBS	1.
Date	Description	No.
REVISIONS		

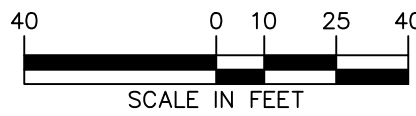
Michael Szura
SIGNATURE MICHAEL SZURA, RLA DATE SIGNED
NEW YORK STATE
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Project
SOUTHPOINT OPEN SPACE PARK
RIP-RAP REVETMENT
SBS # 20193722
ROOSEVELT ISLAND NEW YORK

Drawing Title
IRRIGATED AREA PLAN

Project No.
100332702
Date
11/26/2018
Drawn By
JA
Checked By
MH
Drawing No.
L-101.00



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GENERAL LANDSCAPE PLANTING NOTES

1. NAMES OF PLANTS AS DESCRIBED ON THIS PLAN CONFORM TO THOSE GIVEN IN "STANDARDIZED PLANT NAMES", 1942 EDITION, PREPARED BY THE AMERICAN JOINT COMMITTEE ON HORTICULTURAL NOMENCLATURE. NAMES OF PLANT VARIETIES NOT INCLUDED THEREIN CONFORM TO NAMES GENERALLY ACCEPTED IN NURSERY TRADE.
2. ALL EXPOSED GROUND SURFACES THAT ARE NOT PAVED WITHIN THE CONTRACT LIMIT LINE, AND THAT ARE NOT COVERED BY LANDSCAPE PLANTING OR SEEDING AS SPECIFIED, SHALL BE COVERED BY A NATURAL MULCH THAT WILL PREVENT SOIL EROSION AND THE EMANATION OF DUST.
3. NO PLANT SHALL BE PUT INTO THE GROUND BEFORE ROUGH GRADING HAS BEEN COMPLETED AND APPROVED BY THE PROJECT LANDSCAPE ARCHITECT OR PROJECT ENGINEER.
4. STANDARDS FOR TYPE, SPREAD, HEIGHT, ROOT BALL AND QUALITY OF NEW PLANT MATERIAL SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AS SET FORTH IN THE "AMERICAN STANDARD FOR NURSERY STOCK", PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERMEN. PLANT MATERIAL SHALL HAVE NORMAL HABIT OF GROWTH AND BE HEALTHY, VIGOROUS, AND FREE FROM DISEASES AND INSECT INFESTATION.
5. NEW PLANT MATERIAL SHALL BE NURSERY GROWN UNLESS SPECIFIED OTHERWISE. ALL PLANTS SHALL BE SET PLUMB AND SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS THE PLANTS' ORIGINAL GRADE BEFORE DIGGING. PLANT MATERIAL OF THE SAME SPECIES AND SPECIFIED AS THE SAME SIZE SHOULD BE SIMILAR IN SHAPE, COLOR, AND HABIT. THE LANDSCAPE ARCHITECT HAS THE RIGHT TO REJECT PLANT MATERIAL THAT DOES NOT CONFORM TO THE TYPICAL OR SPECIFIED HABIT OF THAT SPECIES.
6. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UNDERGROUND UTILITY AND SEWER LINES PRIOR TO THE START OF EXCAVATION ACTIVITIES. NOTIFY THE PROJECT ENGINEER AND OWNER IMMEDIATELY OF ANY CONFLICTS WITH PROPOSED PLANTING LOCATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE.
7. THE CONTRACTOR SHALL NOT MAKE SUBSTITUTIONS. IF THE SPECIFIED LANDSCAPE MATERIAL IS NOT OBTAINABLE, THE CONTRACTOR SHALL SUBMIT PROOF OF NON-AVAILABILITY TO THE LANDSCAPE ARCHITECT AND OWNER, TOGETHER WITH A WRITTEN PROPOSAL FOR USE OF AN EQUIVALENT MATERIAL.
8. LANDSCAPE CONTRACTOR TO STAKE OUT PLANTING LOCATIONS, FOR REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT AND/OR OWNER BEFORE PLANTING WORK BEGINS. THE LANDSCAPE ARCHITECT AND/OR OWNER SHALL DIRECT THE CONTRACTOR IN THE FINAL PLACEMENT OF ALL PLANT MATERIAL AND LOCATION OF PLANTING BEDS TO ENSURE COMPLIANCE WITH DESIGN INTENT UNLESS OTHERWISE INSTRUCTED.
9. THE LANDSCAPE ARCHITECT MAY REVIEW PLANT MATERIALS AT THE SITE, BEFORE PLANTING, FOR COMPLIANCE WITH REQUIREMENTS FOR GENUS, SPECIES, VARIETY, SIZE, AND QUALITY. THE LANDSCAPE ARCHITECT MAY RETAIN THE RIGHT TO FURNISH PLANT MATERIALS FOR SIZE AND CONDITION OF BALLS AND ROOT SYSTEM, INSECTS, INJURIES, AND LATENT DEFECTS, AND TO REJECT UNSATISFACTORY OR DEFECTIVE MATERIAL AT ANY TIME DURING PROGRESS OF WORK. THE CONTRACTOR SHALL REMOVE REJECTED PLANT MATERIALS IMMEDIATELY FROM PROJECT SITE AS DIRECTED BY THE LANDSCAPE ARCHITECT OR OWNER.
10. DELIVERY, STORAGE, AND HANDLING
- A. PACKAGED MATERIALS SHALL BE DELIVERED IN CONTAINERS SHOWING WEIGHT, ANALYSIS, AND NAME OF MANUFACTURER. MATERIALS SHALL BE PROTECTED FROM DETEIORATION DURING DELIVERY, AND WHILE STORED AT SITE.
- B. TREES AND SHRUBS: THE CONTRACTOR SHALL PROVIDE TREES AND SHRUBS DUG FOR THE GROWING SEASON FOR WHICH THEY WILL BE PLANTED. DO NOT PRUNE PRIOR TO DELIVERY UNLESS OTHERWISE DIRECTED BY THE LANDSCAPE ARCHITECT. DO NOT BEND OR BIND TREES OR SHRUBS IN SUCH A MANNER AS TO DAMAGE BARK, BREAK BRANCHES, OR DESTROY NATURAL SHAPE. PROVIDE PROTECTIVE COVERING DURING TRANSIT. DO NOT DROP BALLED AND BURLAPPED STOCK DURING DELIVERY OR HANDLING.
- C. ALL PLANTS SHALL BE BALLED AND BURLAPPED OR CONTAINER GROWN AS SPECIFIED. NO CONTAINER GROWN STOCK WILL BE ACCEPTED IF IT IS ROOT BOUND. ALL ROOTBALL WRAPPING AND BINDING MATERIAL MADE OF SYNTHETICS OR PLASTICS SHALL BE REMOVED FROM THE TOP OF THE BALL AT THE TIME OF PLANTING. IF THE PLANT IS SHIPPED WITH A WIRE BASKET AROUND THE ROOT BALL, THE WIRE BASKET SHALL BE CUT AND FOLDED DOWN 8 INCHES INTO THE PLANTING HOLE. WITH CONTAINER GROWN STOCK, THE CONTAINER SHALL BE REMOVED AND THE ROOT BALL SHALL BE CUT THROUGH THE SURFACE IN TWO LOCATIONS.
- D. THE CONTRACTOR SHALL HAVE TREES AND SHRUBS DELIVERED TO SITE AFTER PREPARATIONS FOR PLANTING HAVE BEEN COMPLETED AND PLANT IMMEDIATELY. IF PLANTING IS DELAYED MORE THAN 6 HOURS AFTER DELIVERY, THE CONTRACTOR SHALL SET TREES AND SHRUBS IN SHADE, PROTECT FROM WEATHER AND MECHANICAL DAMAGE AND KEEP ROOTS MOIST BY COVERING WITH MULCH, BURLAP OR OTHER ACCEPTABLE MEANS OF RETAINING MOISTURE.
11. ALL LANDSCAPED AREAS TO BE CLEARED OF ROCKS, STUMPS, TRASH AND OTHER UNSIGHTLY DEBRIS. ALL FINE GRADED AREAS SHOULD BE HAND RAKED SMOOTH ELIMINATING ANY CLUMPS AND UNEVEN SURFACES PRIOR TO PLANTING OR MULCHING.
12. ALL PLANT MATERIAL SHALL BE INSTALLED AS PER DETAILS, NOTES AND CONTRACT SPECIFICATIONS. THE LANDSCAPE ARCHITECT MAY REVIEW INSTALLATION AND MAINTENANCE PROCEDURES.
13. NEW PLANT MATERIAL SHALL BE GUARANTEED TO BE ALIVE AND IN VIGOROUS GROWING CONDITION FOR A PERIOD OF ONE YEAR FOLLOWING ACCEPTANCE BY THE OWNER. IF MATERIAL FOUND TO BE UNHEALTHY, DYING OR DEAD DURING THIS PERIOD, SHALL BE REMOVED AND REPLACED IN KIND BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.
14. THE CONTRACTOR SHALL KEEP AREA CLEAN DURING DELIVERY AND INSTALLATION OF PLANT MATERIALS. REMOVE AND DISPOSE OF OFF-SITE ANY ACCUMULATED DEBRIS OR UNUSED MATERIALS. REPAIR DAMAGE TO ADJACENT AREAS CAUSED BY LANDSCAPE INSTALLATION OPERATIONS.
15. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24-HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL THEN BE WATERED WEEKLY OR AS REQUIRED BY SITE AND WEATHER CONDITIONS TO MAINTAIN VIGOROUS AND HEALTHY PLANT GROWTH.
16. THE BACKFILL MIXTURE AND SOIL MIXES TO BE INSTALLED PER THE SPECIFICATIONS.
17. AFTER PLANT IS PLACED IN TREE PIT LOCATION, ALL TWINE HOLDING ROOT BALL TOGETHER SHOULD BE COMPLETELY REMOVED AND THE BURLAP SHOULD BE PULLED DOWN SO 1/3 OF THE ROOT BALL IS EXPOSED. SYNTHETIC BURLAP SHOULD BE COMPLETELY REMOVED AFTER INSTALLATION.
18. MULCH SHOULD NOT BE PILED UP AROUND THE TRUNK OF ANY PLANT MATERIAL. NO MULCH OR TOPSOIL SHOULD BE TOUCHING THE BASE OF THE TRUNK ABOVE THE ROOT COLLAR.
19. ALL FENCE INSTALLATION SHALL BE COMPLETED PRIOR TO COMMENCEMENT OF ANY LANDSCAPE PLANTING, LAWN AND GRASSES, OR IRRIGATION WORK.
20. FOR ANY DISCREPANCIES BETWEEN THE PLANT SCHEDULE AND PLANTING PLAN THE GRAPHIC QUANTITY SHOWN SHALL GOVERN.
21. PLANT MATERIALS SHALL NOT BE PLANTED UNTIL THE FINISHED GRADING HAS BEEN COMPLETED.
22. ALL PLANT INSTALLATIONS SHALL BE COMPLETED EITHER BETWEEN APRIL 1 - JUNE 15 OR AUGUST 15 - NOVEMBER 1, UNLESS OTHERWISE DIRECTED BY THE PROJECT LANDSCAPE ARCHITECT. SEE LAWN SEEDING DATES IN SEEDING NOTES.

