REMEDIAL ACTION WORK PLAN

South Island Apartments Site

1 Osgood Avenue/Center Island,

Town of Green Island, Albany County, New York

BCP Site # C401074

September 2018

Prepared for:

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Envirospec Engineering Project E17-1600

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CERTIFICATION

I, Gianna M. Aiezza, certify that I am currently a NYS registered professional engineer and that this Remedial Action Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Gianna M. Aiezza, P.E.
Name

081422
NYS PE License Number

Signature

September 28, 2018
Date

1.0 INTRODUCTION

This Remedial Action Work Plan (RAWP) has been prepared by Envirospec Engineering, PLLC (Envirospec) on behalf of South Island Apartments, LLC (SIA) for the South Island Apartments (Site) located at 1 Osgood Avenue/Center Island in the Town of Green Island (and Village), Albany County, New York (see Figure 1).

SIA is submitting this RAWP under the New York State Brownfield Cleanup Program (BCP) as a Volunteer. SIA intends to remediate the Site for Restricted Residential end use. The Site will be redeveloped as a mixed housing and commercial use consisting of apartments, retail, and recreation areas.

2.0 SITE DESCRIPTION AND BACKGROUND INFORMATION

The property is located on the southern portion of Starbuck Island in the Town of Green Island. The Site is bounded to the north by the Troy/Green Island Bridge. The Hudson River is located directly to the south, east, and west of the Site (see Figure 1). The Site is identified on the Albany 2016 Final Tax Map as 33.09, Block 1, Lots 1, 2.1, 2.2, 3 and p/o Osgood Avenue roadbed. The property comprises approximately 11.20 acres. According to aerial images, land uses in the surrounding area include various commercial and residential uses.

The Site is a former petroleum terminal. The terminal was demolished between 2008 and 2010. The Site is zoned as mixed use, with plans for residential and commercial uses of the property.

According to a 2008 Phase I Environmental Site Assessment (2008 Phase I ESA) conducted by Shifrin & Associates Inc. (Shifrin), the Site was operated as a petroleum terminal since 1918. Available historical maps show a terminal located on the property in 1925. Reportedly during its operation, the Site was improved with sixteen (16) aboveground storage tanks (ASTs), potentially two (2) underground oil-water separator tanks, a truck loading rack, a barge dock, an office building, an electrical shed, storage sheds, brick buildings, earthen dikes, and internal roads. When in service, the terminal loaded and unloaded products that were transported to the Site by barge. Fuels stored at the former terminal included kerosene, low sulfur diesel, ultra-low sulfur diesel, gasoline, and No. 2 fuel oil. The terminal was not connected to a sewer line; wastewater was repeatedly discharged to a septic tank and leach field on-Site. According to the NYSDEC Spill Incidents Database, the Site has had thirteen (13) documented petroleum spills, with twelve (12) closed by the NYSDEC and one (1) spill (#8702376) remaining open.

According to the Supplemental Site Investigation in May 2016 conducted by SPEC Engineering (SPEC), the terminal was demolished sometime between 2008 and 2010 although the earthen dikes, at least one (1) underground oil-water separator, and a handful of small, vacant structures remained on the site. There were no other noted uses of this property.

3.0 SUMMARY OF SITE CONDITIONS

Extensive investigation activities were undertaken at the Site during the RI in 2017 and 2018. Detailed results are available in the RI Report submitted to NYSDEC in November 2017 and the RI Report Addendum submitted to NYSDEC in July 2018.

Investigation activities included the following:

- Completion of soil borings at 46 locations across the site with the collection of 128 soil samples at varying depths;
- Collection of bank samples at ten (10) locations at two depths per location;
- Collection of five (5) sediment samples along the western bank;
- Collection of one (1) pore water sample along the western bank to investigate the potential for seepage of LNAPL into the Hudson;
- Collection of ten (10) soil vapor samples and two (2) ambient air sample;
- Two rounds of groundwater sampling at nine (9) existing monitoring wells and one round of groundwater sampling at three (3) newly installed monitoring wells.

Sampling locations are shown on Drawing S-1. Based on the data obtained, a Human Health Exposure Assessment and the Fish and Wildlife Resource Impact Analysis (FWRIA) were completed and submitted as part of the RI report.

Exceedances for metals, including lead, mercury, and arsenic, above Restricted Residential Soil Cleanup Objectives (RRSCOs), Commercial Soil Cleanup Objectives (CSCOs), and Industrial Soil Cleanup Objectives (ISCOs) were observed in the surface, subsurface, and bank soils. The exceedances for these metals were consistent with the presence of historic fill material at the site, and no source area for metals has been identified at the Site.

Exceedances of SVOCs were also observed, primarily above RRSCOs. Exceptions were the shallow subsurface soils (2” to 2’ bgs) at SB-26, where exceedances above CSCOs were observed for benzo(a)anthracene, benzo(b)fluoranthene, and dibenz(a,h)anthracene, and at SB-37 where an exceedance of the CSCO was observed for benzo(b)fluoranthene and exceedances of ISCOs were observed for benzo(a)anthracene, benzo(a)pyrene, and dibenz(a,h)anthracene.

Though no seepage of LNAPL was observed into the Hudson, a significant amount of LNAPL was observed in monitoring wells in the former loading rack area. Free product thicknesses ranged from less than an inch to as high as 3.7 ft (MW-22) in this area of the site, based on

measurements obtained with the oil-water interface probe during the RI. One well outside the former loading rack (MW-5) showed a product thickness of 1.23 ft.

4.0 SUMMARY OF IRM ACTIVITIES

Based on the data obtained during the RI, it was determined that the following IRM activities would be completed at the site prior to initiating the activities addressed in this RAWP:

- Removal of underground oil-water separator;
- Excavation of SVOC-impacted soils that exceed Commercial Soil Cleanup Objectives (CSCOs) in shallow soils at SB-26 and SB-37;
- Excavation of LNAPL-impacted area in former loading rack;

Details on these activities can be found in the IRM Work Plan submitted to NYSDEC in November 2017. The excavation of SB-37 was completed as a result of the RI Addendum completed in July 2018.

5.0 REMEDIAL ACTION GOALS AND OBJECTIVES

As defined in DER-10, Remedial Action Objectives (RAOs) are medium-specific or operable-unit specific objectives for the protection of public health and the environment. RAOs are developed based on the Standards, Criteria and Guidance to address contamination identified at the Site in consideration of the intended future land use. The intended future land use at this Site is restricted residential.

The RAOs developed for this site, based on review of applicable SCGs, site-specific conditions, and exposure assessments completed during the RI, are provided below:

- Groundwater
    - RAOs for Public Health Protection:
        - Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
        - Prevent contact with, or inhalation of volatiles, from contaminated groundwater
    - RAOs for Environmental Protection
        - Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
        - Prevent the discharge of contaminants to surface water
        - Remove the source of ground or surface water contamination.
- Soil
    - RAOs for Public Health Protection
        - Prevent ingestion/direct contact with contaminated soil.
        - Prevent inhalation exposure to contaminants volatilizing from soil
    - RAOs for Environmental Protection
        - Prevent migration of contaminants that would result in groundwater, surface water or sediment contamination
- Soil Vapor
    - RAOs for Public Health Protection
        - Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

No evidence of migration of metals or SVOC contamination from soil to groundwater was observed during the groundwater sampling completed during the 2017 RI or the 2018 RI

Addendum. Excavation of the LNAPL-impacted areas was completed as part of the IRM Work Plan to address groundwater impacts. Three temporary monitoring wells are also being installed in upgradient areas to determine if there is measurable LNAPL remaining outside of the excavation footprints. These wells are discussed further in Section 6.1.2.3.

6.0 ALTERNATIVES ANALYSIS

6.1 Description of Remedial Alternatives

As specified in DER-10 4.4(d)(2), two alternatives were evaluated for potential application at the site. One alternative would achieve an unrestricted use scenario for soils at the site, without the use of institutional or engineering controls. The second alternative would achieve the restricted residential use scenario for soils, which is consistent with the intended future use of the Site. The two remedies are described in the following sections.

6.1.1 Unrestricted Use Remedy

The Unrestricted Use Remedy would include the excavation and disposal of the historic fill material to a depth of 30 feet bgs to remove metals and SVOCs from the subsurface. The depth was determined based on review of the data obtained during the RI. This remedy would include excavation of impacted bank material. The excavated areas would then be backfilled with clean fill that would comply with Unrestricted SCOs. This remedy would restrict groundwater usage at the Site.

6.1.2 Restricted Residential Use Remedy

Given the future development plans for the site, a cleanup alternative that would comply with Restricted Residential Soil Cleanup Objectives (RRSCOs) was evaluated. This remedy consists of the installation of an engineered cover. The engineered cover would consist of building foundations, asphalt paved areas, or open areas. Areas outside of the paved parking areas or roadways would be covered with a two (2) foot soil cover. Fill material to be used for soil cover will meet RRSCOs and will be sufficient for supporting vegetation. The fill would be certified as clean or would be sampled in accordance with Table 5.4(e)10 in DER-10. In all cases, the cover would include engineering controls in the form of a demarcation layer to be placed immediately above soils to remain beneath the cover to ensure that the cover remains intact.

The engineered cover system to address bank soils consists of walls and rip-rap constructed along the eastern and western banks of the site. These are described in Sections 6.1.2.1 and 6.1.2.2.

This remedy would include institutional controls to restrict groundwater usage at the Site and

engineering controls to address the potential for vapor intrusion impacts in future buildings. Institutional controls would also be necessary to limit future site use to restricted residential. Vapor intrusion mitigation systems would be installed on all on-site buildings. These systems are being included voluntarily to prevent the need for investigation and potential mitigation after building construction.

6.1.2.1 Eastern Bank Wall

The wall on the east bank is proposed for construction in accordance with Drawings in Appendix A. The wall will be installed in accordance with the final design drawings to be approved by NYSDEC.

The wall and rip-rap shown on the drawings will be part of the engineered cover system to address the metals-contaminated bank soils and to provide stabilization. In areas where there is no retaining wall, two (2) feet of clean fill or rip-rap will be installed. Imported fill material will be certified as clean fill per approval by NYSDEC. Soils removed from the bank during wall construction would be reused in other areas of the site if they meet the requirements of DER-10 Section 5.4(e)(4).

6.1.2.2 Western Bank Wall

The western bank engineered cover consists of rip-rap and short sections of walls in accordance with Drawings in Appendix B. The cover will be installed in accordance with the final design drawings to be approved by NYSDEC. In areas where there is no retaining wall, two (2) feet of clean fill or rip-rap will be installed. Imported fill material will be certified as clean fill per approval by NYSDEC. Soils removed from the bank during wall construction would be reused in other areas of the site if they meet the requirements of DER-10 Section 5.4(e)(4).

6.1.2.3 Groundwater Monitoring

Three (3) temporary wells will be installed to monitor for the potential presence of remaining LNAPL. Approximate locations of the wells are provided in Drawing D-2. Final well locations and well construction details will be decided with NYSDEC in the field, depending on planned building locations.

6.2 Evaluation of Remedial Alternatives

The Restricted Residential Use Remedy was evaluated against the Unrestricted Use Remedy using the following criteria:

- Threshold Criteria:
  - Overall Protectiveness of Public Health and Environment
  - Standards, Criteria, and Guidance
- Balancing Criteria:
  - Long-term effectiveness and permanence
  - Reduction in toxicity, mobility, or volume through treatment
  - Short-term impacts and effectiveness
  - Implementability
  - Cost-Effectiveness
  - Community Acceptance
  - Land Use
- Use of Institutional and Engineering Controls

6.2.1 Threshold Criteria

The threshold criteria must be satisfied in order for an alternative to be eligible for selection. The threshold criteria are evaluated below for each alternative discussed in Section 6.1.

6.2.1.1 Overall Protectiveness of Public Health and Environment

The Unrestricted Remedy would remove contamination from the site. However, it does have a greater potential for safety risks and nuisance issues involved with implementing the large scale excavation across the site.

The Restricted Residential Use Remedy would minimize potential for human exposure to contamination and be consistent with the planned future use of the site. The cover would also minimize potential for ecological impacts due to the presence of clean fill across the upper 2 feet of the site. This remedy has fewer safety risks involved with implementation of the remedy, and nuisance issues associated with implementation would be for a shorter period of time compared to the Unrestricted Remedy.

6.2.1.2 Standards, Criteria, and Guidance

The Unrestricted Use Remedy would ensure compliance with Unrestricted SCOs through excavation and disposal of soils in the upper 30 feet of the subsurface.

The upper two feet of the subsurface would be clean fill for the Restricted Residential Use Remedy, so soil cleanup objectives would be met and consistent with the planned future use of the site and NYSDEC regulatory requirements. Institutional and engineering controls would also be in place at the Site.

Low level exceedances of Part 703 groundwater standards were observed during the RI. These exceedances did not rise to the level requiring another active remedy to address them. As discussed in Section 6.1.2.3, groundwater will be monitored as part of the proposed remedy. There was only one localized exceedance of a Class C Sediment Guidance Value (SGV) observed during the RI.