LANDSCAPE MAINTENANCE NOTES

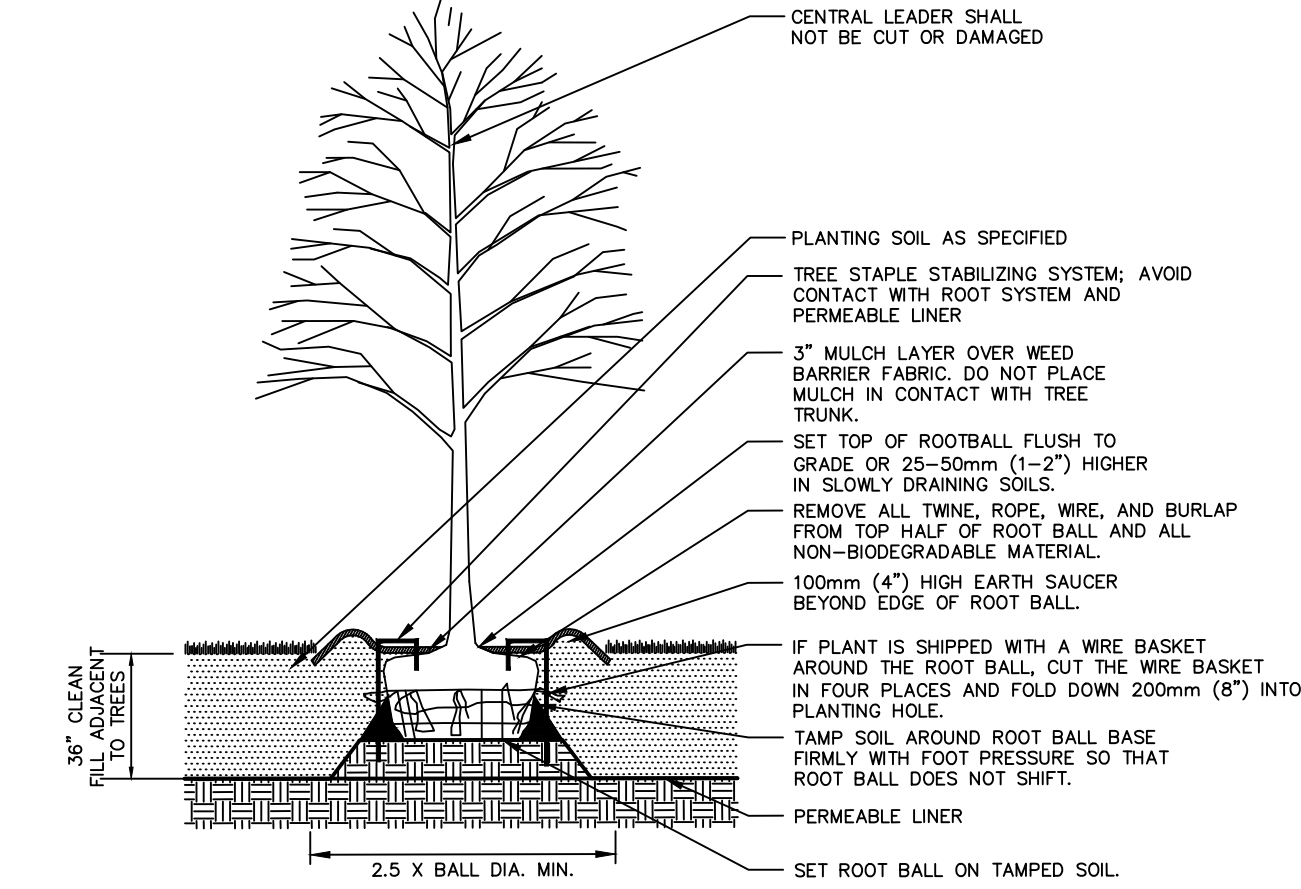
1. MAINTENANCE OPERATIONS BEFORE APPROVAL:
- A. PLANT CARE SHALL BEGIN IMMEDIATELY AFTER EACH PLANT IS SATISFACTORILY INSTALLED AND SHALL CONTINUE THROUGHOUT THE LIFE OF THE CONTRACT UNTIL FINAL ACCEPTANCE OF THE PROJECT.
- B. CARE SHALL INCLUDE, BUT NOT BE LIMITED TO, REPLACING MULCH THAT HAS BEEN DISPLACED BY EROSION OR OTHER MEANS, REPAIRING AND RESEEDING WATER RINGS OR SAUCERS, MAINTAINING STAKES AND GUYS AS ORIGINALLY INSTALLED, WATERING WHEN NEEDED OR DIRECTED, AND PERFORMING ANY OTHER WORK REQUIRED TO KEEP THE PLANTS IN A HEALTHY CONDITION.
- C. CONTRACTOR SHALL REMOVE AND REPLACE ALL DEAD, DEFECTIVE AND/OR REJECTED PLANTS AS REQUIRED BEFORE FINAL ACCEPTANCE.
2. MAINTENANCE DURING CONSTRUCTION:
- A. MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER PLANTING. PLANTS SHALL BE WATERED, MULCHED, WEEDED, PRUNED, SPRAYED, FERTILIZED, CULTIVATED, AND OTHERWISE MAINTAINED AND PROTECTED UNTIL PROVISIONAL ACCEPTANCE. SETTLED PLANTS SHALL BE RESET TO PROPER GRADE AND POSITION. PLANTING SAUCER RESTORED AND DEAD MATERIAL REMOVED. STAKES AND WIRES SHALL BE TIGHTENED AND REPAIRED. DEFECTIVE WORK SHALL BE CORRECTED AS SOON AS POSSIBLE AFTER IT BECOMES APPARENT AND WEATHER AND SEASON PERMIT.
- B. IF A SUBSTANTIAL NUMBER OF PLANTS ARE SICKLY OR DEAD AT THE TIME OF INSPECTION, ACCEPTANCE SHALL NOT BE GRANTED AND THE CONTRACTOR'S RESPONSIBILITY FOR MAINTENANCE OF ALL PLANTS SHALL BE EXTENDED FROM THE TIME REPLACEMENTS ARE MADE OR EXISTING PLANTS ARE DEEMED ACCEPTABLE BY THE LANDSCAPE ARCHITECT.
- C. ALL REPLACEMENTS SHALL BE PLANTS OF THE SAME KIND AND SIZE SPECIFIED ON THE PLANT LIST OR THAT WHICH WAS TO REMAIN OR BE RELOCATED. THEY SHALL BE FURNISHED AND PLANTED AS SPECIFIED. THE COST SHALL BE BORNE BY THE CONTRACTOR. REPLACEMENTS RESULTING FROM REMOVAL, LOSS, OR DAMAGE DUE TO OCCUPANCY OF THE PROJECT IN ANY PART, VANDALISM, PHYSICAL DAMAGE BY ANIMALS, VEHICLES, ETC., AND LOSSES DUE TO CURTAILMENT OF WATER BY LOCAL AUTHORITIES SHALL BE APPROVED AND PAID FOR BY THE OWNER.
- D. PLANTS SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR AFTER INSPECTION AND PROVISIONAL ACCEPTANCE.
- E. AT THE END OF THE ESTABLISHMENT PERIOD, INSPECTION SHALL BE MADE AGAIN. ANY PLANT REQUIRED UNDER THIS CONTRACT THAT IS DEAD OR UNSATISFACTORY TO THE LANDSCAPE ARCHITECT OR OWNER SHALL BE REMOVED FROM THE SITE AND REPLACED DURING THE NORMAL PLANTING SEASON.
3. LAWN MAINTENANCE:
- A. BEGIN MAINTENANCE IMMEDIATELY AFTER EACH PORTION OF LAWN IS PLANTED AND CONTINUE FOR 8 WEEKS AFTER ALL LAWN PLANTING IS COMPLETED.
- B. WATER TO KEEP SURFACE SOIL MOIST, REPAIR WASHED OUT AREAS BY FILLING WITH TOPSOIL, LIMING, FERTILIZING AND RE-SEEDING; MOW TO 2 1/2 - 3 INCHES AFTER GRASS REACHES 3 1/2 INCHES IN HEIGHT, AND MOW FREQUENTLY ENOUGH TO KEEP GRASS FROM EXCEEDING 3 1/2 INCHES. WEED BY LOCAL SPOT APPLICATION OF SELECTIVE HERBICIDE ONLY AFTER GRASS IS WELL-ESTABLISHED.

SOD SPECIFICATIONS

1. SOD IS TO BE A TALL FESCUE/BLUEGRASS BLEND APPROXIMATELY 50/50%. SOD IS TO BE INDIGENOUS TO THE AREA AND BE FURNISHED BY A REPUTABLE GROWER WITH A MINIMUM 5 YEARS EXPERIENCE.
2. PRIOR TO SOODING ALL AREAS ARE TO BE TOPSOILED, FINE GRADED, RAKED, WATERED LIGHTLY, AND FERTILIZED WITH A STARTER FERTILIZER.
3. ALL STONES GREATER THAN 2" DIAMETER SHALL BE REMOVED.
4. SOD TO BE INSTALLED PERPENDICULAR TO ALL SLOPED AREAS. SOD STRIPS TO BE LAYED OUT SO JOINTS ARE NOT CLOSER THAN ONE FOOT (1'-0") FROM EACH OTHER.
5. SOD IS TO BE WATERED AT A RATE OF AT LEAST ONE AND A HALF INCHES (1 1/2") PER WEEK UNTIL ROOT MASS MENDS WITH SOIL. AFTER THIS HAS OCCURED NORMAL WATERING OF AT LEAST ONE INCH (1") PER WEEK IS TO COMMENCE.
6. ALL SOD AREAS ARE TO BE ROLLED IF ANY HEAVING OR DEPRESSIONS OCCUR.