6.2.2 Balancing Criteria

The remaining seven criteria are considered "primary balancing criteria". These criteria are used to compare the positive and negative aspects of each remedial alternative, provided the alternative satisfies the threshold criteria. The primary balancing criteria are discussed in the following sections.

6.2.2.1 Long-term effectiveness and permanence

For the Unrestricted Use Remedy, the long-term risk of exposure would be eliminated through excavation of the upper 30 ft of material from the subsurface.

Though soils impacted by metals and SVOCs would remain in place for the Restricted Residential Use Remedy, residual contamination could only be contacted during ground intrusive work below the demarcation layer, and safety precautions would be taken to ensure proper field procedures are followed in accordance with the Site Management Plan (SMP) to be submitted for the Site. Any potential vapor intrusion risk would be addressed through installation of mitigation systems on site. Potential ecological risks would be minimized given the lack of exposure pathway in the upper soils.

6.2.2.2 Reduction in toxicity, mobility or volume through treatment

The volume of contaminants would be significantly reduced through excavation for the Unrestricted Use Remedy. The inherent toxicity of the contaminants would not be changed through this treatment, but the contaminants would no longer remain on site so the toxicity of the remaining Site soils would be decreased. Contaminants are not currently mobile based on groundwater results, so that pathway would not be relevant. The potential for exposure or mobility through dust from surface soils would also be eliminated in the long term. This does not consider the potential for mobility during remedy implementation, which is discussed in Section 6.2.2.3.

The Restricted Residential Use Remedy would not reduce the volume or inherent toxicity of the contaminated material, but it would reduce the potential for exposure to those contaminants, which minimizes the potential for toxic effects. The potential mobility of contaminants through movement of dust would be minimized after installation of the cover because the upper 2 feet would consist of clean fill. Potential dust concerns in the long-term would be limited to subsurface work below the demarcation layer, and proper safety precautions would be necessary.

6.2.2.3 Short-term impacts and effectiveness

The Unrestricted Use Remedy is estimated to take more than a year to complete, compared to fifteen (15) months for the Restricted Residential Use Remedy. The time period for the Restricted Residential Use Remedy includes the time to construct buildings on the Site. Though the development of the property could take longer than the Unrestricted Use Remedy, there would be significantly less truck traffic for the Restricted Residential Use Remedy given that off-site disposal of soils would not be necessary. This is a consideration given the proximity to the Green Island Bridge and current lack of a stoplight at the site entrance.

Both remedies would require dust control measures, such as water trucks, and potential odor controls to be implemented. The potential for dust and odor issues is expected to be higher for the Unrestricted Use Remedy given the significantly larger volume of soil that would require handling.

6.2.2.4 Implementability

For the Unrestricted Use Remedy, excavation of bank area soils would be necessary, based on the exceedances observed during the RI. Given the proximity to the Hudson River and the fact that the excavation would extend below the level of the river, excavation of these soils would be

challenging to do safely and without any impact to the Hudson River. A significantly greater volume of soils would require excavation for the Unrestricted Use Remedy, and the schedule would be dependent on the availability of resources over the extended period of time necessary to complete the excavation work.

The Restricted Residential Use Remedy would be less complicated to implement, and the soils excavation would require a shorter period of time to complete. It would also require access to bank areas to install the engineered cover, but it would not require the significant amount of bank excavation work that would be necessary for the Unrestricted Use Remedy.

6.2.2.5 Cost-Effectiveness

A summary of the cost of each remedy is provided in Table 1. Both capital and O&M costs are provided. The capital cost for the Unrestricted Remedy is significantly higher than that for the Restricted Residential Use Remedy. This is primarily due to the large volume of material that would require excavation and off-site disposal.

The Unrestricted Use Remedy would have only minimal, if any, ongoing O&M costs. The Restricted Residential Use Remedy would require annual ongoing inspections and reporting to certify that the cover is maintained at the site. However, these costs are still relatively minor when compared to the estimated capital cost required for the excavation for the Unrestricted Use Remedy. Over a 30-year period, the Restricted Residential Use Remedy would be approximately $44.2 MM less than the Unrestricted Use Remedy. Detailed cost estimates are provided in Appendix C.

The Unrestricted Use Remedy is not cost effective when compared to the Restricted Residential Use Remedy, given that it would not result in a significant increase in the protectiveness of the remedy when compared to the engineered cover.

Table 1. Cost Comparison of Unrestricted and Restricted Residential Use Remedies.

Unrestricted Remedy		
Capital Cost	$	53,435,479
O&M - Present Worth (30 years)	$	-
TOTAL:	$	53,435,479
Restricted Residential Use Remedy		
Capital Cost	$	9,042,885
O&M - Present Worth (30 years)	$	166,349
TOTAL:	$	9,209,234
Additional Cost for Preferred Remedy verses Original Remedy		
Capital Cost	$	(44,392,594)
O&M - Present Worth (30 years)	$	166,349
TOTAL:	$	(44,226,245)

Note: Values in brackets represent a negative amount

6.2.2.6 Community Acceptance

Public comments will be considered and incorporated into the Remedial Action upon the completion of the public comment period. It is expected that both remedies would be accepted by the community, but the option that would require less trucking of material off-site would likely be preferred.

6.2.2.7 Land Use

The use of the site would be mixed use with residential buildings and some commercial establishments, which is consistent with the current zoning for the property. Both remedies would achieve SCOs that would be consistent with planned future use of the site, though the Unrestricted Use Remedy would need to achieve lower cleanup objectives.

6.3 Evaluation of Institutional and Engineering Controls

Both remedies would involve groundwater use restrictions. There are no private drinking water wells in the vicinity of the Site or on-site and, therefore, a groundwater use restriction can be implemented through an environmental easement for the Site. Compliance with the groundwater

use restriction on-site will be confirmed during annual Site inspections.

The Restricted Residential Use Remedy involves institutional controls to limit the future use of the Site to restricted residential uses and engineering controls to maintain an on-site soil cover to isolate metals and SVOC-contaminated soil. The details of the soil cover and demarcation layer are discussed in Sections 6.1.2 and 7.1. The covered areas will be vegetated appropriately to prevent erosion as part of a planned restoration program.

Site management requirements for the Restricted Residential Use Remedy would entail an SMP that outlines use restrictions in the area of the soil cover and for the Site in general. Annual inspections of the soil cover will be completed to ensure the correct amount of cover is maintained and the demarcation barrier is not visible. The inspections will also ensure restrictions associated with building in the soil covers are followed once they are outlined in the SMP.

The Restricted Residential Use Remedy would also require engineering controls to address potential vapor intrusion impacts. Mitigation systems would be installed on all on-site buildings. Given that this will be new construction, these mitigation systems will be straightforward to design and install compared to retrofit systems. Mitigation systems will be designed as part of the development plan for the site. Systems used to address vapor intrusion impacts, such as sub-slab depressurization systems, are well understood and widely applied to effectively address vapor intrusion concerns. Periodic inspections of the systems would be necessary to ensure long-term effectiveness and determine the potential need for repairs or adjustments. Specific requirements for ongoing maintenance of these systems would be determined as part of the system design and incorporated into the SMP.

The future use restriction will be implemented through an environmental easement for the Site. EC/ICs consistent with those being proposed as part of the Restricted Residential Use Remedy are common and have been proven to be reliable and a viable long term components of a remedial action.

6.4 Recommended Remedy

The Restricted Residential Use Remedy is the recommended remedy for the Site based on the comprehensive evaluation and comparison presented in Section 6. The Restricted Residential Use Remedy is a more cost effective remedy that is consistent with the intended future use of the site while being protective of human health and the environment.

The current Unrestricted Use remedy is not a cost effective solution and is not the preferred alternative given the required volume of excavation to reach an unrestricted use. While a less stringent cleanup remedy is being proposed, the Restricted Residential Use Remedy mitigates environmental impacts, promotes a beneficial re-use of the property, and is protective of human health and the environment.

7.0 REMEDIAL ACTION IMPLEMENTATION

Details on implementation of the selected remedy are provided in this section. See Section 11.1 for details on the Health and Safety Plan (HASP), erosion control, storm water management, and dust, odor, and organic vapor monitoring and control.

7.1 Installation of Engineered Cover

As discussed in Section 6.1.2, the Restricted Residential Use Remedy consists of the installation of an engineered cover. The engineered cover will be building foundations, asphalt paved areas, or open areas. Areas outside of the paved parking areas or roadways (open areas) will be covered with a two (2) foot soil cover. Material to be used for soil cover will be certified as clean material and will be sufficient for supporting vegetation. In all cases, the cover will include engineering controls in the form of a demarcation layer to be placed immediately above soils to remain beneath the cover to ensure that the cover remains intact.

The demarcation layer will consist of a permeable filter fabric with a hydraulic conductivity no less than surrounding soils. Unpaved areas will be reseeded after completion of the work. In order to tie into post development grades, cutting may be required in soil capping areas. Areas to be covered with asphalt will be in accordance with the development plan. The most recent version of the plan is provided in the drawings in Appendix D. Cross sections showing typical soil caps in paved and unpaved areas with demarcation layers (filter fabric) are provided in Drawing D-1.

The engineered cover system to address bank soils consists of walls and rip-rap constructed along the eastern and western banks of the site. These are described in Sections 6.1.2.1 and 6.1.2.2.

7.2 Demobilization and Site Restoration

Demobilization and site restoration activities will include the following and will be completed in conjunction with development activities at the site.

- As necessary, restoration of temporary access areas and areas that may have been disturbed to accommodate support areas (e.g., staging areas, decontamination areas, storage areas, and access area);
- Removal of sediment from erosion control measures and disposal of materials in accordance with applicable laws and regulations;

- Equipment decontamination,
- General refuse disposal, and;
- Reestablishment of vegetation to prevent erosion in accordance with the site Stormwater Pollution Prevention Plan (SWPPP).

Equipment will be decontaminated and demobilized at the completion of field activities. Waste generated as part of the Remedial Action, including PPE, will be properly disposed.

All areas of the site or adjacent areas which are disturbed or otherwise used during implementation of the RAWP will be restored to either pre-RAWP conditions or in accordance with the final development plan. Restoration activities will occur to maintain compliance with the site SWPPP.

8.0 SCHEDULE

The Remedial Action will begin following NYSDEC approval and completion of the public comment period. It is estimated that the RAWP will take approximately 15 months to complete. A project schedule is attached as Appendix E. The NYSDEC will be notified at least ten (10) days prior to the initiation of any field work.

9.0 REPORTING AND RECORD KEEPING

Reporting and recordkeeping requirements include field observation reports, photographic documentation and preparation of reports are further discussed below.

9.1 Field Documentation

Field notes will be maintained during the RAWP work, in addition to daily field summaries that will be generated and emailed to the project team at the end of each work day. Daily summaries will include the work completed that day and any issues requiring immediate attention. Weekly summaries will be prepared and distributed to the project team with the following information:

- Identification of on-site contractors (Envirospec and subcontractor present) and other personnel (e.g., agency or site owner) present;
- Description of field activities including a statement of the activities and an update of progress made;
- Location(s) where work is performed;
- Samples collected and quantities of material excavated/backfilled;
- Problems encountered and corrective actions taken including notice of modifications to the scope of work.
- A summary of citizen complaints, if any, with relevant details (basis of complaint; actions taken; etc.);
- A summary of CAMP excursions, if any;
- Photographs of notable site conditions and activities;
- Proposed modifications to the project schedule, if any.

Daily and weekly email reports are not intended to be the primary mode of communication for notification to NYSDEC of emergencies (accidents, spills), requests for changes to the Work Plan, or other sensitive or time critical information. However, such information will be included in the daily reports. Emergency conditions and changes to the Work Plan will be communicated directly to the NYSDEC project manager by personal communication. Daily reports will be included as an appendix in the Final Report. Monthly progress reports will also be submitted in accordance with DER-10 5.7(b).

9.2 Record Keeping and Photo documentation

Jobsite record keeping for all RAWP work will be performed. These records will be maintained on-site during the project and will be available for inspection by NYSDEC staff. Representative

photographs will be taken of the site prior to any construction activities and during RAWP activities to illustrate RAWP program elements and contaminant source areas. Photographs will be submitted at the completion of the project in the Final Report.

9.3 Complaint Management

All complaints from citizens will be promptly reported to the NYSDEC. Complaints will be addressed and outcomes will also be reported to the NYSDEC in daily reports. Notices to the NYSDEC will include the nature of the complaint, the party providing the complaint, and the actions taken to resolve any problems.

9.4 Deviations from the Work Plan

All changes to this RAWP will be reported to the NYSDEC Project Manager and will be documented in daily reports and reported in the Final Report. The process to be followed if there are any deviations from the Work Plan will include a request for approval for the change from the NYSDEC noting the following:

- Reasons for deviating from the approved Work Plan;
- Effect of the deviations on overall Remedial Action; and
- Determination that the Remedial Action with the deviation(s) is protective of public health and the environment.

9.5 Final Engineering Report (FER)

At the completion of the RAWP, the Final Engineering Report (FER) will be prepared for submittal to the NYSDEC. It will be completed in accordance with DER-10 Section 5.8. The schedule for submission is included in Appendix E.