PLANTING SOIL SPECIFICATIONS

1. PLANTING SOIL, ALTERNATELY MAY BE REFERRED TO AS TOPSOIL, SHOULD BE FRIABLE, FERTILE, WELL DRAINED, FREE OF DEBRIS, STONES, TRASH AND STONES OVER 1/2" DIA., IT SHOULD HAVE A HIGH ORGANIC CONTENT SUITABLE TO SUSTAIN HEALTHY PLANT GROWTH AND SHOULD LOOK AESTHETICALLY PLEASING HAVING NO NOXIOUS ODORS.
2. PLANTING SOIL:
- REUSE SURFACE SOILS STOCKPILED ON SITE, VERIFYING COMPLIANCE WITH PLANTING SOIL AND TOPSOIL CRITERIA IN THIS SPECIFICATION THROUGH TESTING. CLEAN SURFACE SOIL OF ALL ROOTS, PLANTS, SOD, AND GRAVEL OVER 1" IN DIAMETER AND DELETERIOUS MATERIALS. ON-SITE SOILS ARE TO BE USED FOR PROPOSED PLANTING, THE CONTRACTOR SHALL DEMONSTRATE, THROUGH SOIL TESTING, THAT ON-SITE SOILS MEET THE SAME CRITERIA AS INDICATED IN NOTES PLANTS AND SPECIFICATIONS.
- SUPPLEMENT WITH IMPORTED OR MANUFACTURED TOPSOIL FROM OFF SITE SOURCES WHEN TOPSOIL AND PLANTING SOIL QUANTITIES ARE INSUFFICIENT. OBTAIN SOIL DISPLACED FROM NATURALLY WELL-DRAINED SITES WHERE TOPSOIL OCCURS AT LEAST 4" DEEP. DO NOT OBTAIN FROM AGRICULTURAL LAND, BOGS, MARSHES OR CONTAMINATED SITES.
- CONTRACTOR SHALL TEST SOILS AND FURNISH SAMPLES UPON REQUEST. PACKAGED MATERIALS SHALL BE UNOPENED BAGS OR CONTAINERS, EACH BEARING A NAME, GUARANTEE, AND TRADEMARK OF THE PRODUCER, MATERIAL COMPOSITION, MANUFACTURER'S CERTIFIED ANALYSIS, AND THE WEIGHT OF THE MATERIALS. SOIL OR AMENDMENT MATERIALS SHALL BE STORED ON SITE TEMPORARILY IN STOCKPILES PRIOR TO PLACEMENT AND SHALL BE PROTECTED FROM INTRUSION OF CONTAMINANTS AND EROSION. AFTER MIXING, SOIL MATERIALS SHALL BE COVERED WITH A TARP/ULIN UNTIL TIME OF ACTUAL USE.
- ALL PLANTING SOILS SHALL BE SUBMITTED FOR TESTING TO THE STATE COOPERATIVE EXTENSION SERVICE, OR APPROVED EQUAL, PRIOR TO DELIVERY TO THE SITE. CONTRACTOR SHALL FURNISH SOIL SAMPLES AND SOIL TEST RESULTS TO LANDSCAPE ARCHITECT OR OWNER AT A RATE OF ONE SAMPLE PER 500 CUBIC YARDS TO ENSURE CONSISTENCY ACROSS THE TOTAL VOLUME OF PLANTING SOIL REQUIRED. TEST RESULTS SHALL EVALUATE FOR ALL CRITERIA LISTED IN THIS SPECIFICATION. IF TESTING AGENCY DETERMINES THAT THE SOILS ARE DEFICIENT IN ANY MANNER AND MAY BE CORRECTED BY ADDING AMENDMENTS, THE CONTRACTOR SHALL FOLLOW STATED RECOMMENDATIONS FOR SOIL IMPROVEMENT AND FURNISH SUBMITTALS FOR ALL AMENDMENTS PRIOR TO DELIVERY OF SOIL TO THE PROJECT SITE.
- A. THE FOLLOWING TESTING SHOULD BE PERFORMED AND RESULTS GIVEN TO THE LANDSCAPE ARCHITECT FOR APPROVAL BEFORE INSTALLATION:
- a. PARTICLE SIZE ANALYSIS - LOAMY SAND: 60-75% SAND, 25-40% SILT, AND 5-15% CLAY.
- b. FERTILITY ANALYSIS: pH (5.5-6.5), SOLUBLE SALTS (LESS THAN 2 MMH/CM), NITRATE, PHOSPHATE, POTASSIUM, CALCIUM AND MAGNESIUM.
- c. ORGANIC MATTER CONTENT: 2.5-5% IN NATIVE SOILS; UP TO 10% IN AMENDED SOILS.
- d. TOXIC SUBSTANCE ANALYSIS.
- e. MATERIAL DRAINAGE RATE: 60% PASSING IN 2 MINUTES, 40% RETAINED.
- f. NOT MORE THAN 1% OF MATERIAL SHALL BE RETAINED BY A #4 SIEVE.
3. SOIL AMENDMENT FOR PLANT MATERIAL:
- IF SOIL ORGANIC CONTENT IS INADEQUATE, SOIL SHALL BE AMENDED WITH COMPOST OR ACCEPTABLE, WEED FREE, ORGANIC MATTER. ORGANIC AMENDMENT SHALL BE WELL COMPOSTED, PH RANGE OF 6-8, MOISTURE CONTENT 35-55% BY WEIGHT 100% PASSING THROUGH 1" SIEVE, SOLUBLE SALT CONTENT LESS THAN 0.5 MM H2O/CM, MEETING ALL APPLICABLE ENVIRONMENTAL CRITERIA FOR CLEAN FILL.
- A. ORGANIC MATTER AS A SOIL AMENDMENT: LEAF MOLD WITH 60-90% ORGANIC CONTENT BY WEIGHT, SHREDDED LEAF LITTER, COMPOSTED FOR A MINIMUM OF 1 YR. SHOULD BE FREE OF DEBRIS, STONES OVER 1/2", WOOD CHIPS OVER 1".
- B. SOIL IN BEDS AND PLANTING ISLANDS OTHER THAN BACKFILL MATERIAL AND TOPSOIL, SHOULD BE FRIABLE, WELL DRAINED, AND FREE OF DEBRIS, INCLUDING STONES AND TRASH.
- C. AMENDMENTS FOR BACK FILL IN TREE AND SHRUB PITS:
- a. GROUND LESTMONE (WITH A MIN. OF 88% OF CALCIUM AND MAGNESIUM CARBONATES) USED PENDING RESULTS OF SOIL ANALYSIS.
- b. BRING pH LEVELS TO 5.5 MIN. TO 6.5 FOR NON-ERICACEOUS PLANTS.
- c. BRING pH LEVELS TO 4.5 MIN. TO 5.5 FOR ERICACEOUS PLANTS.
- d. TERRA-SORB BY "TERRA-QUANT HEALTH CARE" 800-421-9051 (SEE MANUFACTURER RECOMMENDATIONS) USED IN PLANTER.
- e. BACKFILL MIXTURE WITH TREES AND SHRUBS.
- f. MYCOR-RHIZOM SAYER BY "PLANT HEALTH CARE" 800-421-9051 (SEE MANUFACTURER RECOMMENDATIONS) USED IN BACKFILL MIXTURE WITH TREES.
4. WHERE PLANTING AREAS ARE PROPOSED FOR FORMER PAVED OR GRAVEL AREAS, BEDS SHALL BE EXCAVATED TO A MINIMUM 30" DEPTH AND, AT A MINIMUM, BE BACKFILLED WITH BOTTOM LAYER OF SANDY LOAM (ORGANIC CONTENT LESS THAN 2%) OVER WHICH TOPSOIL AND PLANTING SOILS WILL BE PLACED AS SPECIFIED IN PLANS, DETAILS AND NOTES.
5. CLEAN SOIL FILL IN LANDSCAPE AREAS:
- LANDSCAPE FILL MATERIAL BELOW PLANTING SOILS, SHALL HAVE THE PHYSICAL PROPERTIES OF A SANDY LOAM WITH AN ORGANIC CONTENT OF LESS THAN 2% AND A PH BETWEEN 5 - 7.
6. SOIL PLACEMENT:
- A. CONTRACTOR TO PROVIDE SIX INCHES (6") MINIMUM DEPTH PLANTING SOIL LAYER IN LAWN AREAS, TWELVE INCHES (12") MINIMUM DEPTH PLANTING SOIL LAYER IN THIRTY-SIX INCHES (36") MINIMUM DEPTH PLANTING SOIL LAYER IN TREE PLANTING AREAS.
- B. SCARIFY AND/OR TILL COMPACTED SUBSOILS TO A MINIMUM DEPTH OF 6 INCHES. THOROUGHLY MIX A 6 INCH DEPTH LAYER OF PLANTING SOIL INTO THE SUBSOIL PRIOR TO PLACING PLANTING SOIL AT THE DEPTHS INDICATED ABOVE. PLANTING SOIL SHALL BE PLACED IN 12-18" LIFTS AND WATER THOROUGHLY BEFORE EACH LIFT. REPEAT UNTIL DEPTHS AND FINISH GRADES HAVE BEEN ACHIEVED. NO SOILS SHALL BE PLACED IN A FROZEN OR MUDDY CONDITION.
- C. PLANTING SOIL PRESENT AT THE SITE, IF ANY, MAY BE USED TO SUPPLEMENT TOTAL AMOUNT REQUIRED. CONTRACTOR TO FURNISH AN ANALYSIS OF ON-SITE PLANTING SOIL UTILIZED IN ALL PLANTING AREAS.
7. SOIL CONDITIONING:
- A. ADJUST pH AND NUTRIENT LEVELS AS REQUIRED TO ENSURE AN ACCEPTABLE GROWING MEDIUM. LOWER pH USING ELEMENTAL SULFUR ONLY. PEAT MOSS OR COPPER SULFATE MAY NOT BE USED. GROUND LESTMONE AS A SOIL AMENDMENT MATERIAL WILL ONLY BE USED PENDING RESULTS OF SOIL ANALYSIS. PROVIDE WITH MINIMUM 80% CALCIUM AND MAGNESIUM CARBONATES AND SHALL HAVE TOTAL 100% PASSING THE 10 MESH SIEVE, MINIMUM 90% PASSING 20 MESH SIEVE, AND MINIMUM 60% PASSING 100 MESH SIEVE.
- B. ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
- C. SOIL MODIFICATIONS (PENDING RESULTS OF SOIL ANALYSIS):
- a. THOROUGHLY TILL ORGANIC MATTER (LEAF COMPOST) INTO THE TOP 6 TO 12 IN. OF MOST PLANTING SOILS TO IMPROVE THE SOIL'S ABILITY TO RETAIN WATER AND NUTRIENTS. ALL PRODUCTS SHOULD BE COMPOSTED TO A DARK COLOR AND BE FREE OF PIECES WITH IDENTIFIABLE LEAF OR WOOD STRUCTURE. AVOID MATERIAL WITH A PH HIGHER THAN 7.0. PEAT MOSS MAY NOT BE USED AS ORGANIC MATTER AMENDMENT.
- b. MODIFY HEAVY CLAY OR SILT (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) AND/OR CYPRESS. COARSE SAND MAY BE USED IF ENOUGH IS ADDED TO BRING THE SAND CONTENT TO MORE THAN 60% OF THE TOTAL MIX. IMPROVE DRAINAGE IN HEAVY SOILS BY PLANTING ON RAISED MOUNDS OR BEDS AND INCLUDING SUBSURFACE DRAINAGE LINES.
- c. MODIFY EXTREMELY SANDY SOILS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.



1 TREE PLANTING SCALE: N.T.S.

PLAN

SECTION

- NOTES:
1. PLANTS ARE TO BE SPACED EQUIDISTANT FROM EACH OTHER.
2. REFER TO PLAN AND SCHEDULE FOR SPACING OF INDIVIDUAL PLANTS.
3. REMOVE ALL WIRE, PLASTIC, TAGS OR SYNTHETIC MATERIAL FROM PLANTS PRIOR TO PLANTING.

2 PLUG/GROUND COVER PLANTING SCALE: N.T.S.

LAWN WATERING SCHEDULE

THE FOLLOWING WATERING SCHEDULE COVERS ROUGHLY 8 WEEKS TO ESTABLISH A HEALTHY STAND OF GRASS FROM SEED. THE CONTRACTOR SHALL BE OBLIGATED TO ENSURE A HEALTHY STAND OF GRASS AT THE END OF THE MAINTENANCE/BOND PERIOD. ANY BARE OR DEAD AREAS IN THE LAWN SHALL BE PREPARED, RESEEDED AND REESTABLISHED PRIOR TO THE END OF THE MAINTENANCE/BOND PERIOD AND TO THE SATISFACTION OF THE PROJECT LANDSCAPE ARCHITECT AND THE OWNER.

IMPORTANT ASPECTS TO ATTAINING AND SUSTAINING A HEALTHY STAND OF GRASS ARE THE INSTALLATION OF TOPSOIL, SEED BED PREPARATION, ATTAINING OPTIMAL pH FOR THE INTENDED PLANT SPECIES, FERTILIZING, MULCH COVERING, AND SUFFICIENT WATERING PER THESE NOTES AND/OR PROJECT SPECIFICATIONS.

1. SEEDING SHALL BE DONE DURING THE SEASONS SPECIFIED IN THE LAWN SEED MIX NOTES AND/OR PROJECT SPECIFICATIONS.
2. AFTER THE SEEDBED IS PREPARED, SEED IS INSTALLED, AND MULCH IS APPLIED, WATER LIGHTLY TO KEEP THE TOP 2 INCHES OF SOIL CONSISTENTLY MOIST, NOT SATURATED. AT NO TIME SHOULD WATER BE APPLIED TO THE POINT OF RUNOFF OR THE DISPLACEMENT OF SEED.
3. DEPENDING ON SOIL TEMPERATURES, IT MAY TAKE SEVERAL WEEKS FOR GERMINATION TO OCCUR. DIFFERENT SPECIES WITHIN THE MIX GERMINATE AT DIFFERENT TIMES AND THEREFORE CONTRACTOR SHOULD CONTINUE THE LIGHT WATERING, AS DESCRIBED ABOVE, UNTIL THERE IS AT LEAST 2 INCHES OF GROWTH THROUGHOUT.
4. AT THIS POINT, WATERING FREQUENCY MAY BE REDUCED TO EVERY 3 TO 5 DAYS. WATER SHALL BE APPLIED TO WET A 6 INCH MINIMUM SOIL DEPTH TO PROMOTE HEALTHY DEEP ROOTS.
5. BEGIN MOWING ONCE PER WEEK AFTER THE GRASS HAS REACHED 3 INCHES HEIGHT. NOW TO A HEIGHT OF NO LESS THAN 2-3 INCHES. AFTER 2 TO 3 WEEKS OF MOWING, CONTINUE TO WATER TO A 6 INCH MINIMUM SOIL DEPTH AS NECESSARY PER WEATHER CONDITIONS, AND SOIL MOISTURE SENSORS IF APPLICABLE.

1/8/20	SUBMISSION TO SBS	3.
5/29/19	SUBMISSION TO SBS	2.
2/20/19	SUBMISSION TO SBS	1.
Date	Description	No.
REVISIONS		

SIGNATURE: *Michael Szur* DATE SIGNED: _____
MICHAEL SZUR, RLA
NEW YORK STATE
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Project
**SOUTHPPOINT OPEN
SPACE PARK
RIP-RAP REVETMENT
SBS # 20193722**
ROOSEVELT ISLAND
NEW YORK

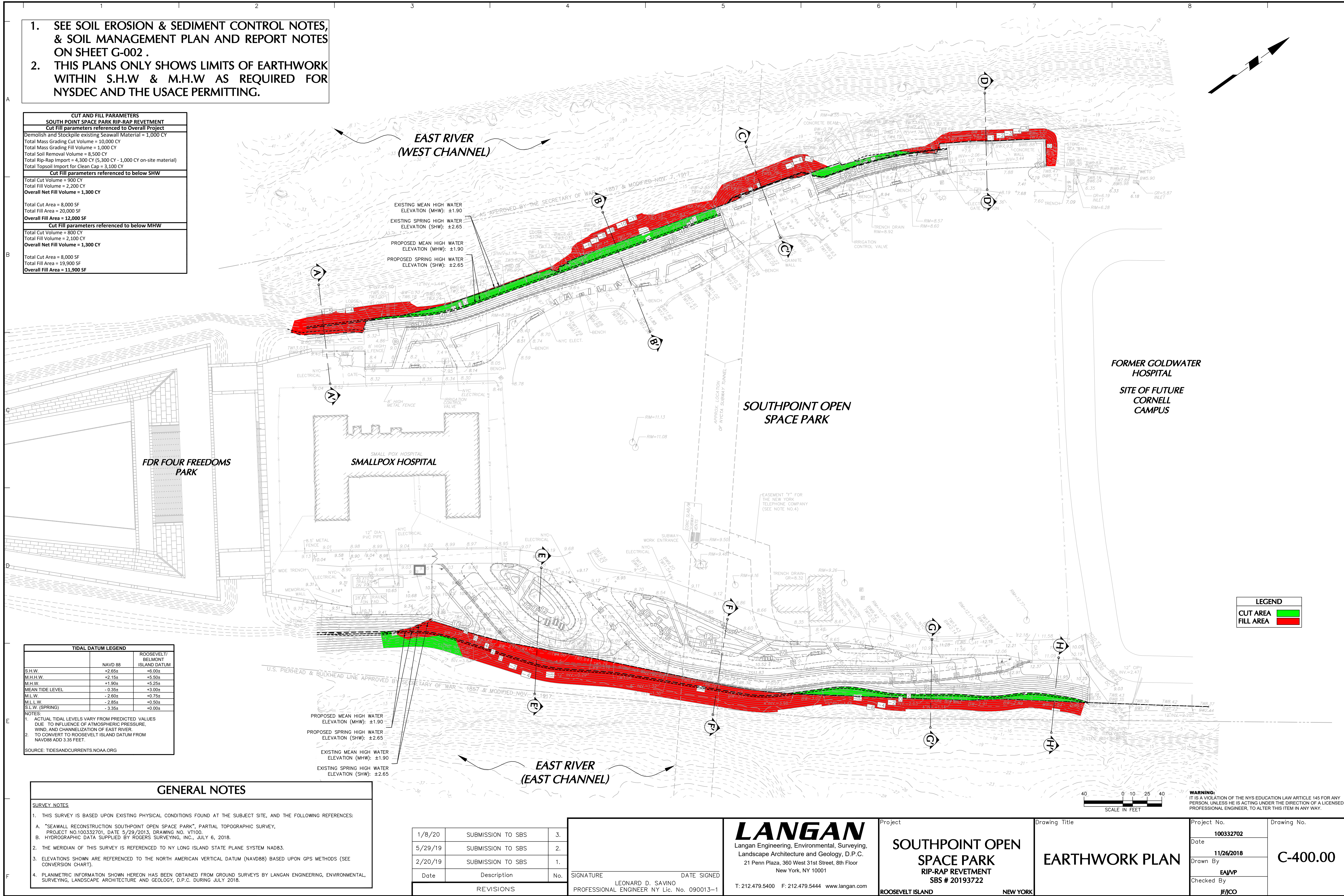
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Date 11/26/2018	Drawn By JA	
Checked By MH		