9.6 Site Management Plan (SMP)

An SMP will be developed that will detail the institutional and engineering controls for the site and any ongoing maintenance and monitoring requirements necessary to ensure continued effectiveness of the remedy, in accordance with the requirements in DER-10 Section 6.2. The schedule for submission is included in Appendix E.

10.0 PROJECT PERSONNEL AND RESPONSIBILITIES

The following key personnel listed in Table 2 below are involved with this project. The project responsibilities and contact information are also provided.

Table 2
Key Project Personnel

Name	Company	Project Position	Address	Phone Number
Josh Meppen	SIA, LLP	SIA Project Manager	49 Railroad Ave Albany, NY 12205	O:(518) 482-8954
Bill Jewett	SIA, LLP	SIA Construction Manager	49 Railroad Ave Albany, NY 12205	O:(518) 482-8954 C: (518) 407-7311
Gianna Aiezza, PE	Envirospec Engineering, PLLC	Project Director	349 Northern Blvd. Suite 3 Albany, NY 12204	O:(518) 453-2203 C:(518) 339-1973
Rachel Farnum, PE	Envirospec Engineering, PLLC	Project Manager	349 Northern Blvd. Suite 3 Albany, NY 12204	O:(518) 453-2203
Lauren Babb	Envirospec Engineering, PLLC	Project Scientist	349 Northern Blvd. Suite 3 Albany, NY 12204	O:(518) 453-2203
Alicia Barraza	NYSDEC	NYSDEC Project Manager	625 Broadway Albany, NY 12233	O: (518) 402-9690
Steve Lawrence	NYSDOH	NYSDOH Project Manager	Empire State Plaza Corning Tower Room 1787 Albany, NY 12237	O: (518) 402-7860

All project personnel will be required to follow onsite health and safety procedures as outlined in the Site-specific Health and Safety Plan (HASP), included as Appendix F.

11.0 REMEDIAL ACTION SUPPORT DOCUMENTS

Additional documentation is required as part of the RAWP as outlined below.

11.1 Health and Safety Plan (HASP)

To assure the safety of the workers and the local community, monitoring practices of the work environment will be in place during all phases of work plan activities. A Health and Safety Plan (HASP) has been prepared, attached as Appendix F that details procedures for maintaining safe working conditions and minimizing the potential for exposure to hazardous material. The plan outlines the necessary health and safety issues including, but not limited to:

- Health and Safety Risks
- System Maintenance
- Site Control
- Decontamination
- Emergency Response
- System Operation Safety
- Community Monitoring

It is anticipated that the RAWP activities will be completed at Level D personal protection with the potential to upgrade to Level C. Should health and safety monitoring during field activities indicate a threat to field personnel or warrant an upgrade beyond Level C protection, work will stop and site conditions will be re-evaluated.

The HASP will be used for all contractors, subcontractors, vendors and visitors working at the site. All personnel working on the site will be required to read, understand, sign-off, and adhere to all portions of the current HASP. A stand-alone copy will be located onsite and will be available for review at the site during normal business hours.

The selected contractor(s) and their subcontractor(s) will be responsible for following the site HASP as site safety minimum requirements. Site contractors or their subcontractors may elect to create their own specific HASP which must have as the minimum requirements those outlined in the site HASP.

Noise, dust and air monitoring, and community impacts are addressed below. These items are also addressed in the HASP, included as Appendix F.

11.1.1 Noise Control

Adequate measures will be implemented to keep noise levels produced by construction equipment to safe and tolerable limits as set forth by the Occupational Safety and Health Administration (OSHA), the Environmental Protection Agency (EPA) and the New York State Industrial Code Guidelines and Ordinances. The site is located in a mixed urban residential, commercial and industrial area and noise is not anticipated to be a source of community complaints.

11.1.2 Odor, Vapor, and Dust Control

Vapor and odor mitigations will be implemented, as necessary, to control vapors, dust, and/or odors emanating from excavations and stockpiles from the site. Perimeter air monitoring will be conducted during the work as necessary in accordance with the HASP and Community Air Monitoring Plan (CAMP) included as an appendix to the HASP.

The primary measures to be implemented in order to mitigate or limit generation of odors and dust will be the minimization of exposed waste material surface area, to the extent practical. Secondary measures will include use of approved products to mask objectionable odors, as necessary. Odors are not anticipated to be a problem during implementation of the Work Plan. However, odor control measures that may be employed, depending upon specific means and methods, include:

- Odor suppression foams
- Applications of Bio-Solve
- Water sprays
- Restricting on-site vehicles to 10 mph.
- Polyethylene sheeting (for covering excavation faces, material stockpiles, etc.)

In the event that these, or other primary and secondary measures, do not adequately control odors, then the excavation will be discontinued until alternate measures can be implemented.

Onsite dust monitoring requirements and procedures are presented in the site HASP and within the CAMP. Should site activities result in dust levels or organic vapor exceeding the criteria identified in the HASP and CAMP the Site Health and Safety Officer (HSO) will direct the remedial contractor in the appropriate actions. These actions may range from implementation of engineering controls (covers, foam suppressants, enclosures) to cessation of onsite activities. The

CAMP will be implemented during all ground intrusive activities.

11.2 Community Air Monitoring Plan (CAMP)

As discussed in section 11.1.2 above, during RAWP activities, the CAMP will be implemented and followed. The CAMP is consistent with the requirements for community air monitoring at remediation sites as established by the NYSDOH and NYSDEC. It is consistent with procedures and practices outlined in DER-10 (May 2010) Appendix 1A (NYSDOH's Generic Community Air Monitoring Plan) and Appendix 1B (Fugitive Dust and Particulate Monitoring). The CAMP is attached as an appendix to the HASP.

11.3 Citizen Participation Plan (CPP)

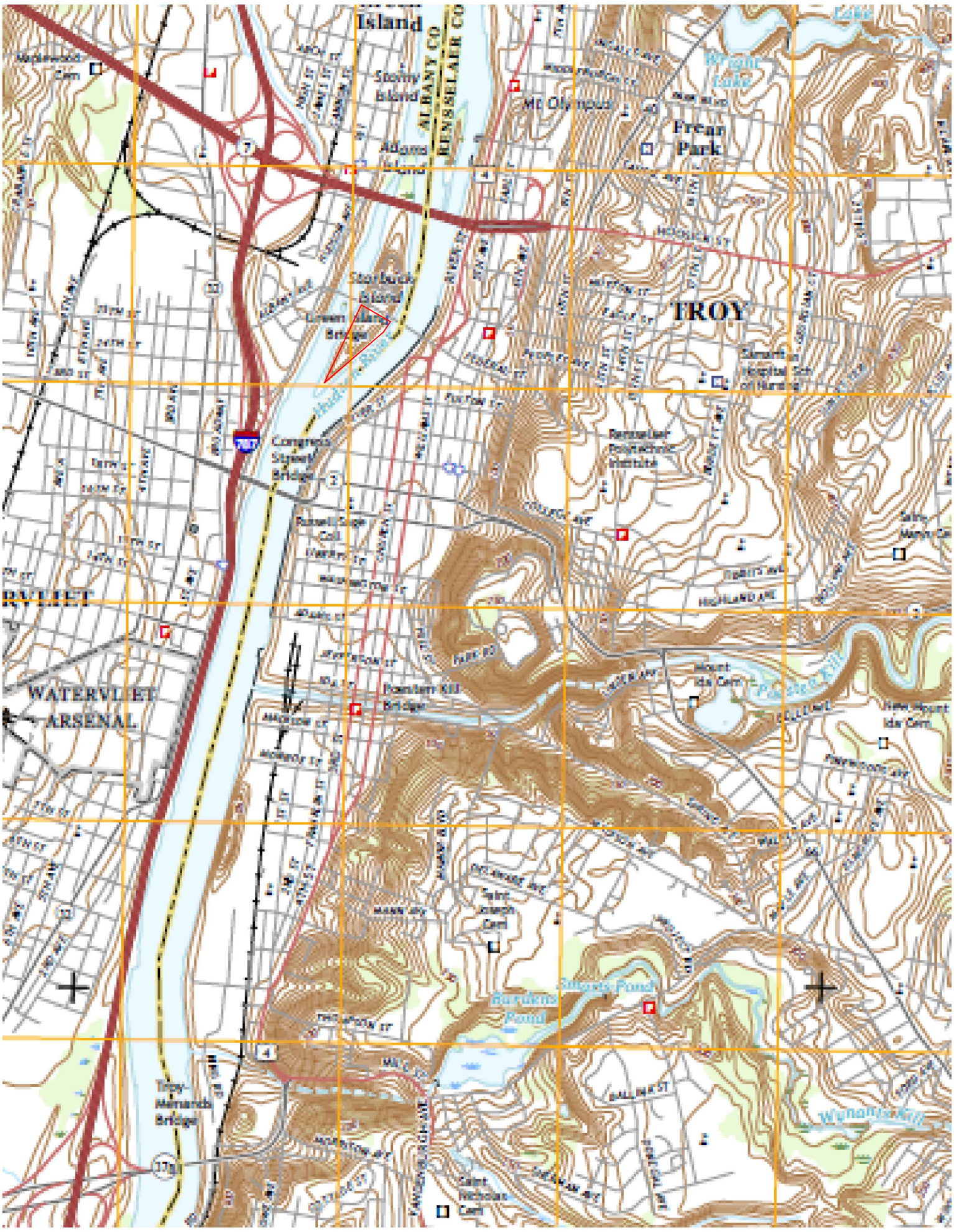
Citizen participation and comment throughout the term of a particular cleanup is an important aspect of the BCP. A Citizen Participation Plan (CPP) was developed and submitted to the NYSDEC prior to the RI. A fact sheet will be distributed prior to RAWP activities.

11.4 Stormwater Pollution Prevention Plan (SWPPP) & Erosion Control

Stormwater pollution and erosion control are of particular concern when conducting excavation work near surface water. A SWPPP is in place for the site and will be followed during RAWP activities. Erosion and sediment control measures will be maintained to prevent stormwater pollution and to prevent runoff from leaving the site.

FIGURES

Figure 1 Site Location Map



Scale: 1:3,000 ft

——— APPROXIMATE SITE BOUNDARY

TITLE: FIGURE 1 – SITE LOCATION MAP

LOCATION: 1 OSGOOD AVENUE/CENTER ISLAND
GREEN ISLAND, NEW YORK

envirospec ENGINEERING, PLLC
349 Northern Blvd., Suite 3
Albany, NY 12204
Phone: 518.453.2203
Fax: 518.453.2204
www.envirospeceng.com

DRAWINGS

S-1 Surveyed Sample Locations
D-1 Cover Cross Sections
D-2 Groundwater Monitoring Locations

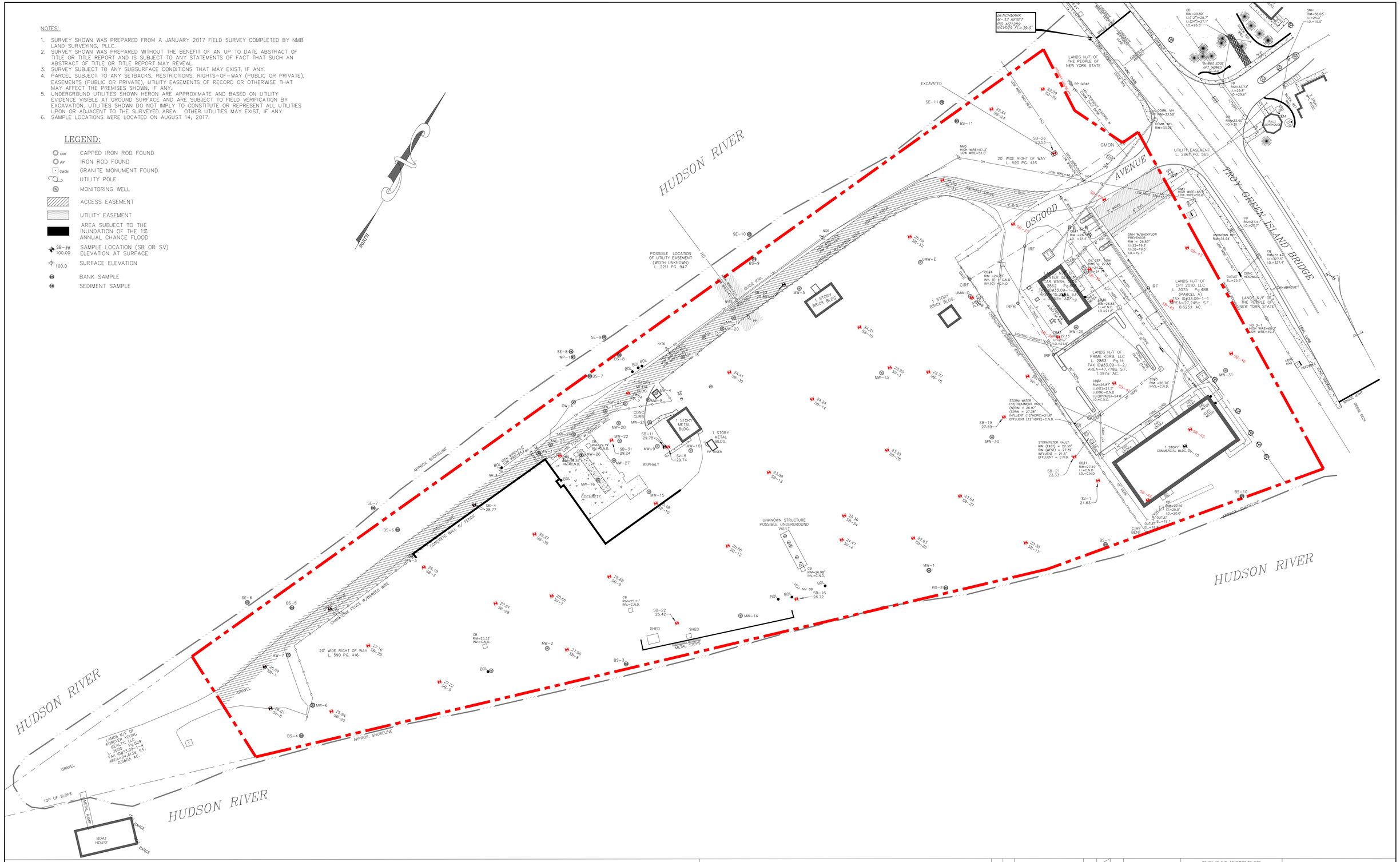
envirospec ENGINEERING, PLLC
349 Northern Boulevard Suite 3▪ Albany, NY 12204 ▪ Phone: 518.453.2203 ▪ Fax: 518.453.2204
A Woman Owned Business Enterprise (WBE)