WARNING:
IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

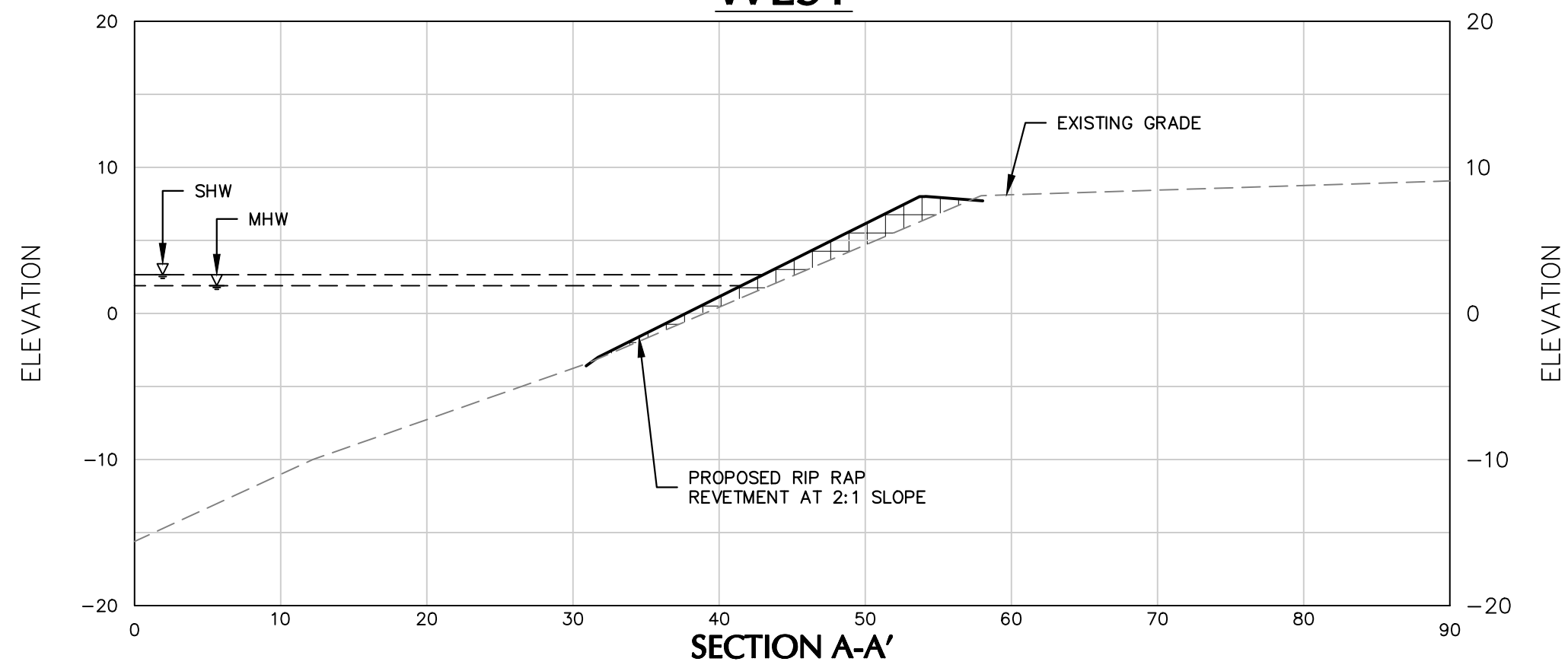
Appendix C – Typical Earthwork and Cap Section at Seawall Retrofit

1. SEE SOIL EROSION & SEDIMENT CONTROL NOTES, & SOIL MANAGEMENT PLAN AND REPORT NOTES ON SHEET G-002 .
2. THIS PLANS ONLY SHOWS LIMITS OF EARTHWORK WITHIN S.H.W & M.H.W AS REQUIRED FOR NYSDEC AND THE USACE PERMITTING.

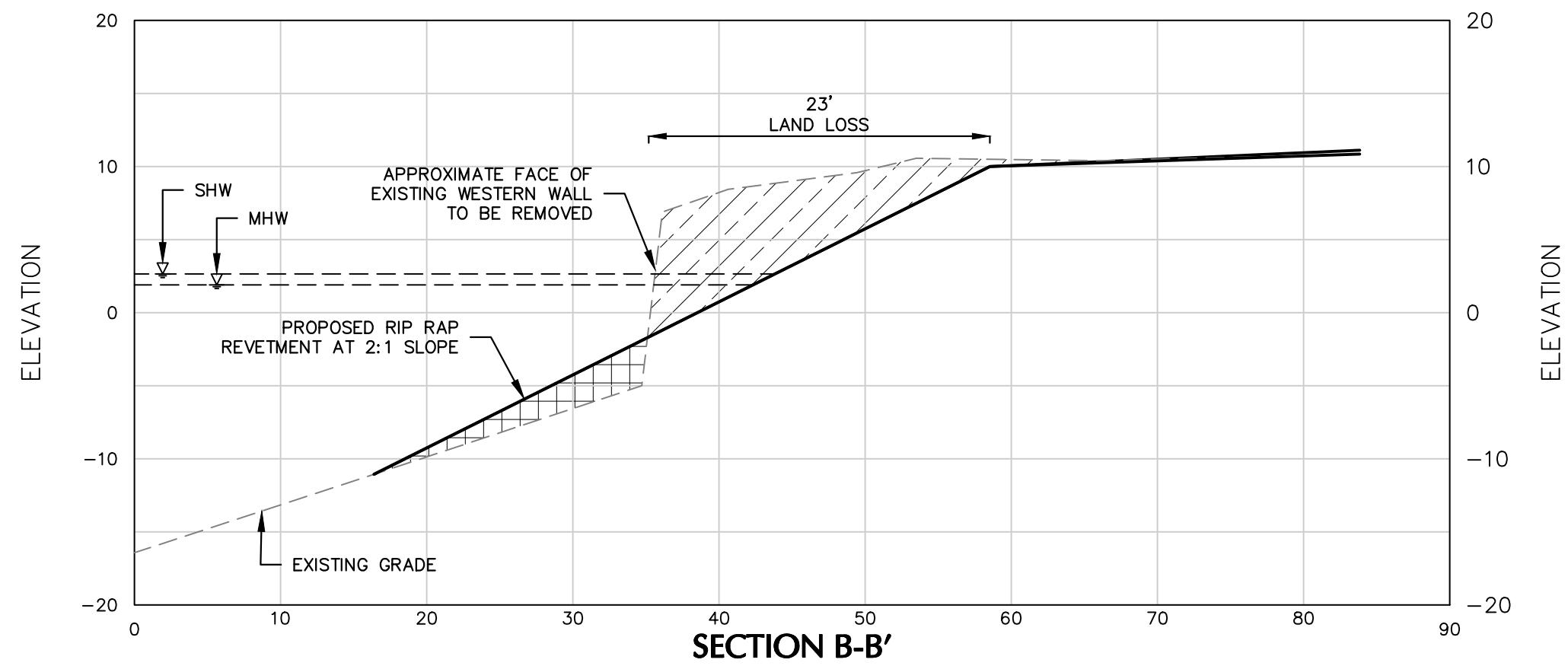
CUT AND FILL PARAMETERS
SOUTH POINT SPACE PARK RIP-RAP REVETMENT
Cut Fill parameters referenced to Overall Project
Demolish and Stockpile existing Seawall Material = 1,000 CY
Total Mass Grading Cut Volume = 10,000 CY
Total Mass Grading Fill Volume = 1,000 CY
Total Soil Removal Volume = 8,500 CY
Total Rip-Rap Import = 4,300 CY (5,300 CY - 1,000 CY on-site material)
Total Topsoil Import for Clean Cap = 3,100 CY
Cut Fill parameters referenced to below SHW
Total Cut Volume = 900 CY
Total Fill Volume = 2,200 CY
Overall Net Fill Volume = 1,300 CY
Total Cut Area = 8,000 SF
Total Fill Area = 20,000 SF
Overall Fill Area = 12,000 SF
Cut Fill parameters referenced to below MHW
Total Cut Volume = 800 CY
Total Fill Volume = 2,100 CY
Overall Net Fill Volume = 1,300 CY
Total Cut Area = 8,000 SF
Total Fill Area = 19,900 SF
Overall Fill Area = 11,900 SF



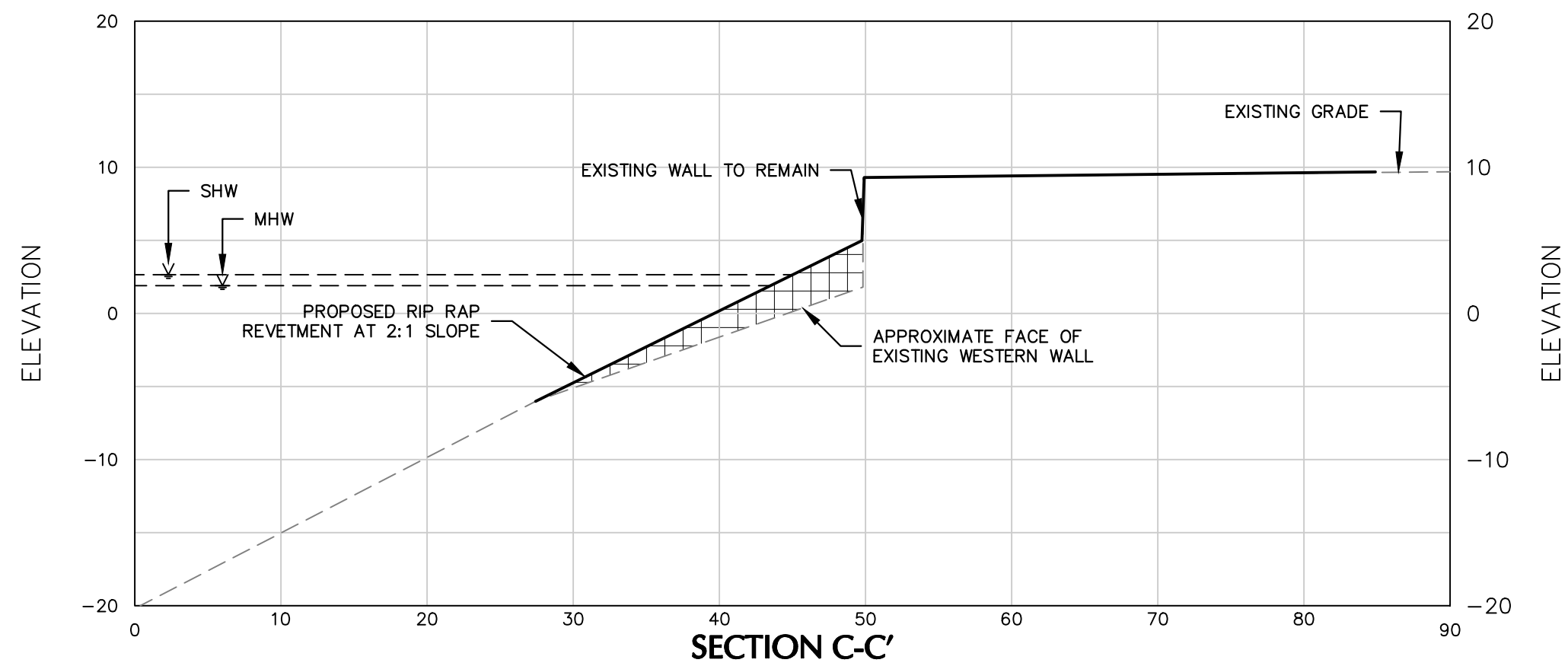
WEST



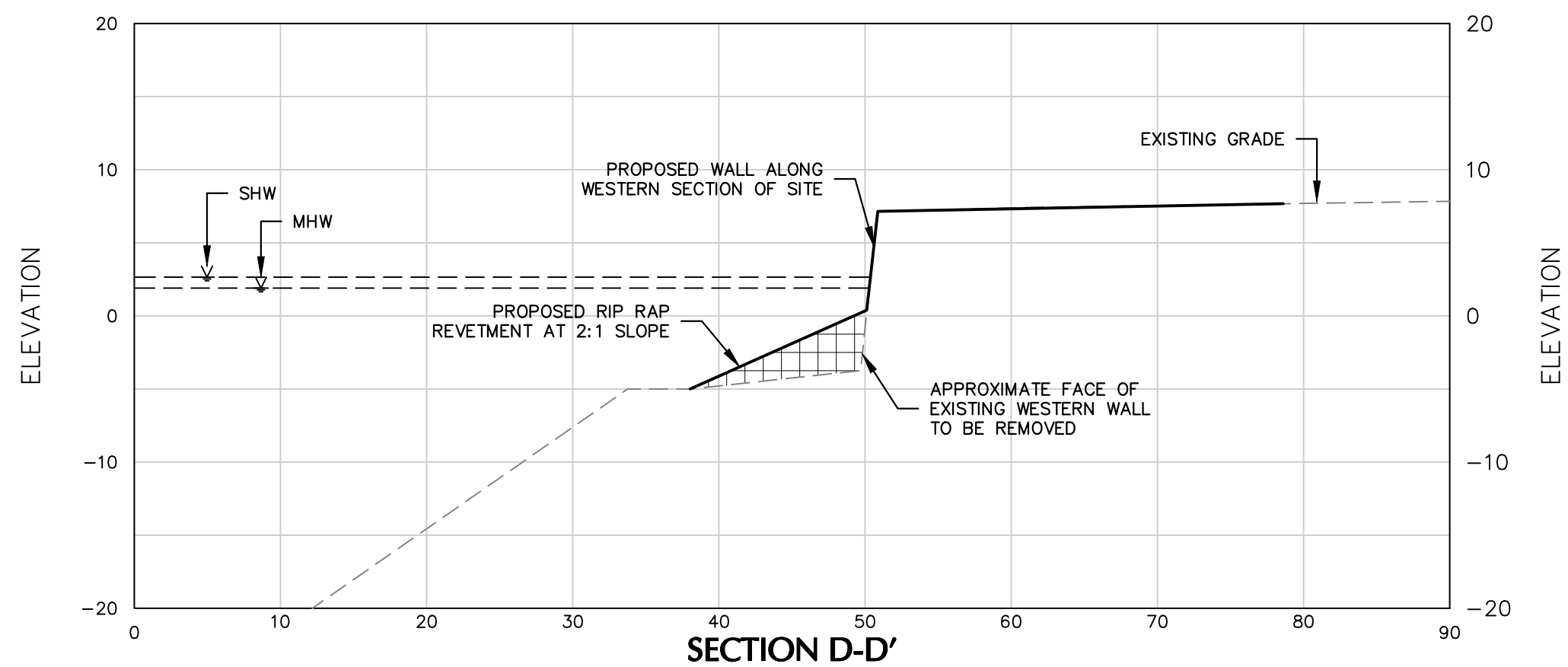
SECTION A-A'



SECTION B-B'



SECTION C-C'



SECTION D-D'

LEGEND

- EXISTING GRADE
- PROPOSED GRADE
- ▒ AREA OF FILL
- ▤ AREA OF CUT



1/8/20	SUBMISSION TO SBS	3.
5/29/19	SUBMISSION TO SBS	2.
2/20/19	SUBMISSION TO SBS	1.
Date	Description	No.
REVISIONS		

SIGNATURE _____ DATE SIGNED _____
LEONARD D. SAVINO
PROFESSIONAL ENGINEER NY Lic. No. 090013-1

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Project

**SOUTHPPOINT OPEN
SPACE PARK
RIP-RAP REVETMENT
SBS # 20193722**

ROOSEVELT ISLAND

NEW YORK

Drawing Title

SHORELINE CUT AND FILL

Project No.

100332702

Date

11/26/2018

Drawn By

EKO

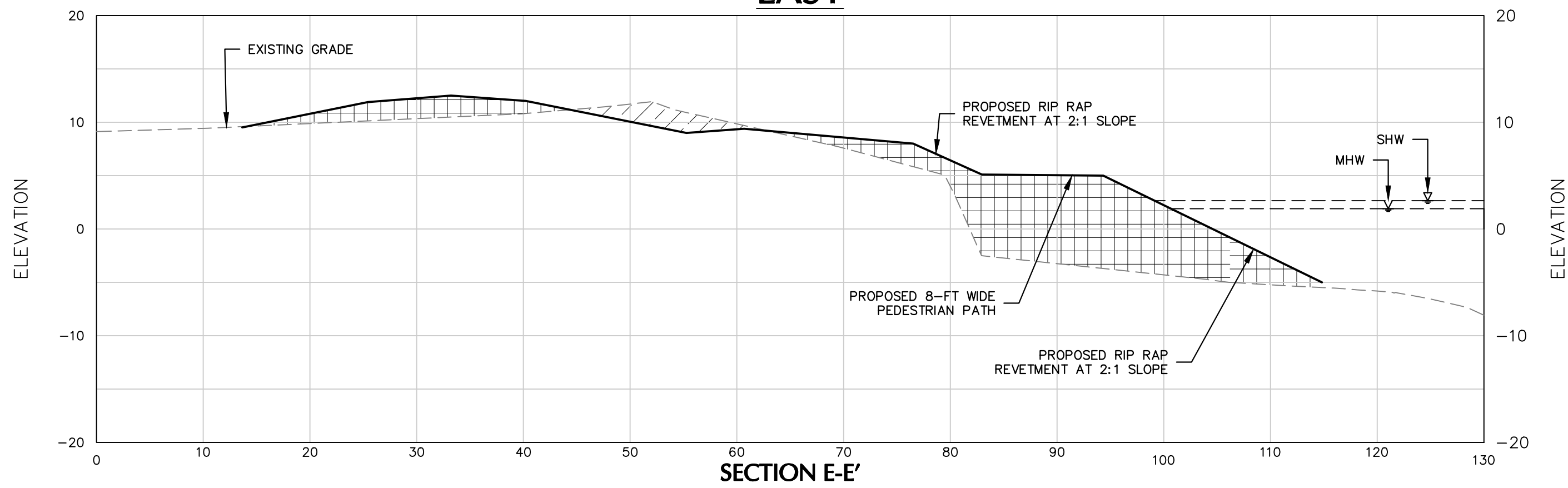
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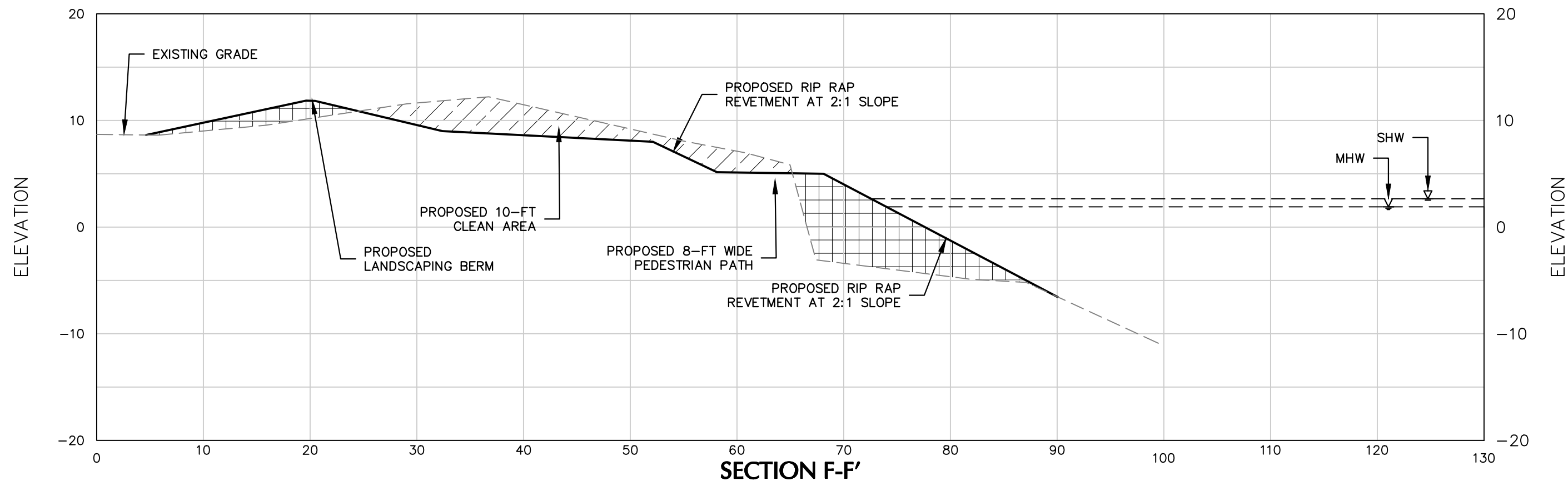
Drawing No.

C-401.00

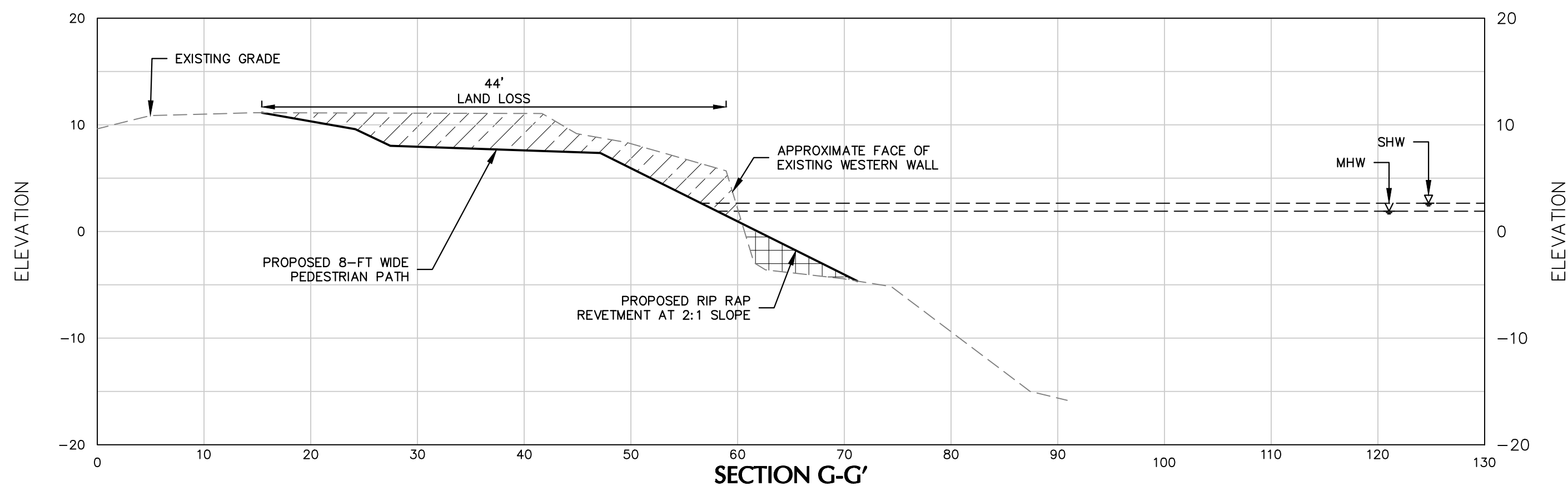
EAST



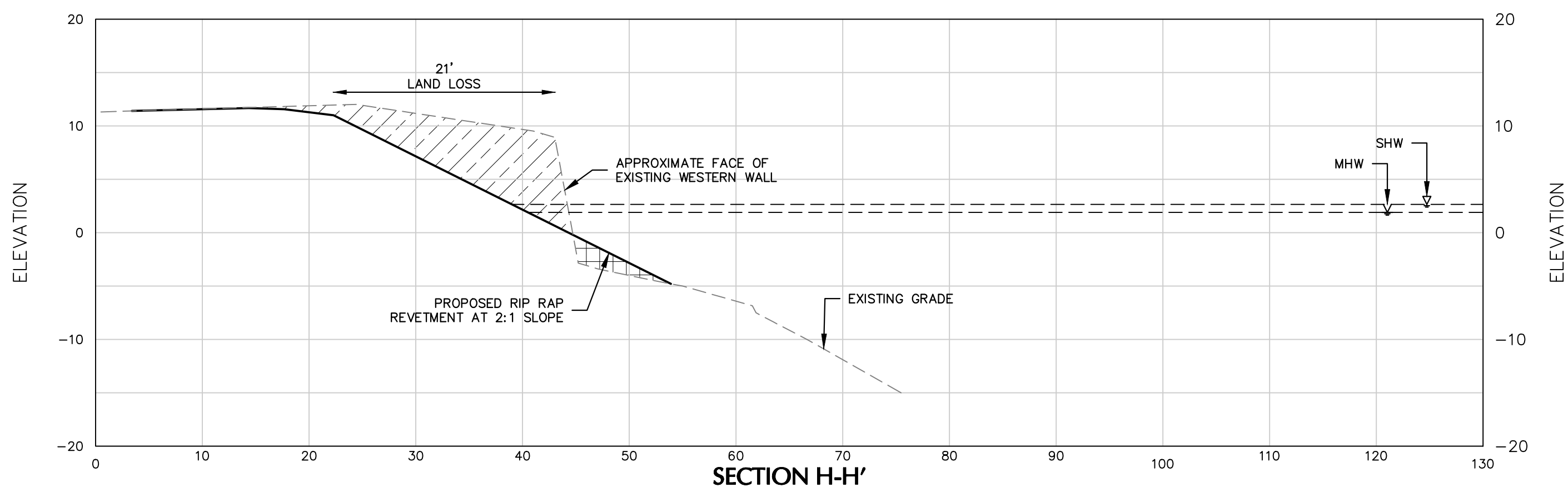
SECTION E-E'