NOTES:

1. SURVEY SHOWN WAS PREPARED FROM A JANUARY 2017 FIELD SURVEY COMPLETED BY NMB LAND SURVEYING, PLLC.
2. SURVEY SHOWN WAS PREPARED WITHOUT THE BENEFIT OF AN UP TO DATE ABSTRACT OF TITLE OR TITLE REPORT AND IS SUBJECT TO ANY STATEMENTS OF FACT THAT SUCH AN ABSTRACT OF TITLE OR TITLE REPORT MAY REVEAL.
3. SURVEY SUBJECT TO ANY SUBSURFACE CONDITIONS THAT MAY EXIST, IF ANY.
4. PARCEL SUBJECT TO ANY SETBACKS, RESTRICTIONS, RIGHTS-OF-WAY (PUBLIC OR PRIVATE), EASEMENTS (PUBLIC OR PRIVATE), UTILITY EASEMENTS OF RECORD OR OTHERWISE THAT MAY AFFECT THE PREMISES SHOWN, IF ANY.
5. UNDERGROUND UTILITIES SHOWN HERON ARE APPROXIMATE AND BASED ON UTILITY EVIDENCE VISIBLE AT GROUND SURFACE AND ARE SUBJECT TO FIELD VERIFICATION BY EXCAVATION. UTILITIES SHOWN DO NOT IMPLY TO CONSTITUTE OR REPRESENT ALL UTILITIES UPON OR ADJACENT TO THE SURVEYED AREA. OTHER UTILITIES MAY EXIST, IF ANY.
6. SAMPLE LOCATIONS WERE LOCATED ON AUGUST 14, 2017.

LEGEND:

◎ CIRF	CAPPED IRON ROD FOUND
◎ IRF	IRON ROD FOUND
▣ GMON	GRANITE MONUMENT FOUND
○	UTILITY POLE
Ⓦ	MONITORING WELL
▨	ACCESS EASEMENT
░	UTILITY EASEMENT
■	AREA SUBJECT TO THE INUNDATION OF THE 1% ANNUAL CHANCE FLOOD
⊕ SB-## 100.00	SAMPLE LOCATION (SB OR SV) ELEVATION AT SURFACE
⊕ 100.0	SURFACE ELEVATION
(BS)	BANK SAMPLE
(SE)	SEDIMENT SAMPLE



ENVIROSPEC PROJECT #E17-1600

envirospec
ENGINEERING, PLLC
349 NORTHERN BLVD. SUITE 3
ALBANY, NY 12204-1032
P:518.453.2203
F:518.453.2204

W.O.	No.	REVISION	DATE	DRN.	APR.
	1	CHANGED SITE BOUNDARY	10/18		

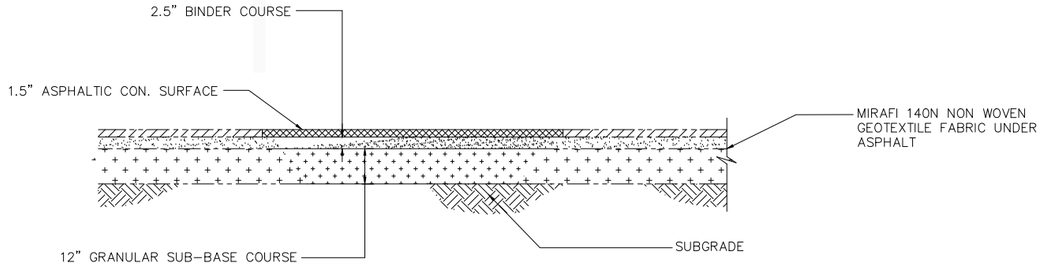
DRAWING STATUS
FOR REFERENCE ONLY

SOUTH ISLAND APARTMENTS SITE
1 OSGOOD AVENUE/CENTER ISLAND,
TOWN OF GREEN ISLAND, ALBANY COUNTY, NEW YORK

DRAWN BY –
DRAWING MGR

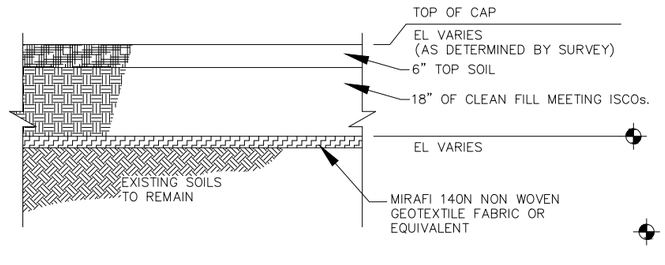
SOUTH ISLAND APARTMENTS SITE SURVEYED SAMPLE LOCATIONS

SCALE	DRAWING No.	SHEET	REV. No.
NTS	S-1		



1/D-1 ASPHALT COVER DETAIL

NOTES:
1. COVER MATERIALS (ASPHALT).
2. DEMARCATION LAYERS SHALL CONSIST OF NON WOVEN GEOTEXTILE FABRIC (MIRAFI 140N) OR EQUIVALENT.



2/D-1 TYPICAL SOIL COVER DETAIL

NOTES:
1. COVER MATERIALS MUST MEET RESTRICTED RESIDENTIAL SOIL CLEANUP OBJECTIVES FOR VOC, SVOC'S, PCB'S, AND METALS AS SET FORTH IN 6NYCRR PART 375-6.8(b).
2. SOIL COMPACTION SHALL MEET 90-95% AS DETERMINED BY ASTM D698 PROCTOR TEST.
3. DEMARCATION LAYER SHALL CONSIST OF NON WOVEN GEOTEXTILE FABRIC (MIRAFI 140N) OR EQUIVALENT.

CLIENT: SOUTH ISLAND APARTMENTS, LLC
SITE: SOUTH ISLAND APARTMENTS SITE
TITLE: COVER CROSS SECTIONS
JOB #: E17-1600
SCALE: NTS

envirospec ENGINEERING, PLLC
349 NORTHERN BLVD. SUITE 3
ALBANY, NY 12204-1032
P:518.453.2203
F:518.453.2204

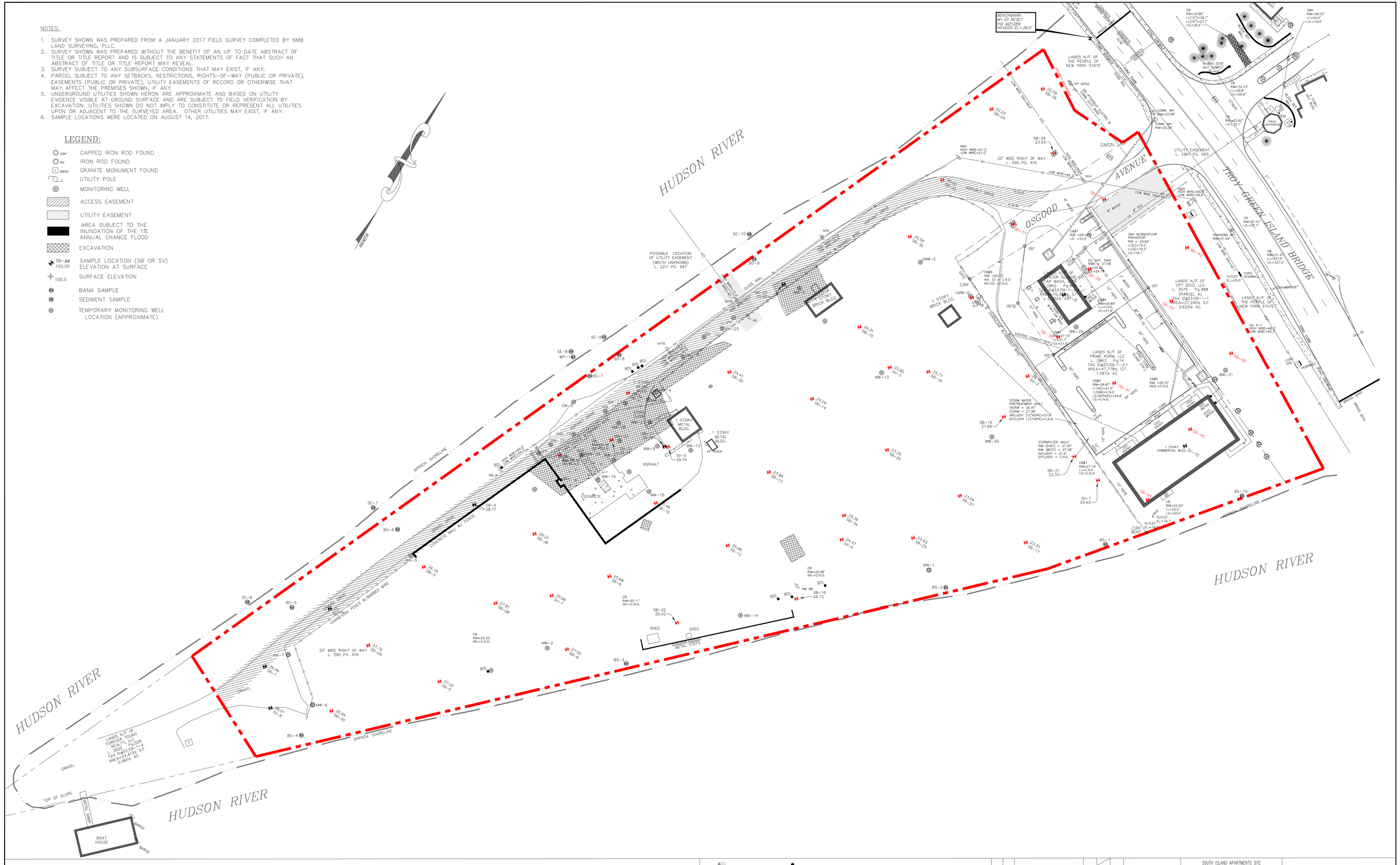
PREPARED BY: LB
DATE: 7/12/18
REVIEWED BY: GA
DATE: 7/12/18
DRAWING: D-1

NOTES:

1. SURVEY SHOWN WAS PREPARED FROM A JANUARY 2017 FIELD SURVEY COMPLETED BY NMB LAND SURVEYING, PLLC.
2. SURVEY SHOWN WAS PREPARED WITHOUT THE BENEFIT OF AN UP TO DATE ABSTRACT OF TITLE OR TITLE REPORT AND IS SUBJECT TO ANY STATEMENTS OF FACT THAT SUCH AN ABSTRACT OF TITLE OR TITLE REPORT MAY REVEAL.
3. SURVEY SUBJECT TO ANY SUBSURFACE CONDITIONS THAT MAY EXIST, IF ANY.
4. PARCEL SUBJECT TO ANY SETBACKS, RESTRICTIONS, RIGHTS-OF-WAY (PUBLIC OR PRIVATE), EASEMENTS (PUBLIC OR PRIVATE), UTILITY EASEMENTS OF RECORD OR OTHERWISE THAT MAY AFFECT THE PREMISES SHOWN, IF ANY.
5. UNDERGROUND UTILITIES SHOWN HERON ARE APPROXIMATE AND BASED ON UTILITY EVIDENCE VISIBLE AT GROUND SURFACE AND ARE SUBJECT TO FIELD VERIFICATION BY EXCAVATION. UTILITIES SHOWN DO NOT IMPLY TO CONSTITUTE OR REPRESENT ALL UTILITIES UPON OR ADJACENT TO THE SURVEYED AREA. OTHER UTILITIES MAY EXIST, IF ANY.
6. SAMPLE LOCATIONS WERE LOCATED ON AUGUST 14, 2017.