SECTION F-F'

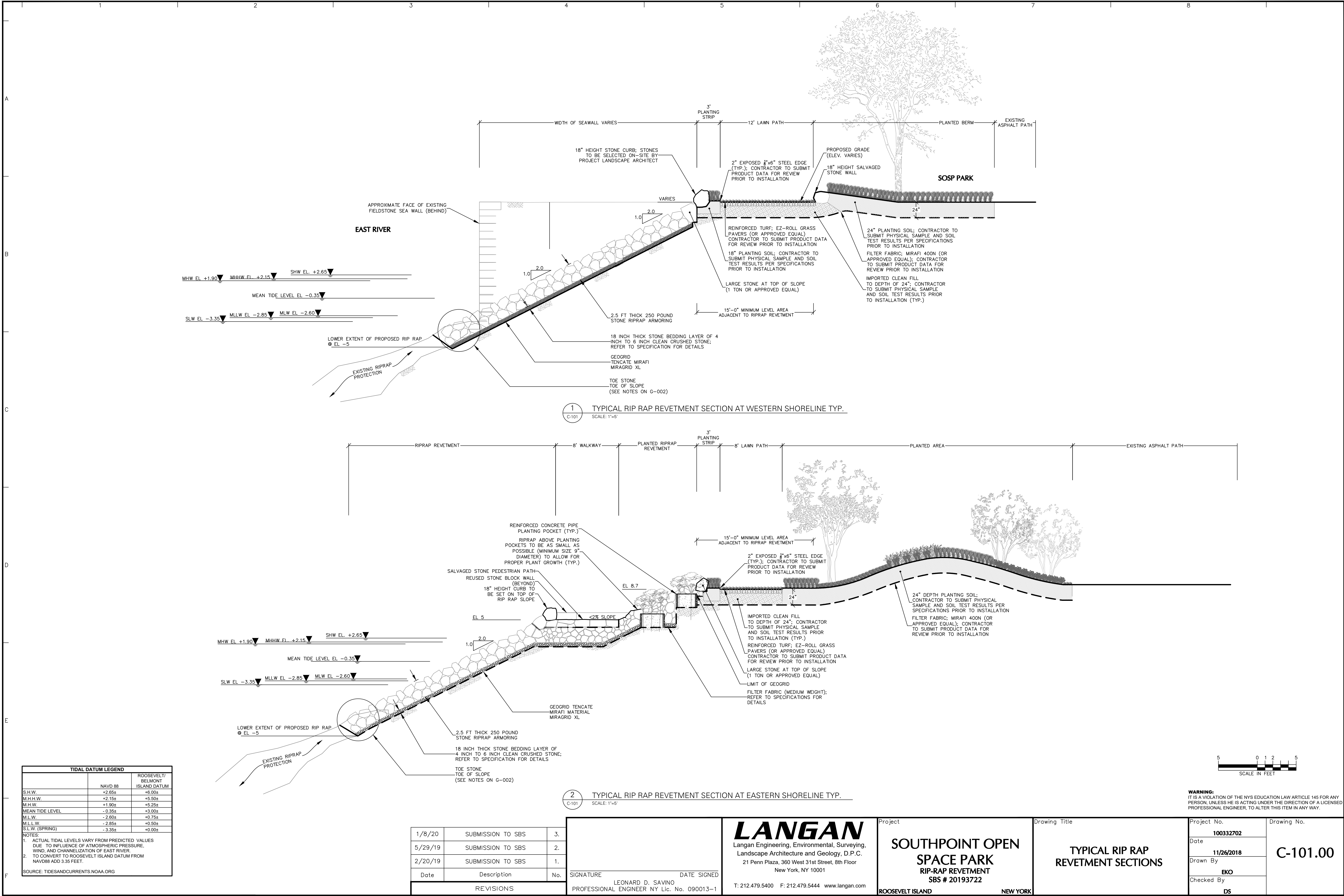


SECTION G-G'



SECTION H-H'

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PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED
PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.



TIDAL DATUM LEGEND		
	NAVD 88	ROOSEVELT/ BELMONT ISLAND DATUM
S.H.W.	+2.65±	+6.00±
M.H.H.W.	+2.15±	+5.50±
M.H.W.	+1.90±	+5.25±
MEAN TIDE LEVEL	-0.35±	+3.00±
M.L.W.	-2.60±	+0.75±
M.L.L.W.	-2.85±	+0.50±
S.L.W. (SPRING)	-3.35±	+0.00±

NOTES:
1. ACTUAL TIDAL LEVELS VARY FROM PREDICTED VALUES DUE TO INFLUENCE OF ATMOSPHERIC PRESSURE, WIND, AND CHANNELIZATION OF EAST RIVER.
2. TO CONVERT TO ROOSEVELT ISLAND DATUM FROM NAVD88 ADD 3.35 FEET.

SOURCE: TIDESANDCURRENTS.NOAA.ORG

1/8/20	SUBMISSION TO SBS	3.
5/29/19	SUBMISSION TO SBS	2.
2/20/19	SUBMISSION TO SBS	1.
Date	Description	No.
REVISIONS		

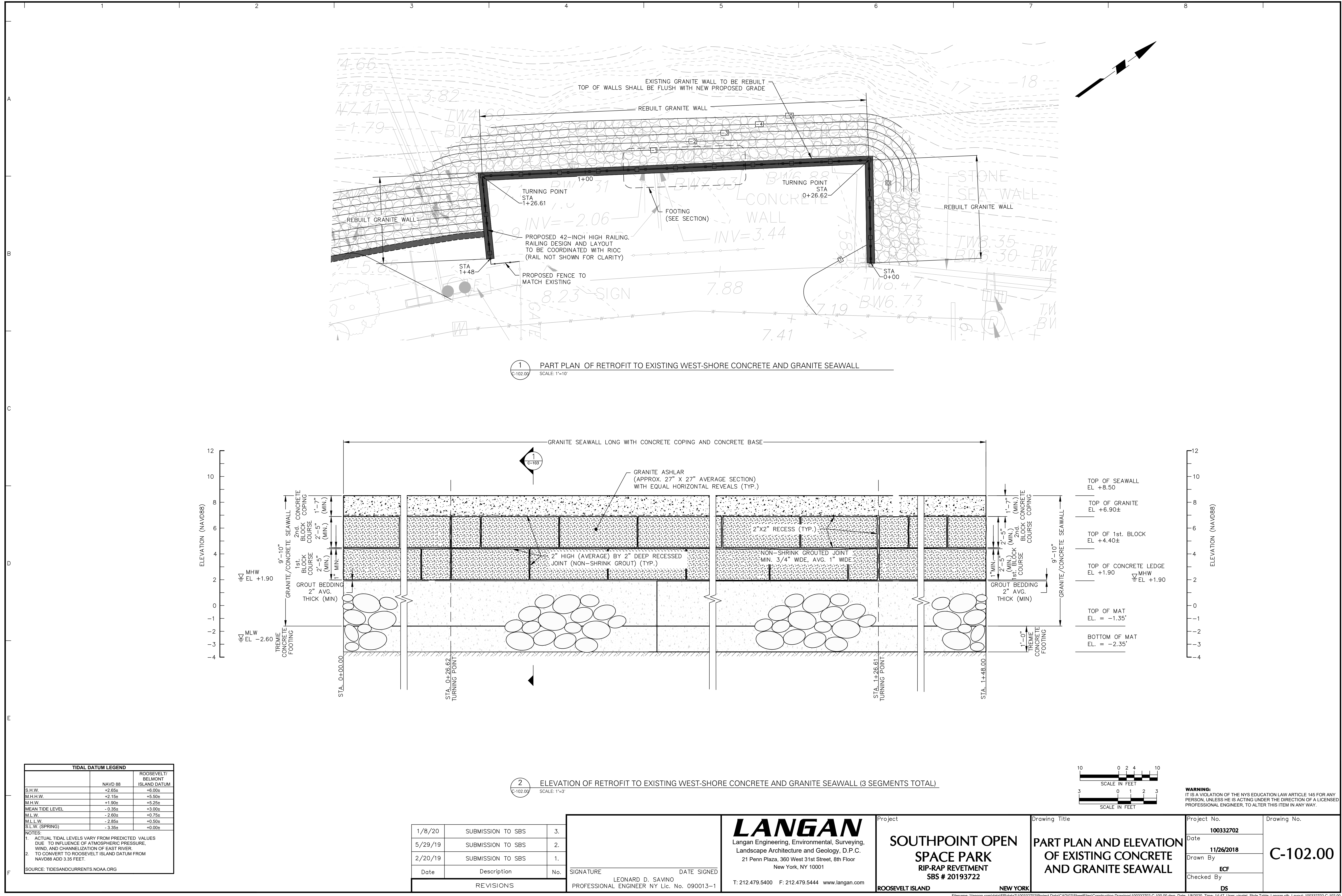
SIGNATURE _____ DATE SIGNED _____
LEONARD D. SAVINO
PROFESSIONAL ENGINEER NY Lic. No. 090013-1

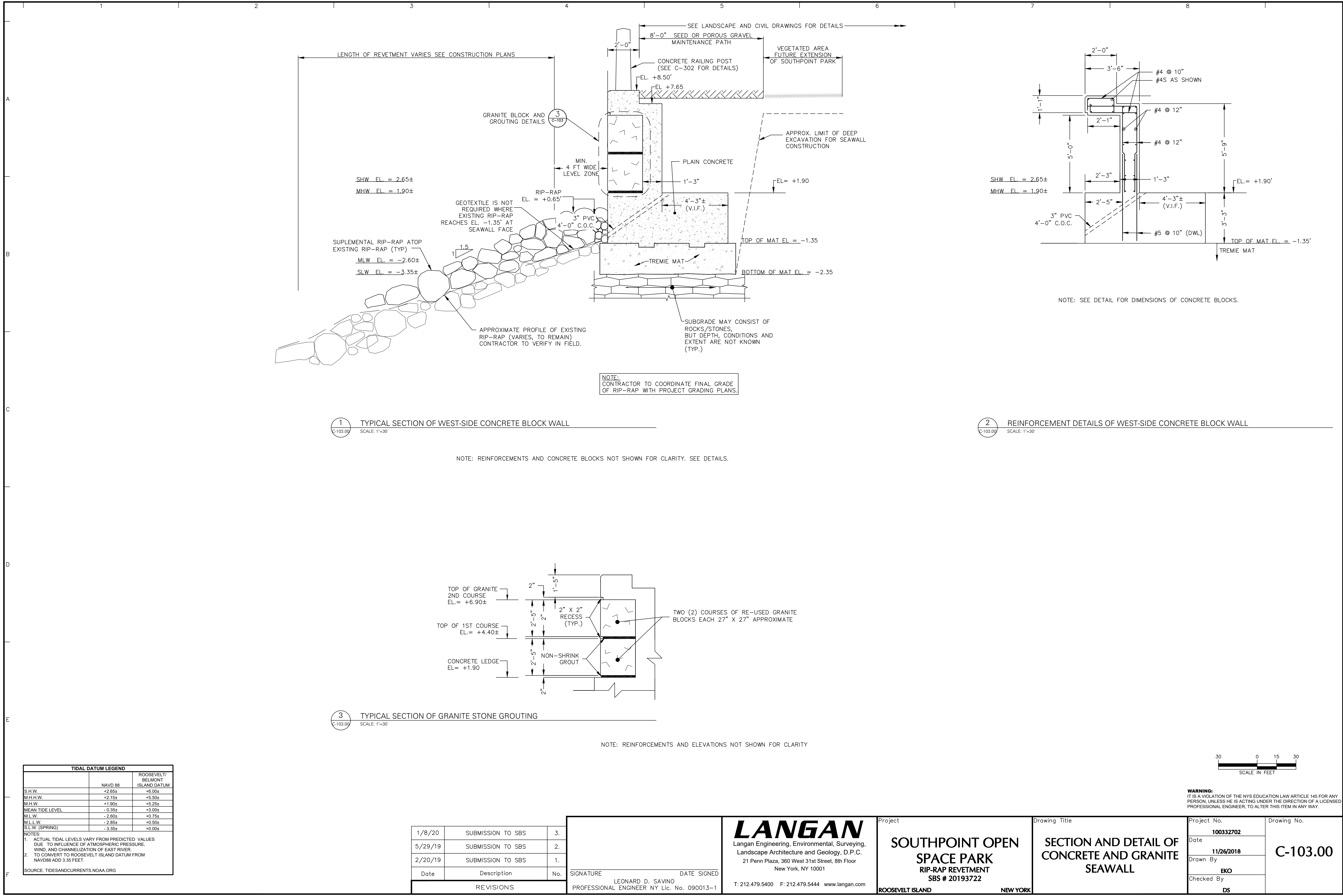
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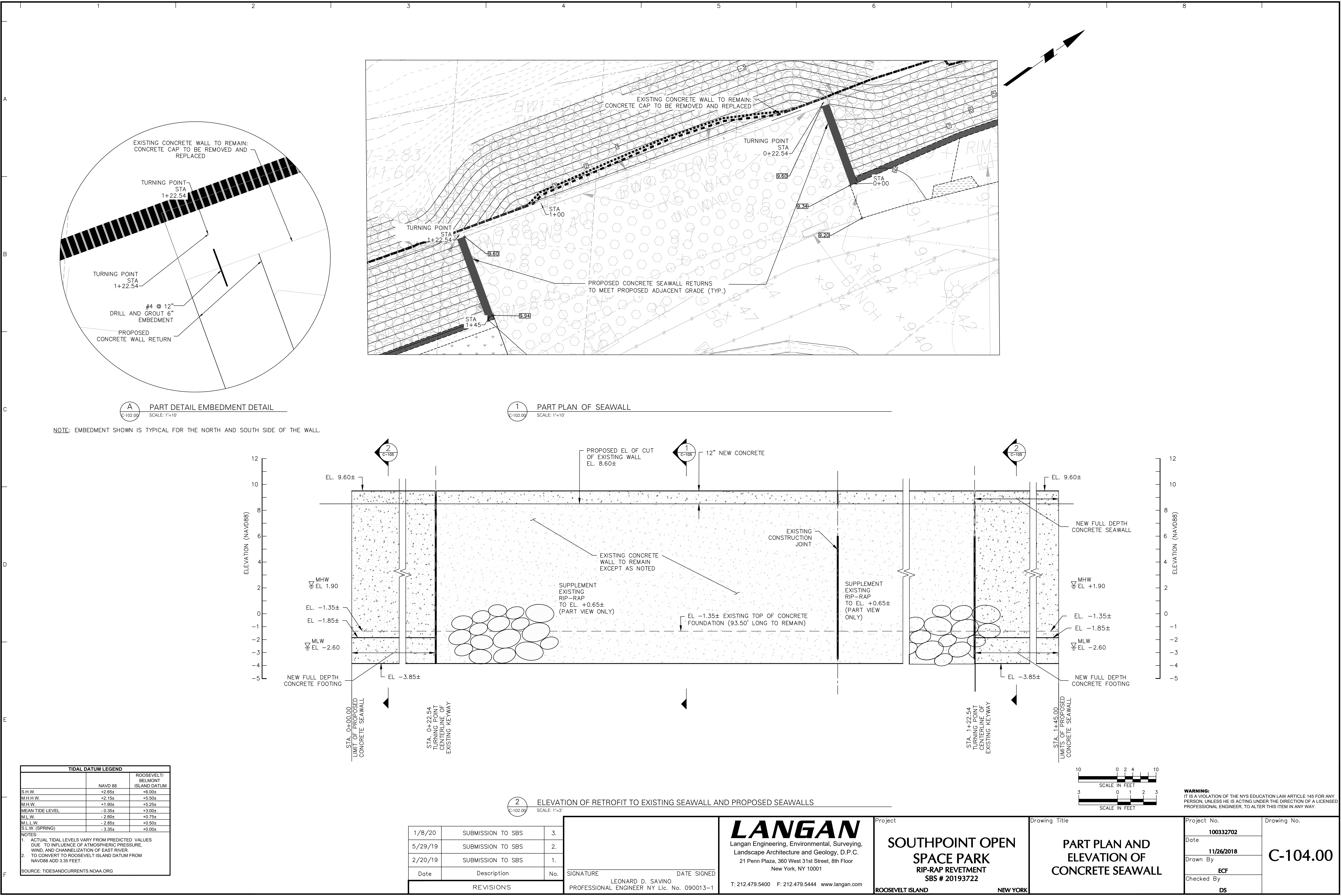
Project
**SOUTHPOINT OPEN
SPACE PARK
RIP-RAP REVETMENT
SBS # 20193722**
ROOSEVELT ISLAND NEW YORK

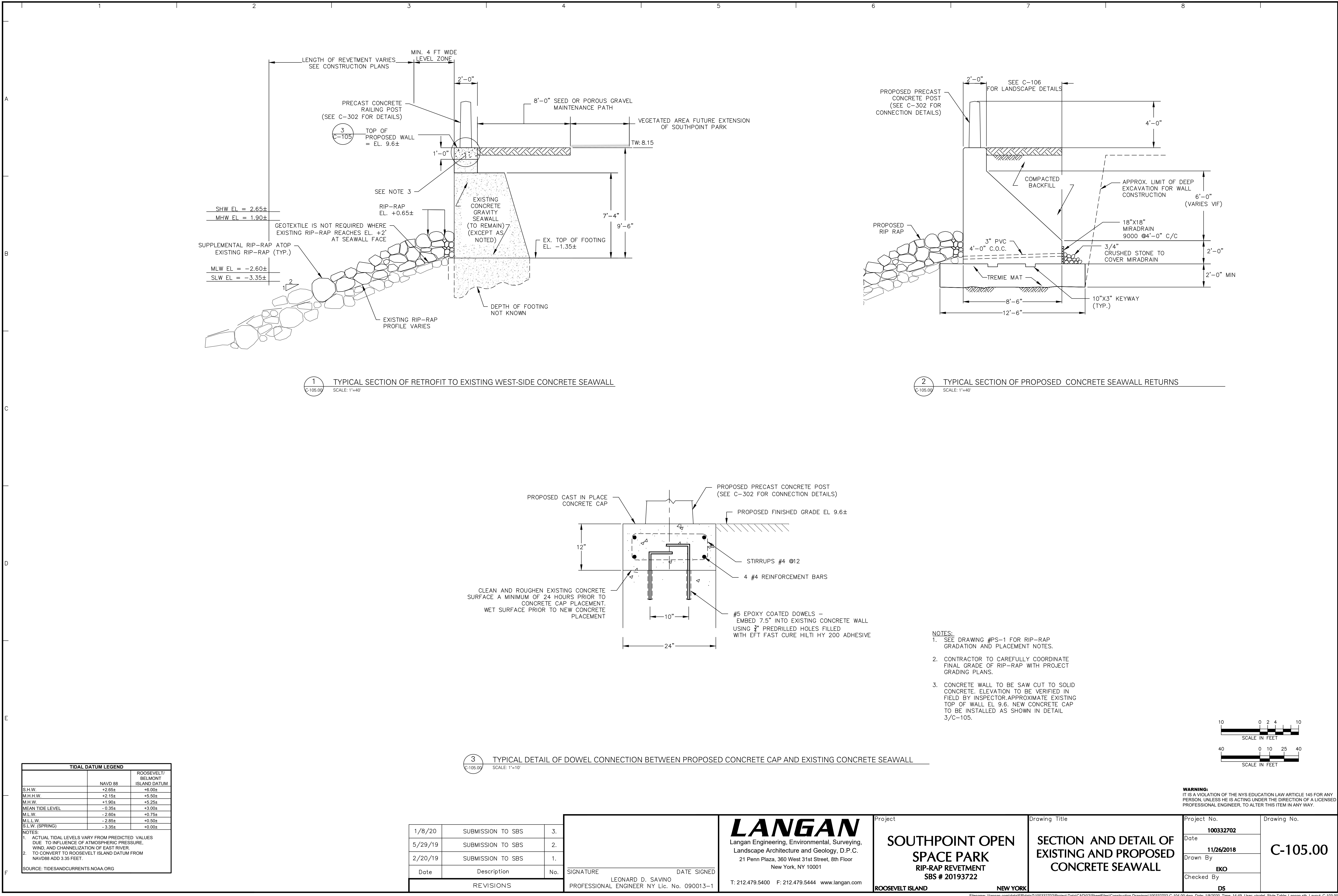
Drawing Title
**TYPICAL RIP RAP
REVTMENT SECTIONS**

Project No. 100332702	Drawing No. C-101.00
Date 11/26/2018	
Drawn By EKO	
Checked By DS	





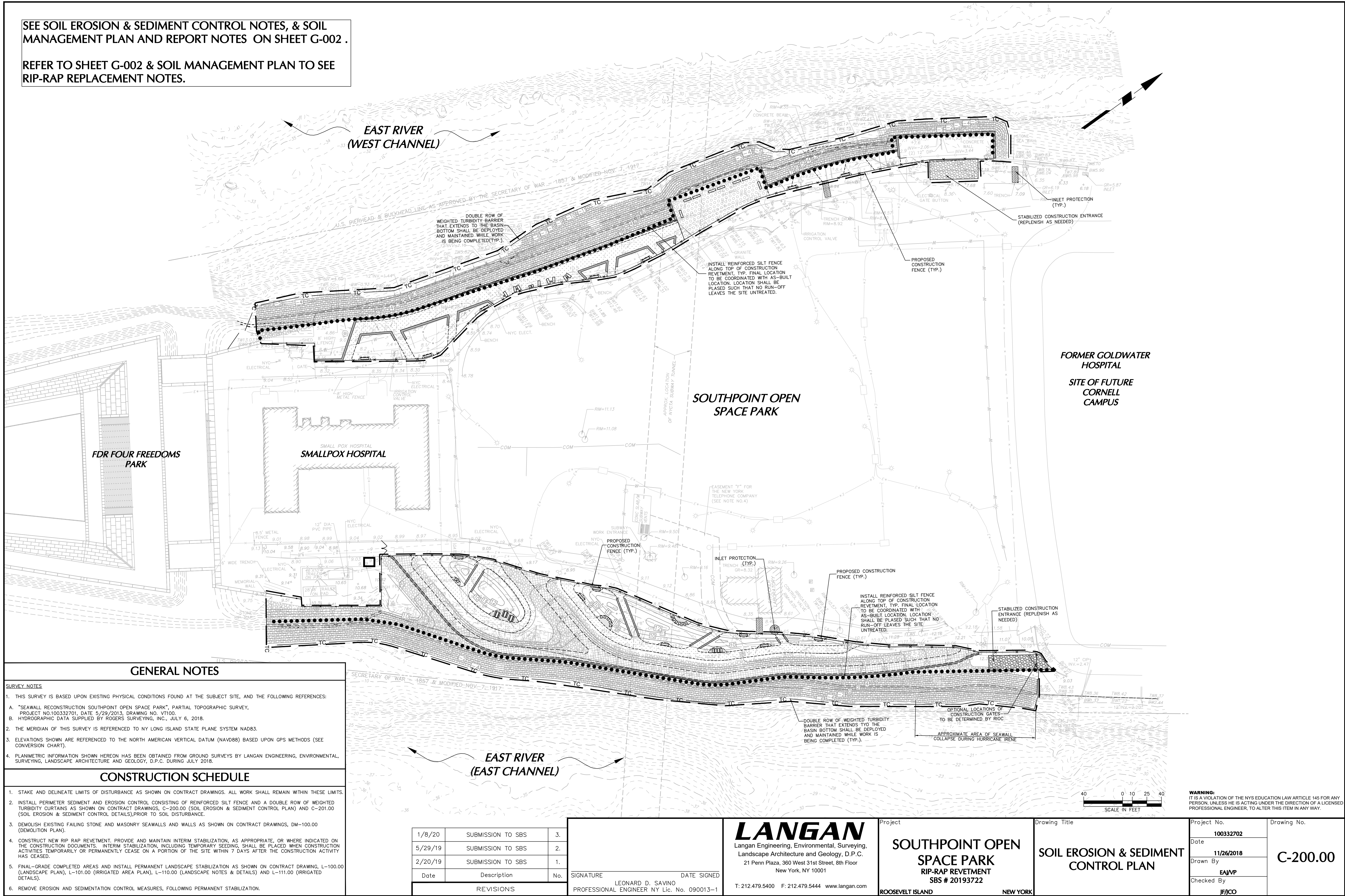




Appendix D – Soil Erosion and Sediment Control Plan

SEE SOIL EROSION & SEDIMENT CONTROL NOTES, & SOIL MANAGEMENT PLAN AND REPORT NOTES ON SHEET G-002 .