LEGEND:

- CRF — CAPPED IRON ROD FOUND
- IRF — IRON ROD FOUND
- GMON — GRANITE MONUMENT FOUND
- UTILITY POLE
- MONITORING WELL
- ACCESS EASEMENT
- UTILITY EASEMENT
- AREA SUBJECT TO THE INUNDATION OF THE 1% ANNUAL CHANCE FLOOD
- EXCAVATION
- SB-## 100.00 — SAMPLE LOCATION (SB OR SV) ELEVATION AT SURFACE
- 100.0 — SURFACE ELEVATION
- BANK SAMPLE
- SEDIMENT SAMPLE
- TEMPORARY MONITORING WELL LOCATION (APPROXIMATE)



ENVIROSPEC PROJECT #E17-1600

envirospec ENGINEERING, PLLC
349 NORTHERN BLVD. SUITE 3
ALBANY, NY 12204-1032
P:518.453.2203
F:518.453.2204

W.O.No.	REVISION	DATE	BY
1	CHANGED SITE BOUNDARY	10/18	APR

DRAWING STATUS: FOR REFERENCE ONLY

SOUTH ISLAND APARTMENTS SITE
1 OSGOOD AVENUE/CENTER ISLAND,
TOWN OF GREEN ISLAND, ALBANY COUNTY, NEW YORK

DRAWN BY: --
DRAWING WORK

SOUTH ISLAND APARTMENTS SITE GROUNDWATER MONITORING LOCATIONS

SCALE: NTS | DRAWING No.: D-2 | SHEET | REV. No.

APPENDIX A
DRAWINGS FOR EASTERN BANK WALL

envirospec ENGINEERING, PLLC

349 Northern Boulevard Suite 3▪ Albany, NY 12204 ▪ Phone: 518.453.2203 ▪ Fax: 518.453.2204

A Woman Owned Business Enterprise (WBE)

PROJECT DATA

1. APPLICANT:
LUIZZI BROS. DEVELOPMENT.
49 RAILROAD AVE
ALBANY, NEW YORK 12205

2. EXISTING ZONING: INDUSTRIAL/PLANNED DEVELOPMENT

3. LOT AREA: 11.26 ACRES (490,685 SF)
0.23 ACRES (OSGOOD AVENUE)

OFF-STREET PARKING

RESIDENTIAL DWELLINGS UNITS:
1 SPACES FOR EVERY DWELLING UNIT

TOTAL DWELLING UNITS PROPOSED = 276

REQUIRED:
276 TOTAL SPACES REQUIRED

PROVIDED:
SURFACE PARKING 210 TOTAL SPACES PROVIDED
PARKING UNDER BUILDING 194 TOTAL SPACES PROVIDED
404 TOTAL SPACES PROVIDED
(1.46 SPACES PER UNIT)
10 ACCESSIBLE SPACES

COMMERCIAL MIXED USE BUILDING:

AMPHITHEATER:
PLACES OF PUBLIC ASSEMBLY: ONE PARKING SPACE FOR EVERY 10 SEATS OR ONE PARKING SPACE FOR EVERY 100 SQUARE FEET OF FLOOR AREA. (WHICHEVER IS LESS)

ASSUMPTION PER SEATS NUMBER :
AMPHITHEATER : 100 SEATS X 1 SPACE/10 SEATS = 10 SPACES

OFFICE PARKING:
ONE PARKING SPACE, PLUS ONE PARKING SPACE FOR EVERY 200 SQUARE FEET OF OFFICE AREA.

REQUIRED: 1 SPACE + 9,500 S.F. X 1 SPACE/200 S.F. X = 49 SPACES

RESTAURANT (3,500 S.F):
ONE PARKING SPACE FOR EVERY FIVE SEATS

REQUIRED: 100 SEATS
100 SEATS X 1 SPACE/ 5 SEATS = 20 SPACES

COMMERCIAL & BUSINESS (RETAIL):
1 SPACE FOR EVERY 200 S.F. OF BUSINESS AREA

REQUIRED: 13,000 S.F.
13,000 X 1 SPACE / 200 S.F. = 65 SPACES
(2 ADA SPACES REQUIRED)

TOTAL REQUIRED: 144 SPACES
TOTAL PROVIDED: 115 SPACES
SHARED/ MULTIUSE SPACES CREDIT: 29 SPACES (20%)

BANK/ DRIVETHRU (3,500 SF):
1 SPACE FOR EVERY 200 SF OR 1 SPACE FOR EVERY 5 SEATS

REQUIRED: ASSUME 100 SEATS
100 SEATS X 1 SPACE/ 5 SEATS = 20 SPACES
PROVIDED: 25 SPACES

ADA SPACES REQUIRED:
PER 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN

REQUIRED (25 SPACE LOT): 1 SPACE
PROVIDED (25 SPACE LOT): 2 SPACES

REQUIRED (88 SPACE LOT): 5 SPACES
PROVIDED (88 SPACE LOT): 5 SPACES

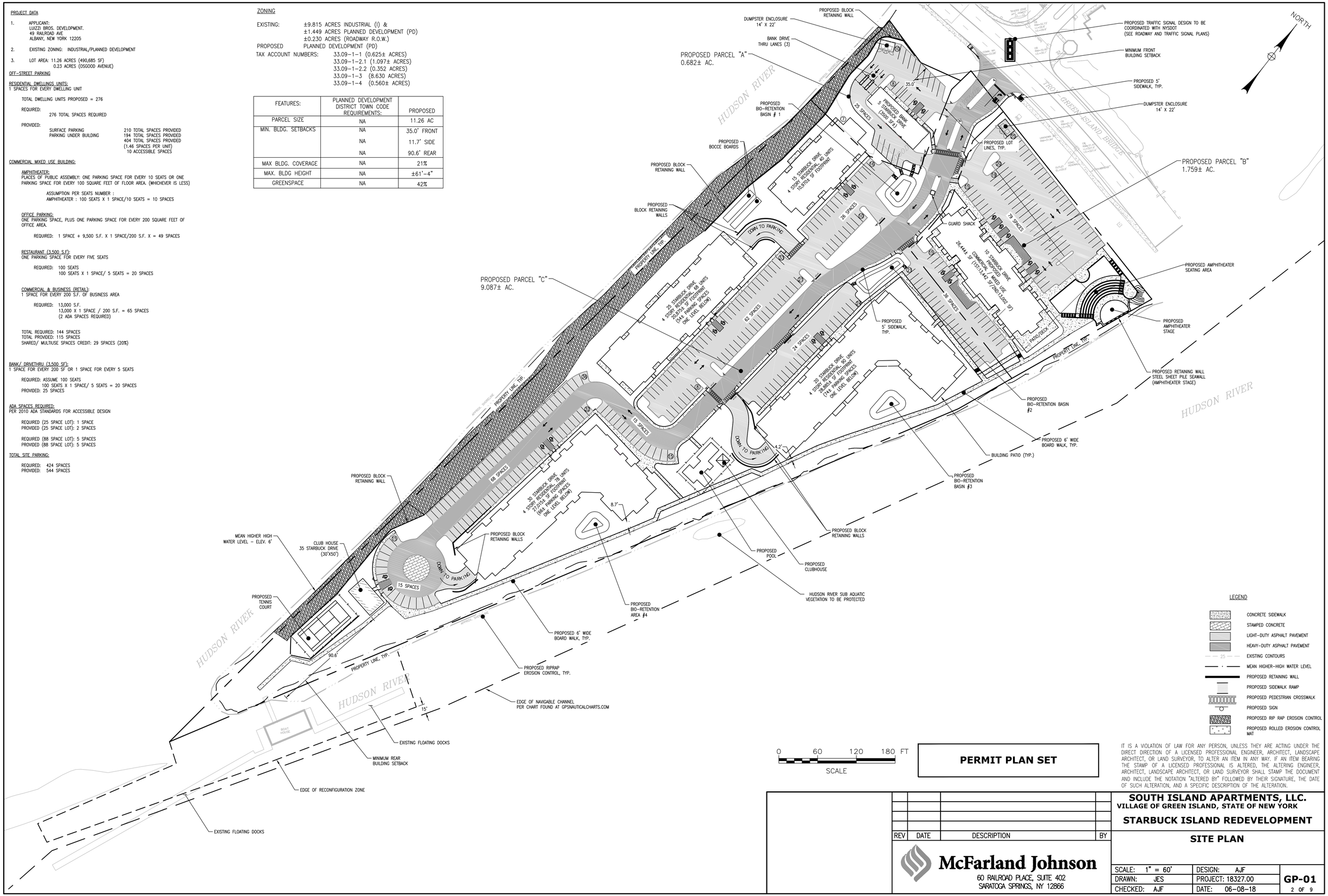
TOTAL SITE PARKING:

REQUIRED: 424 SPACES
PROVIDED: 544 SPACES

ZONING

EXISTING: ±9.815 ACRES INDUSTRIAL (I) &
±1.449 ACRES PLANNED DEVELOPMENT (PD)
±0.230 ACRES (ROADWAY R.O.W.)
PROPOSED PLANNED DEVELOPMENT (PD)
TAX ACCOUNT NUMBERS: 33.09-1-1 (0.625± ACRES)
33.09-1-2.1 (1.097± ACRES)
33.09-1-2.2 (0.352 ACRES)
33.09-1-3 (8.630 ACRES)
33.09-1-4 (0.560± ACRES)

FEATURES:	PLANNED DEVELOPMENT DISTRICT TOWN CODE REQUIREMENTS:	PROPOSED
PARCEL SIZE	NA	11.26 AC
MIN. BLDG. SETBACKS	NA	35.0' FRONT
	NA	11.7' SIDE
	NA	90.6' REAR
MAX BLDG. COVERAGE	NA	21%
MAX. BLDG HEIGHT	NA	±61'-4"
GREENSPACE	NA	42%



LEGEND

- CONCRETE SIDEWALK
- STAMPED CONCRETE
- LIGHT-DUTY ASPHALT PAVEMENT
- HEAVY-DUTY ASPHALT PAVEMENT
- 25 EXISTING CONTOURS
- MEAN HIGHER-HIGH WATER LEVEL
- PROPOSED RETAINING WALL
- PROPOSED SIDEWALK RAMP
- PROPOSED PEDESTRIAN CROSSWALK
- PROPOSED SIGN
- PROPOSED RIP RAP EROSION CONTROL
- PROPOSED ROLLED EROSION CONTROL MAT

0 60 120 180 FT
SCALE

PERMIT PLAN SET

REV	DATE	DESCRIPTION	BY

SOUTH ISLAND APARTMENTS, LLC.
VILLAGE OF GREEN ISLAND, STATE OF NEW YORK

STARBUCK ISLAND REDEVELOPMENT

SITE PLAN

McFarland Johnson
60 RAILROAD PLACE, SUITE 402
SARATOGA SPRINGS, NY 12866

SCALE: 1" = 60'	DESIGN: AJF	GP-01	
DRAWN: JES	PROJECT: 18327.00	2 OF 9	
CHECKED: AJF	DATE: 06-08-18		

LEGEND

- CONCRETE SIDEWALK
- STAMPED CONCRETE
- LIGHT-DUTY ASPHALT PAVEMENT
- HEAVY-DUTY ASPHALT PAVEMENT
- PROPOSED RETAINING WALL
- PROPOSED SIDEWALK RAMP
- PROPOSED PEDESTRIAN CROSSWALK
- PROPOSED SIGN
- PROPOSED CURBING
- PROPOSED HANDRAIL
- PROPOSED SHEET PILE WALL
- PROPOSED RIP RAP EROSION CONTROL
- PROPOSED ROLLED EROSION CONTROL

NORTH

MEDIAN HIGH WATER LEVEL - ELEV. 6'

APPROX. SHORELINE

PROPOSED WOOD GUIDERAILING (301 LF)

6" CONCRETE CURB, TYP.

PROPOSED RIP RAP EROSION CONTROL (TYP.)

PROPOSED MOUNTABLE CURBING

STAMPED CONCRETE CUL DE SAC ISLAND
COLORED AND IMPRINTED CONCRETE (NYSDOT ITEM 608.01020005)
COLOR AND PATTERN TO BE DETERMINED BY OWNER'S REPRESENTITIVE

5' WIDE CONCRETE SIDEWALK, TYP.

ACCESSIBLE PARKING SPACE MARKING, TYP.

HANDICAP PARKING SIGN (R7-8) (TYP.)

PROPOSED BLOCK RETAINING WALL WITH HANDRAIL/ TENNIS COURT FENCE (WALL 2)

ACCESSIBLE RAMP, TYPE 10

PROPERTY LINE, TYP.

PROPOSED HANDRAIL

PROPOSED TENNIS COURT

CLUB HOUSE
35 STARBUCK DRIVE
(30'X50')

PROPOSED PERIMETER FENCE
SEE DETAIL, SHEET DT-02

HUDSON RIVER

PAVEMENT MARKING, TYP.

ASPHALT PAVEMENT, TYP.

PROPOSED 5' WIDE CONCRETE SIDEWALK, TYP

ACCESSIBLE RAMP, TYPE 10

HANDICAP PARKING SIGN (R7-8) (TYP)

BLDG ENTRANCE

24.0' TYP.