REFER TO SHEET G-002 & SOIL MANAGEMENT PLAN TO SEE RIP-RAP REPLACEMENT NOTES.



GENERAL NOTES

SURVEY NOTES

- THIS SURVEY IS BASED UPON EXISTING PHYSICAL CONDITIONS FOUND AT THE SUBJECT SITE, AND THE FOLLOWING REFERENCES:
 - "SEAWALL RECONSTRUCTION SOUTHPOINT OPEN SPACE PARK", PARTIAL TOPOGRAPHIC SURVEY, PROJECT NO.100332701, DATE 5/29/2013, DRAWING NO. VT100.
 - HYDROGRAPHIC DATA SUPPLIED BY ROGERS SURVEYING, INC., JULY 6, 2018.
- THE MERIDIAN OF THIS SURVEY IS REFERENCED TO NY LONG ISLAND STATE PLANE SYSTEM NAD83.
- ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD88) BASED UPON GPS METHODS (SEE CONVERSION CHART).
- PLANIMETRIC INFORMATION SHOWN HEREON HAS BEEN OBTAINED FROM GROUND SURVEYS BY LANGAN ENGINEERING, ENVIRONMENTAL, SURVEYING, LANDSCAPE ARCHITECTURE AND GEOLOGY, D.P.C. DURING JULY 2018.

CONSTRUCTION SCHEDULE

- STAKE AND DELINEATE LIMITS OF DISTURBANCE AS SHOWN ON CONTRACT DRAWINGS. ALL WORK SHALL REMAIN WITHIN THESE LIMITS.
- INSTALL PERIMETER SEDIMENT AND EROSION CONTROL, CONSISTING OF REINFORCED SILT FENCE AND A DOUBLE ROW OF WEIGHTED TURBIDITY CURTAINS AS SHOWN ON CONTRACT DRAWINGS, C-200.00 (SOIL EROSION & SEDIMENT CONTROL PLAN) AND C-201.00 (SOIL EROSION & SEDIMENT CONTROL DETAILS), PRIOR TO SOIL DISTURBANCE.
- DEMOLISH EXISTING FAILING STONE AND MASONRY SEAWALLS AND WALLS AS SHOWN ON CONTRACT DRAWINGS, DM-100.00 (DEMOLITION PLAN).
- CONSTRUCT NEW RIP RAP REVELTMENT. PROVIDE AND MAINTAIN INTERIM STABILIZATION, AS APPROPRIATE, OR WHERE INDICATED ON THE CONSTRUCTION DOCUMENTS. INTERIM STABILIZATION, INCLUDING TEMPORARY SEEDING, SHALL BE PLACED WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE WITHIN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY HAS CEASED.
- FINAL-GRADE COMPLETED AREAS AND INSTALL PERMANENT LANDSCAPE STABILIZATION AS SHOWN ON CONTRACT DRAWING, L-100.00 (LANDSCAPE PLAN), L-101.00 (IRRIGATED AREA PLAN), L-110.00 (LANDSCAPE NOTES & DETAILS) AND L-111.00 (IRRIGATED DETAILS).
- REMOVE EROSION AND SEDIMENTATION CONTROL MEASURES, FOLLOWING PERMANENT STABILIZATION.

1/8/20	SUBMISSION TO SBS	3.
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2/20/19	SUBMISSION TO SBS	1.
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SIGNATURE
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PROFESSIONAL ENGINEER NY Lic. No. 090013-1

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SBS # 20193722**

ROOSEVELT ISLAND

NEW YORK

Drawing Title

**SOIL EROSION & SEDIMENT
CONTROL PLAN**

Project No.

100332702

Date

11/26/2018

Drawn By

EAVP

Checked By

JF/CO

Drawing No.

C-200.00

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Filename: \\langan.com\data\EP\data\100332702\project\data\CAD\02\sheetfiles\Construction Drawings\100332702-C-200.00.dwg Date: 1/8/2020 Time: 14:50 User: vipatel Style Table: Langan.sbt Layout: 100332702-C-200.00

1 REINFORCED SILT FENCE

2 SILT FENCE WITH CONSTRUCTION FENCE & WIND SCREEN

3 ROCK CONSTRUCTION ENTRANCE
NTS

4 INLET PROTECTION

5 TURBIDITY CURTAIN (SILT BOOM)-FOR DESIGN GUIDANCE ONLY TO PROTECT EXCAVATED FOUNDATION ZONES
NTS

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5/29/19	SUBMISSION TO SBS	2.
2/20/19	SUBMISSION TO SBS	1.
Date	Description	No.
REVISIONS		

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**SOUTHPOINT OPEN
SPACE PARK
RIP-RAP REVETMENT
SBS # 20193722**

ROOSEVELT ISLAND

NEW YORK

Drawing Title

SOIL EROSION & SEDIMENT CONTROL DETAILS

Project No.

100332702

Date _____

11/2

Drawn By

Checked By	
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15

Drawing No.

C-201.00

Appendix E – Selected Other Engineering Sheets

SEE TRAFFIC CONTROL, FENCE, TREE REMOVAL & PRESERVATION NOTES ON SHEET G-002.

NOTES:

- CONTRACTOR TO PRESERVE, PROTECT & STORE FIELD STONE FOR REUSE IN ACCORDANCE WITH THE REQUIREMENTS OF THE SOIL MANAGEMENT PLAN.
- SALVAGE SEAWALL GRANITE BLOCKS AND FIELDSTONES AS INSTRUCTED BY THE LANGAN OVERSIGHT PERSONNEL
- TOTAL OF 99 TREES WITHIN THE LIMITS OF WORK ARE TO BE REMOVED - SEE 'ROOSEVELT ISLAND SOUTH POINT PARK TREE INVENTORY REPORT,' BY SAVATREE DATED JUNE 19, 2019 FOR EXACT LOCATION OF TREES.
- EXISTING CAT SANCTUARY TO BE RELOCATED.

A

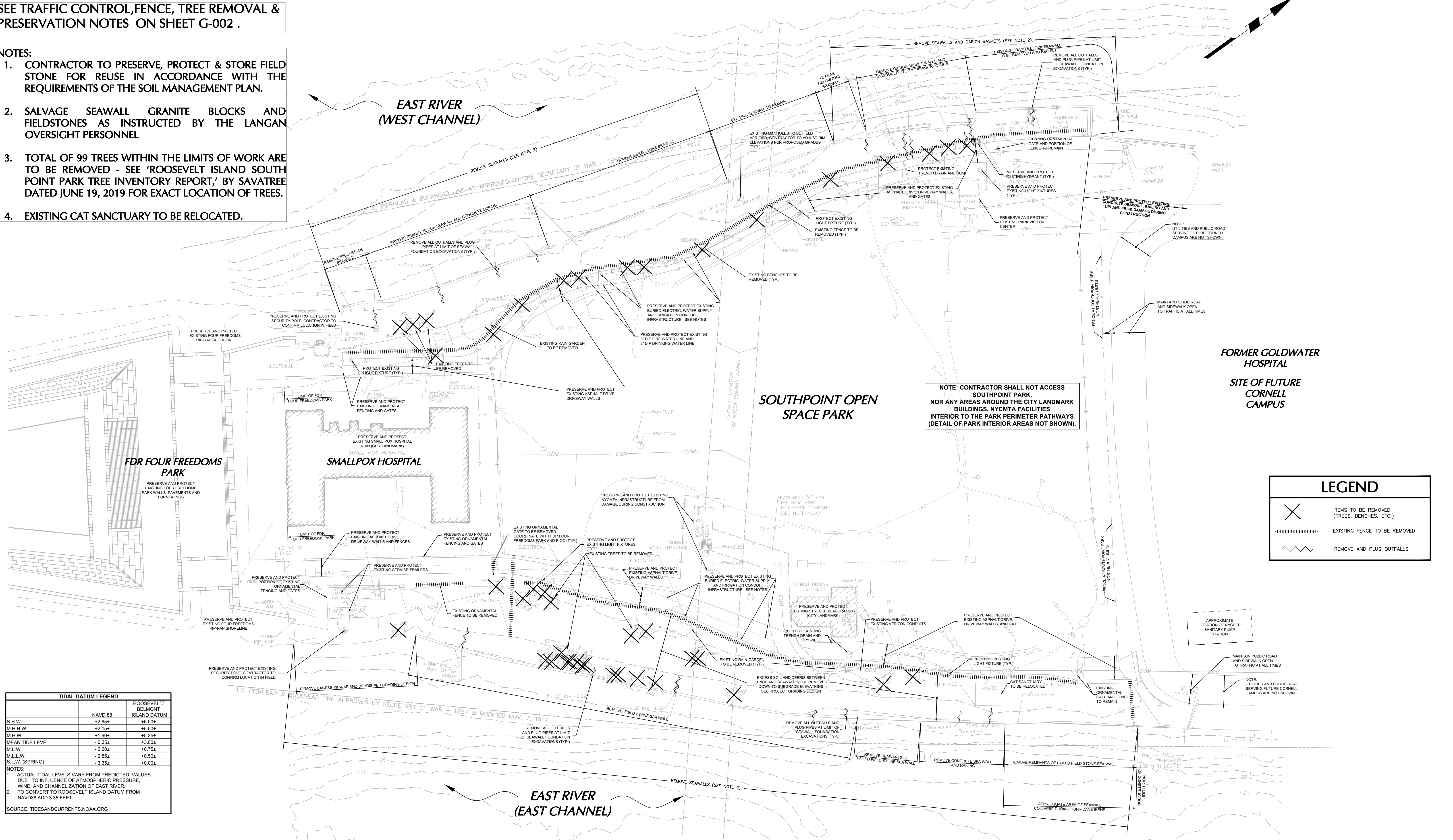
B

C

D

E

F



TIDAL DATUM LEGEND		
	NAVD 88	ROOSEVELT/ BELMONT ISLAND DATUM
S.H.W.	+2.65±	+6.00±
M.H.H.W.	+2.15±	+5.50±
M.H.W.	+1.90±	+5.25±
MEAN TIDE LEVEL	-0.35±	+3.00±
M.L.W.	-2.00±	+0.75±
M.L.L.W.	-2.85±	+0.50±
S.L.W. (SPRING)	-3.35±	+0.00±

NOTES:

- ACTUAL TIDAL LEVELS VARY FROM PREDICTED VALUES DUE TO INFLUENCE OF ATMOSPHERIC PRESSURE, WIND, AND CHANNELIZATION OF EAST RIVER.
- TO CONVERT TO ROOSEVELT ISLAND DATUM FROM NAVD88 ADD 3.35 FEET.

SOURCE: TIDESANDCURRENTS.NOAA.ORG

GENERAL NOTES

- SURVEY NOTES
- THIS SURVEY IS BASED UPON EXISTING PHYSICAL CONDITIONS FOUND AT THE SUBJECT SITE, AND THE FOLLOWING REFERENCES:
 - "SEAWALL RECONSTRUCTION SOUTHPOINT OPEN SPACE PARK", PARTIAL TOPOGRAPHIC SURVEY, PROJECT NO.100332701, DATE 5/29/2013, DRAWING NO. VT100.
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6/11/19	SUBMISSION TO SBS	3.
5/29/19	SUBMISSION TO SBS	2.
2/20/19	SUBMISSION TO SBS	1.
Date	Description	No.
REVISIONS		

SIGNATURE
LEONARD D. SAVINO
PROFESSIONAL ENGINEER NY Lic. No. 090013-1

DATE SIGNED

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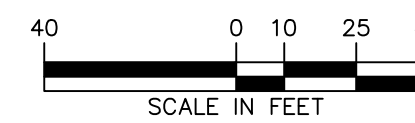
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Project
**SOUTHPOINT OPEN
SPACE PARK
RIP-RAP REVETMENT
SBS # 20193722**

ROOSEVELT ISLAND NEW YORK

Drawing Title
DEMOLITION PLAN

Project No. 100332702	Drawing No. DM-100.00
Date 11/26/2018	
Drawn By EJVP	
Checked By JF/CO	



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