18.0'

9.0'

5.1'

5.3'

R62.0'

R5.0'

R44.0'

R20.0'

R72.0'

R54.0'

R15.0'

R30.0'

R25.0'

R10.0'

R3.0'

R45.0'

R7.0'

R21.0'

R63.0'

R35.0'

R39.0'

6.0'

25 STARBUCK DRIVE
4 STORY RESIDENTIAL 68 UNITS
20,875± SF FOOTPRINT
(54± PARKING SPACES ONE LEVEL BELOW)

30 STARBUCK DRIVE
4 STORY RESIDENTIAL 78 UNITS
27,015± SF FOOTPRINT
(66± PARKING SPACES ONE LEVEL BELOW)

ACCESSIBLE RAMP, TYPE 10

PROPOSED 5' WIDE CONCRETE SIDEWALK, TYP

STOP BAR AND SIGN (R1-1)

PEDESTRIAN CROSSING SIGNS (W11A-2)

ACCESSIBLE RAMP, TYPE 1

PROPOSED CROSSWALK, TYP

ACCESSIBLE RAMP, TYPE 1

DOWN TO PARKING

MATCH LINE, TYP.

PROPOSED BLOCK RETAINING WALL WITH HANDRAIL (WALL 7)

PROPOSED POOL

PROPOSED CLUBHOUSE

PROPOSED BLOCK RETAINING WALL WITH HANDRAIL (WALL 6)

PROPOSED 6' WIDE BOARD WALK, TYP.

PROPOSED 4'(MIN) HIGH BLACK POWDER COATED METAL DECORATIVE FENCE. MANUFACTURER AND STYLE TO BE DETERMINED BY OWNERS REPRESENTATIVE.

PROPERTY LINE, TYP.

HANDICAP PARKING SIGN (R7-8) (TYP.)

PROPOSED BLOCK RETAINING WALL WITH TENNIS COURT FENCE (WALL 4)

PROPOSED HANDRAILS INTEGRATED INTO THE RETAINING WALL (TYP.)

PROPOSED BIO-RETENTION BASIN # 4

PROPOSED BLOCK RETAINING WALL WITH HANDRAIL (WALL 1)

PROPOSED BLOCK RETAINING WALL WITH HANDRAIL (WALL 5)

PROPOSED RIP RAP EROSION CONTROL, TYP.

BOAT HOUSE

EXISTING BOAT HOUSE AND DOCKS TO REMAIN

EDGE OF NAVIGABLE CHANNEL
PER CHART FOUND AT GPSNAUTICALCHARTS.COM

EDGE OF RECONFIGURATION ZONE

0 30 60 90 FT
SCALE

PERMIT PLAN SET

REV	DATE	DESCRIPTION	BY

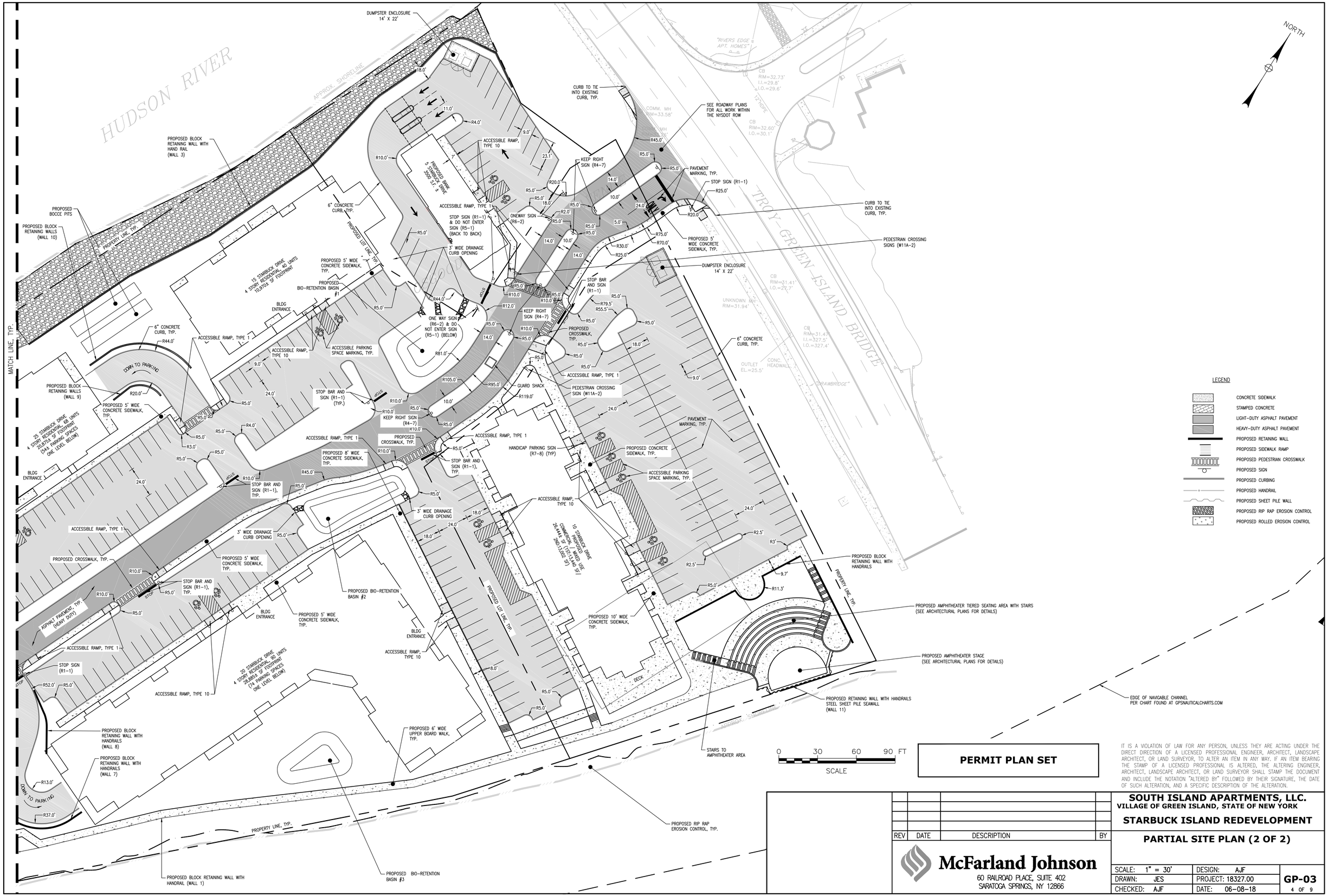
SOUTH ISLAND APARTMENTS, LLC.
VILLAGE OF GREEN ISLAND, STATE OF NEW YORK

STARBUCK ISLAND REDEVELOPMENT

PARTIAL SITE PLAN (1 OF 2)

McFarland Johnson
60 RAILROAD PLACE, SUITE 402
SARATOGA SPRINGS, NY 12866

SCALE: 1" = 30'	DESIGN: AJF	GP-02
DRAWN: JES	PROJECT: 18327.00	
CHECKED: AJF	DATE: 06-08-18	3 OF 9



PERMIT PLAN SET

REV	DATE	DESCRIPTION	BY

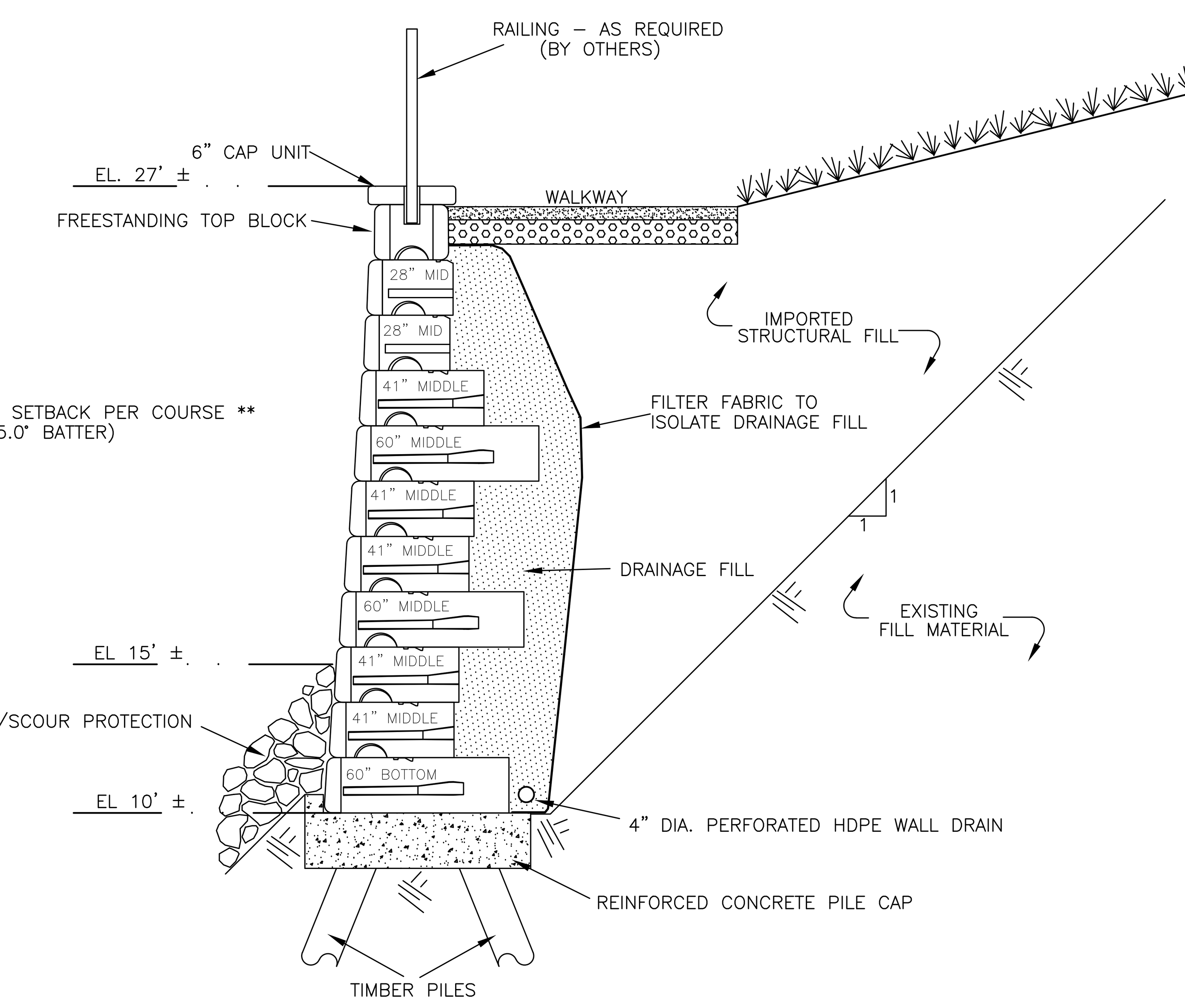
McFarland Johnson
60 RAILROAD PLACE, SUITE 402
SARATOGA SPRINGS, NY 12866

SOUTH ISLAND APARTMENTS, LLC.
VILLAGE OF GREEN ISLAND, STATE OF NEW YORK

STARBUCK ISLAND REDEVELOPMENT

PARTIAL SITE PLAN (2 OF 2)

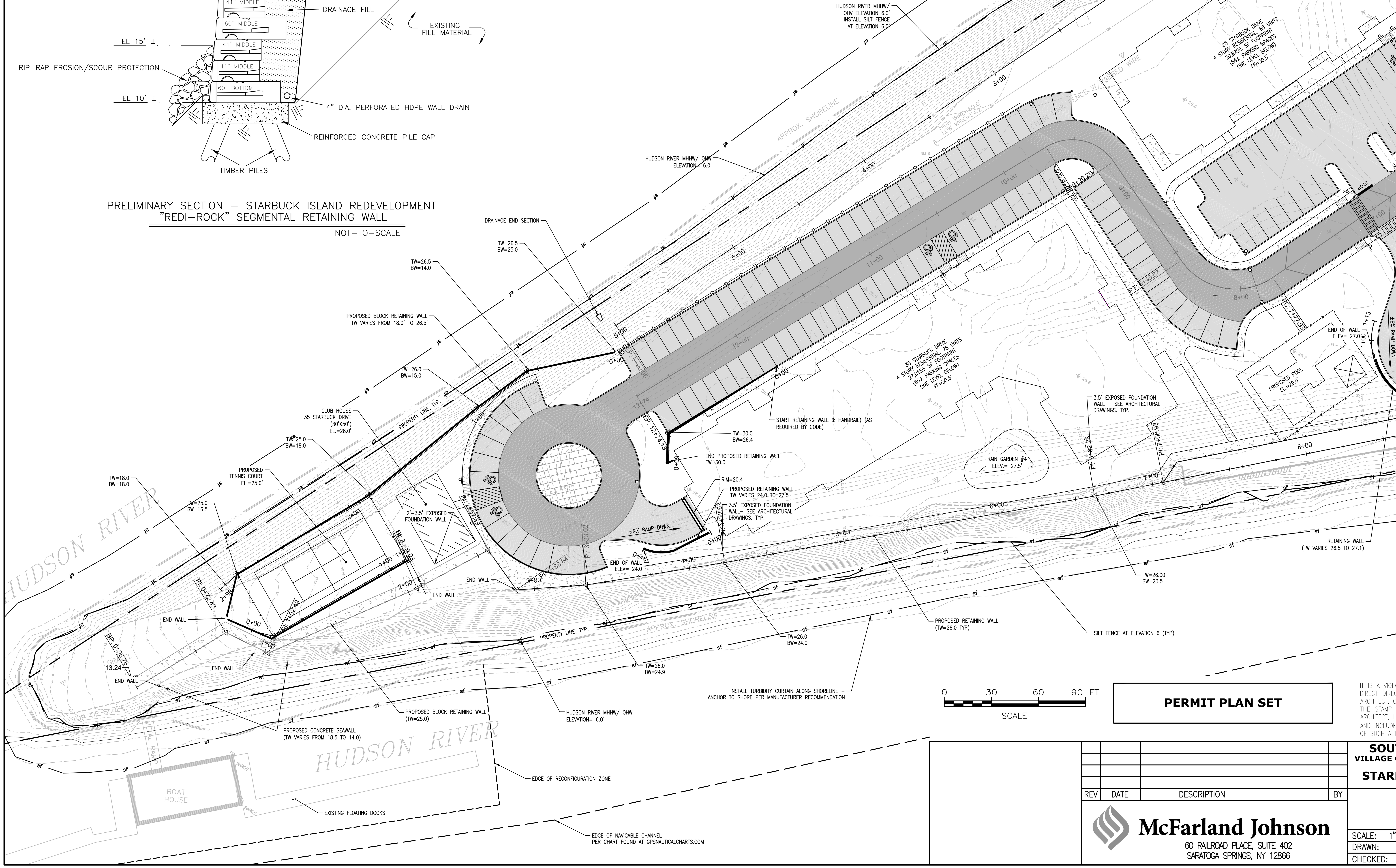
SCALE: 1" = 30'	DESIGN: AJF	**GP-03**
DRAWN: JES	PROJECT: 18327.00	4 OF 9
CHECKED: AJF	DATE: 06-08-18	


RAILING - AS REQUIRED
(BY OTHERS)
6" CAP UNIT
EL. 27' ±
FREESTANDING TOP BLOCK
WALKWAY
IMPORTED
STRUCTURAL FILL
** 1-5/8" SETBACK PER COURSE **
(5.0' BATTER)
FILTER FABRIC TO
ISOLATE DRAINAGE FILL
DRAINAGE FILL
EXISTING
FILL MATERIAL
EL 15' ±
RIP-RAP EROSION/SCOUR PROTECTION
EL 10' ±
4" DIA. PERFORATED HDPE WALL DRAIN
REINFORCED CONCRETE PILE CAP
TIMBER PILES

PRELIMINARY SECTION - STARBUCK ISLAND REDEVELOPMENT
"REDI-ROCK" SEGMENTAL RETAINING WALL
NOT-TO-SCALE

LEGEND

EXISTING CONTOURS
PROPOSED MINOR CONTOURS
PROPOSED MAJOR CONTOURS
PROPOSED RETAINING WALL
XX.X' SPOT ELEVATIONS (PAVEMENT/ BOTTOM OF CURB)
PROPOSED METAL SHEET PILE SEAWALL
PROPOSED DRAINAGE STRUCTURES
PROPOSED HANDRAIL


NORTH
INSTALL TURBIDITY CURTAIN ALONG SHORELINE - ANCHOR TO SHORE PER MANUFACTURER RECOMMENDATION
DRAINAGE END SECTION
HUDSON RIVER MHHW/ OHV ELEVATION 6.0' INSTALL SILT FENCE AT ELEVATION 6.0'
APPROX. SHORELINE
HUDSON RIVER MHHW/ OHW ELEVATION= 6.0'
25 STARBUCK DRIVE
30 STARBUCK DRIVE
CLUB HOUSE
35 STARBUCK DRIVE
PROPOSED TENNIS COURT
EL.=25.0'
2'-3.5' EXPOSED FOUNDATION WALL
PROPOSED BLOCK RETAINING WALL
TW VARIES FROM 18.0' TO 26.5'
START RETAINING WALL & HANDRAIL) (AS REQUIRED BY CODE)
END PROPOSED RETAINING WALL
TW=30.0
PROPOSED RETAINING WALL
TW VARIES 24.0 TO 27.5
3.5' EXPOSED FOUNDATION WALL- SEE ARCHITECTURAL DRAWINGS. TYP.
±9% RAMP DOWN
RAIN GARDEN #4
ELEV.= 27.5'
PROPOSED POOL
EL.=29.0'
END OF WALL
ELEV= 27.0
END OF WALL
ELEV= 24.0
END WALL
MATCH LINE, TYP.
RETAINING WALL
(TW VARIES 26.5 TO 27.1)
PROPOSED RETAINING WALL
(TW=26.0 TYP)
SILT FENCE AT ELEVATION 6 (TYP)
PROPERTY LINE, TYP.
PROPOSED BLOCK RETAINING WALL
(TW=25.0)
HUDSON RIVER MHHW/ OHW
ELEVATION= 6.0'
PROPOSED CONCRETE SEAWALL
(TW VARIES FROM 18.5 TO 14.0)
HUDSON RIVER
BOAT HOUSE
EDGE OF RECONFIGURATION ZONE
EXISTING FLOATING DOCKS
EDGE OF NAVIGABLE CHANNEL
PER CHART FOUND AT GPSNAUTICALCHARTS.COM
0 30 60 90 FT
SCALE

GRADING NOTES:

1. ALL GRADING AND EARTHWORK SHALL BE IN CONFORMANCE WITH NEW YORK STATE STANDARD SPECIFICATIONS SECTION 203 – EXCAVATION AND EMBANKMENT, WHICH INCLUDES MAXIMUM EMBANKMENT LIFT THICKNESS ALLOWED BASED ON THE COMPACTION EQUIPMENT USED.

2. ALL PROPOSED ELEVATIONS SHOWN HEREON ARE FINISHED GRADE ELEVATION.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING RIM ELEVATIONS IN RELATION TO PROPOSED GRADE PRIOR TO INSTALLATION.

4. TOPSOIL SHALL BE SPREAD TO A 6" THICKNESS TO BRING THE SITE TO FINISHED GRADE ELEVATION IN ALL AREAS TO BE SEEDED.

5. SEE RETAINING WALL PLAN & PROFILE FOR ADDITIONAL GRADING.

6. PRIOR TO THE ISSUANCE OF ANY PERMITS, THE GEOTECHNICAL ENGINEER WILL BE GIVEN THE OPPORTUNITY TO REVIEW THE PLANS AND SPECIFICATIONS.

HUDSON RIVER FLOOD ELEVATIONS
FROM MARCH 2015 FEMA STUDY

10 YEAR = 20'
50 YEAR = 24'
100 YEAR = 26'

PERMIT PLAN SET

REV	DATE	DESCRIPTION	BY

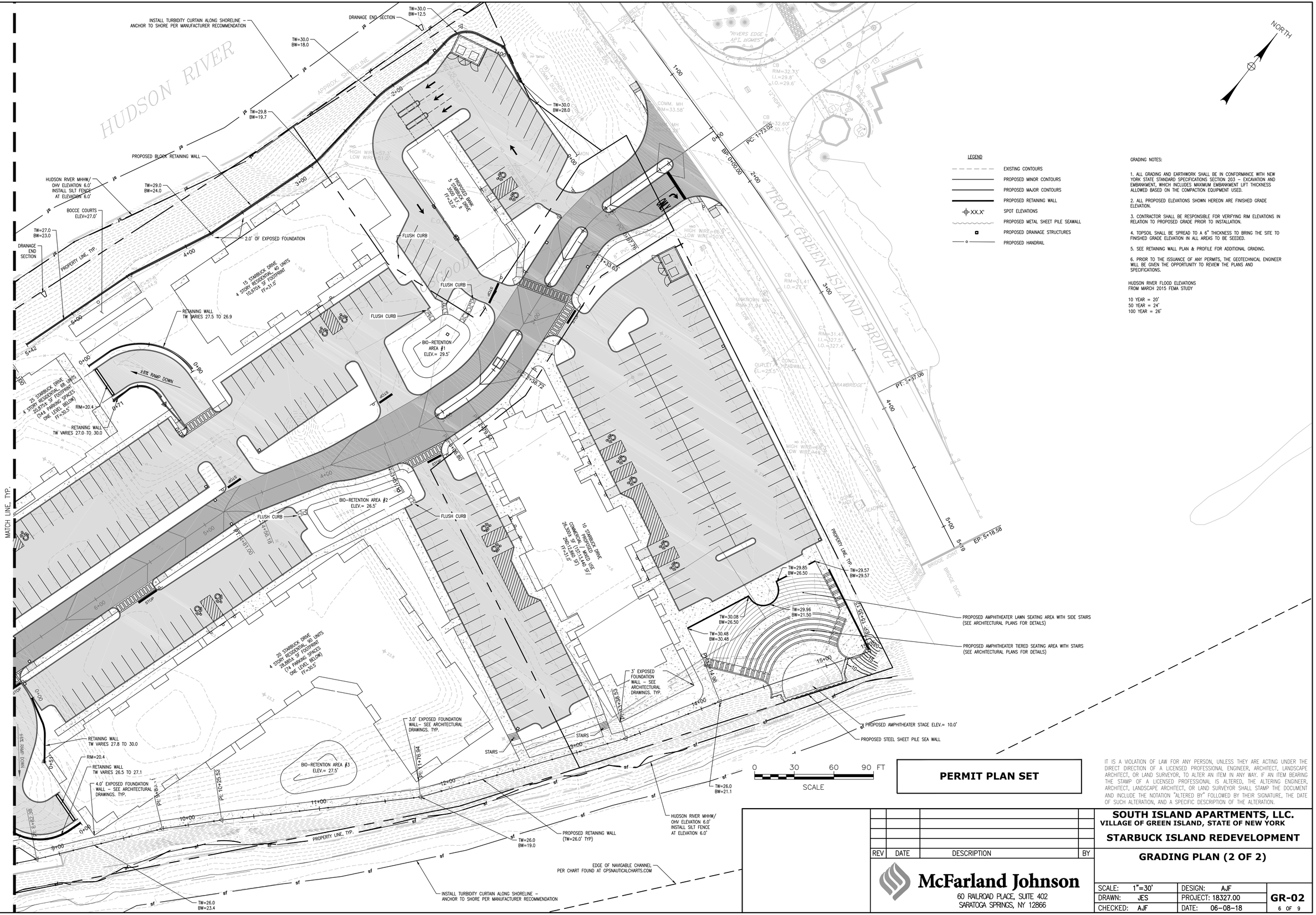
McFarland Johnson
60 RAILROAD PLACE, SUITE 402
SARATOGA SPRINGS, NY 12866

SOUTH ISLAND APARTMENTS, LLC.
VILLAGE OF GREEN ISLAND, STATE OF NEW YORK

STARBUCK ISLAND REDEVELOPMENT

GRADING PLAN (1 OF 2)

SCALE: 1" = 30'	DESIGN: AJF	GR-01
DRAWN: JES	PROJECT: 18327.00	
CHECKED: AJF	DATE: 06-08-18	5 OF 9



GRADING NOTES:

1. ALL GRADING AND EARTHWORK SHALL BE IN CONFORMANCE WITH NEW YORK STATE STANDARD SPECIFICATIONS SECTION 203 – EXCAVATION AND EMBANKMENT, WHICH INCLUDES MAXIMUM EMBANKMENT LIFT THICKNESS ALLOWED BASED ON THE COMPACTION EQUIPMENT USED.
2. ALL PROPOSED ELEVATIONS SHOWN HEREON ARE FINISHED GRADE ELEVATION.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING RIM ELEVATIONS IN RELATION TO PROPOSED GRADE PRIOR TO INSTALLATION.
4. TOPSOIL SHALL BE SPREAD TO A 6" THICKNESS TO BRING THE SITE TO FINISHED GRADE ELEVATION IN ALL AREAS TO BE SEEDED.
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HUDSON RIVER FLOOD ELEVATIONS
FROM MARCH 2015 FEMA STUDY

10 YEAR = 20'
50 YEAR = 24'
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PERMIT PLAN SET

REV	DATE	DESCRIPTION	BY

McFarland Johnson
60 RAILROAD PLACE, SUITE 402
SARATOGA SPRINGS, NY 12866

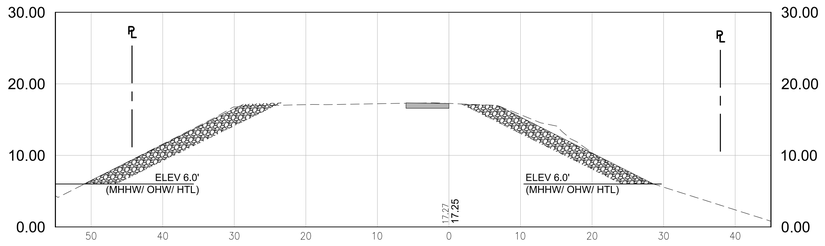
SOUTH ISLAND APARTMENTS, LLC.
VILLAGE OF GREEN ISLAND, STATE OF NEW YORK

STARBUCK ISLAND REDEVELOPMENT

GRADING PLAN (2 OF 2)

SCALE: 1"=30'	DESIGN: AJF		GR-02
DRAWN: JES	PROJECT: 18327.00		6 OF 9
CHECKED: AJF	DATE: 06-08-18		

EAST WALL



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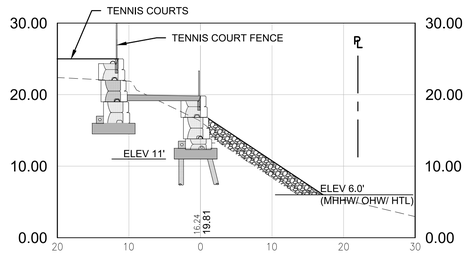

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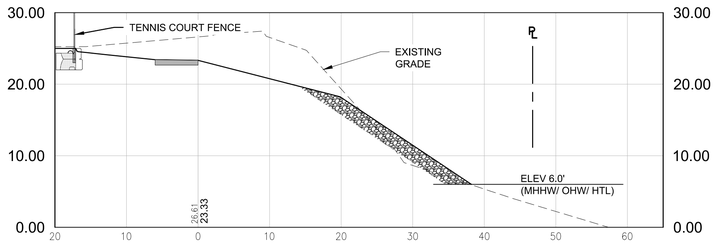

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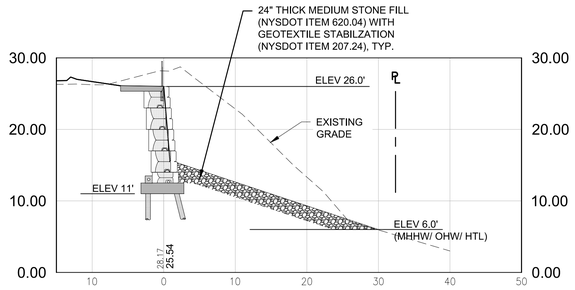

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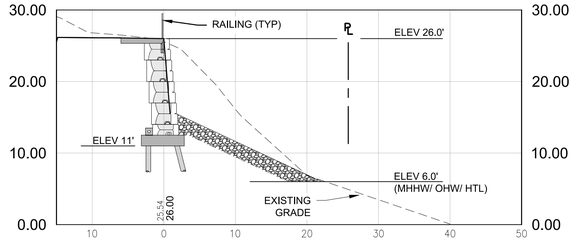

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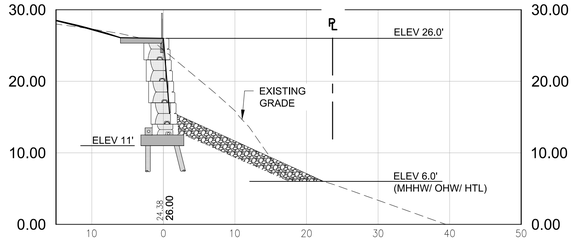

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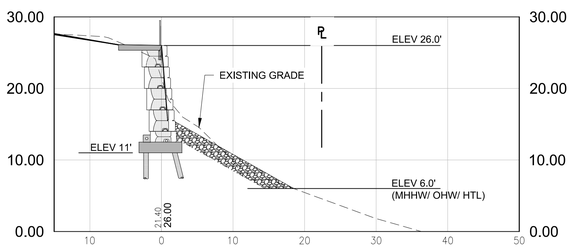

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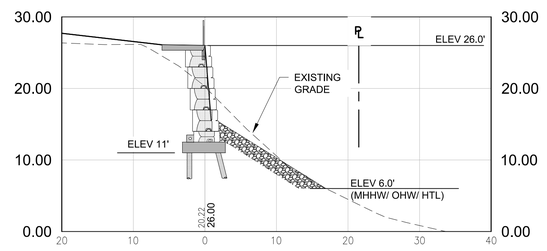

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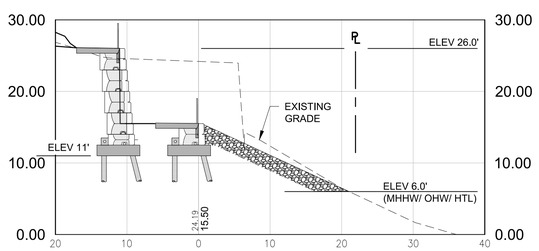


STA. 8+00.00

0 10 20 30 FT

SCALE

PERMIT PLAN SET

REV	DATE	DESCRIPTION	BY

McFarland Johnson
60 RAILROAD PLACE, SUITE 402
SARATOGA SPRINGS, NY 12866

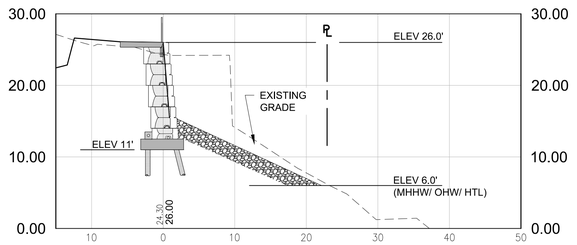
SOUTH ISLAND APARTMENTS, LLC.
VILLAGE OF GREEN ISLAND, STATE OF NEW YORK

STARBUCK ISLAND REDEVELOPMENT

CROSS SECTIONS

SCALE: 1" = 10'	DESIGN: AJF	**XS-01**	
DRAWN: JES	PROJECT: 18327.00		
CHECKED: AJF	DATE: 06-08-18	7 OF 9	

EAST WALL



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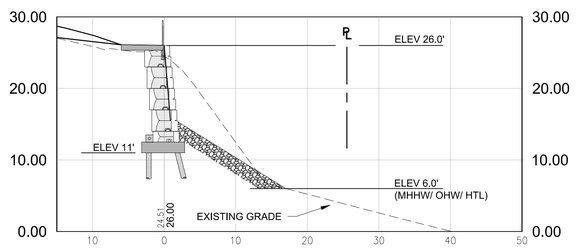

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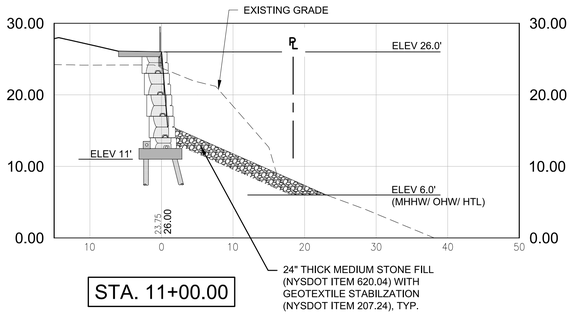

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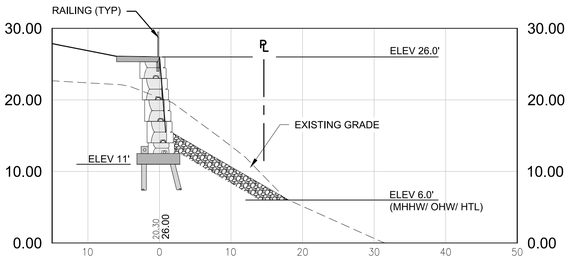

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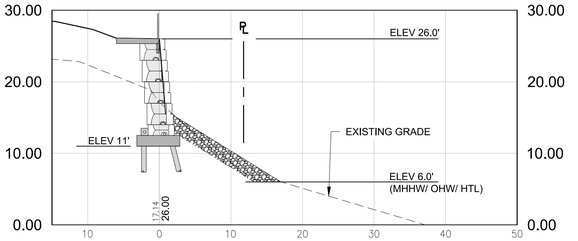

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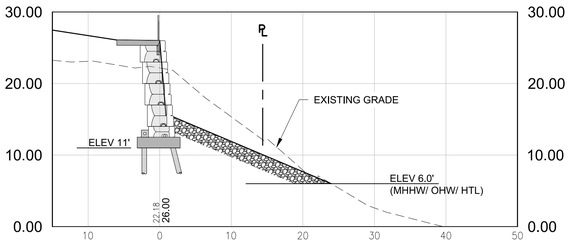

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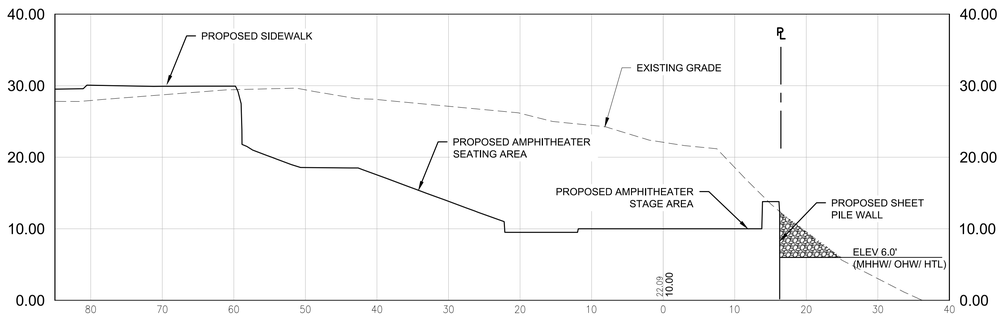


STA. 14+78.10

0 10 20 30 FT

SCALE

PERMIT PLAN SET

REV	DATE	DESCRIPTION	BY

McFarland Johnson
60 RAILROAD PLACE, SUITE 402
SARATOGA SPRINGS, NY 12866

SOUTH ISLAND APARTMENTS, LLC.
VILLAGE OF GREEN ISLAND, STATE OF NEW YORK

STARBUCK ISLAND REDEVELOPMENT

CROSS SECTIONS

SCALE: 1" = 10'	DESIGN: AJF	XS-02
DRAWN: JES	PROJECT: 18327.00	8 OF 9
CHECKED: AJF	DATE: 06-08-18	

APPENDIX B
DRAWINGS FOR WESTERN BANK WALL

envirospec ENGINEERING, PLLC

349 Northern Boulevard Suite 3▪ Albany, NY 12204 ▪ Phone: 518.453.2203 ▪ Fax: 518.453.2204

A Woman Owned Business Enterprise (WBE)

PROJECT DATA

1. APPLICANT:
LUIZZI BROS. DEVELOPMENT.
49 RAILROAD AVE
ALBANY, NEW YORK 12205

2. EXISTING ZONING: INDUSTRIAL/PLANNED DEVELOPMENT

3. LOT AREA: 11.26 ACRES (490,685 SF)
0.23 ACRES (OSGOOD AVENUE)

OFF-STREET PARKING

RESIDENTIAL DWELLINGS UNITS:
1 SPACES FOR EVERY DWELLING UNIT

TOTAL DWELLING UNITS PROPOSED = 276

REQUIRED:
276 TOTAL SPACES REQUIRED

PROVIDED:
SURFACE PARKING 210 TOTAL SPACES PROVIDED
PARKING UNDER BUILDING 194 TOTAL SPACES PROVIDED
404 TOTAL SPACES PROVIDED
(1.46 SPACES PER UNIT)
10 ACCESSIBLE SPACES

COMMERCIAL MIXED USE BUILDING:

AMPHITHEATER:
PLACES OF PUBLIC ASSEMBLY: ONE PARKING SPACE FOR EVERY 10 SEATS OR ONE PARKING SPACE FOR EVERY 100 SQUARE FEET OF FLOOR AREA. (WHICHEVER IS LESS)

ASSUMPTION PER SEATS NUMBER :
AMPHITHEATER : 100 SEATS X 1 SPACE/10 SEATS = 10 SPACES

OFFICE PARKING:
ONE PARKING SPACE, PLUS ONE PARKING SPACE FOR EVERY 200 SQUARE FEET OF OFFICE AREA.

REQUIRED: 1 SPACE + 9,500 S.F. X 1 SPACE/200 S.F. X = 49 SPACES

RESTAURANT (3,500 S.F):
ONE PARKING SPACE FOR EVERY FIVE SEATS

REQUIRED: 100 SEATS
100 SEATS X 1 SPACE/ 5 SEATS = 20 SPACES

COMMERCIAL & BUSINESS (RETAIL):
1 SPACE FOR EVERY 200 S.F. OF BUSINESS AREA

REQUIRED: 13,000 S.F.
13,000 X 1 SPACE / 200 S.F. = 65 SPACES
(2 ADA SPACES REQUIRED)

TOTAL REQUIRED: 144 SPACES
TOTAL PROVIDED: 115 SPACES
SHARED/ MULTIUSE SPACES CREDIT: 29 SPACES (20%)

BANK/ DRIVETHRU (3,500 SF):
1 SPACE FOR EVERY 200 SF OR 1 SPACE FOR EVERY 5 SEATS

REQUIRED: ASSUME 100 SEATS
100 SEATS X 1 SPACE/ 5 SEATS = 20 SPACES
PROVIDED: 25 SPACES

ADA SPACES REQUIRED:
PER 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN

REQUIRED (25 SPACE LOT): 1 SPACE
PROVIDED (25 SPACE LOT): 2 SPACES

REQUIRED (88 SPACE LOT): 5 SPACES
PROVIDED (88 SPACE LOT): 5 SPACES

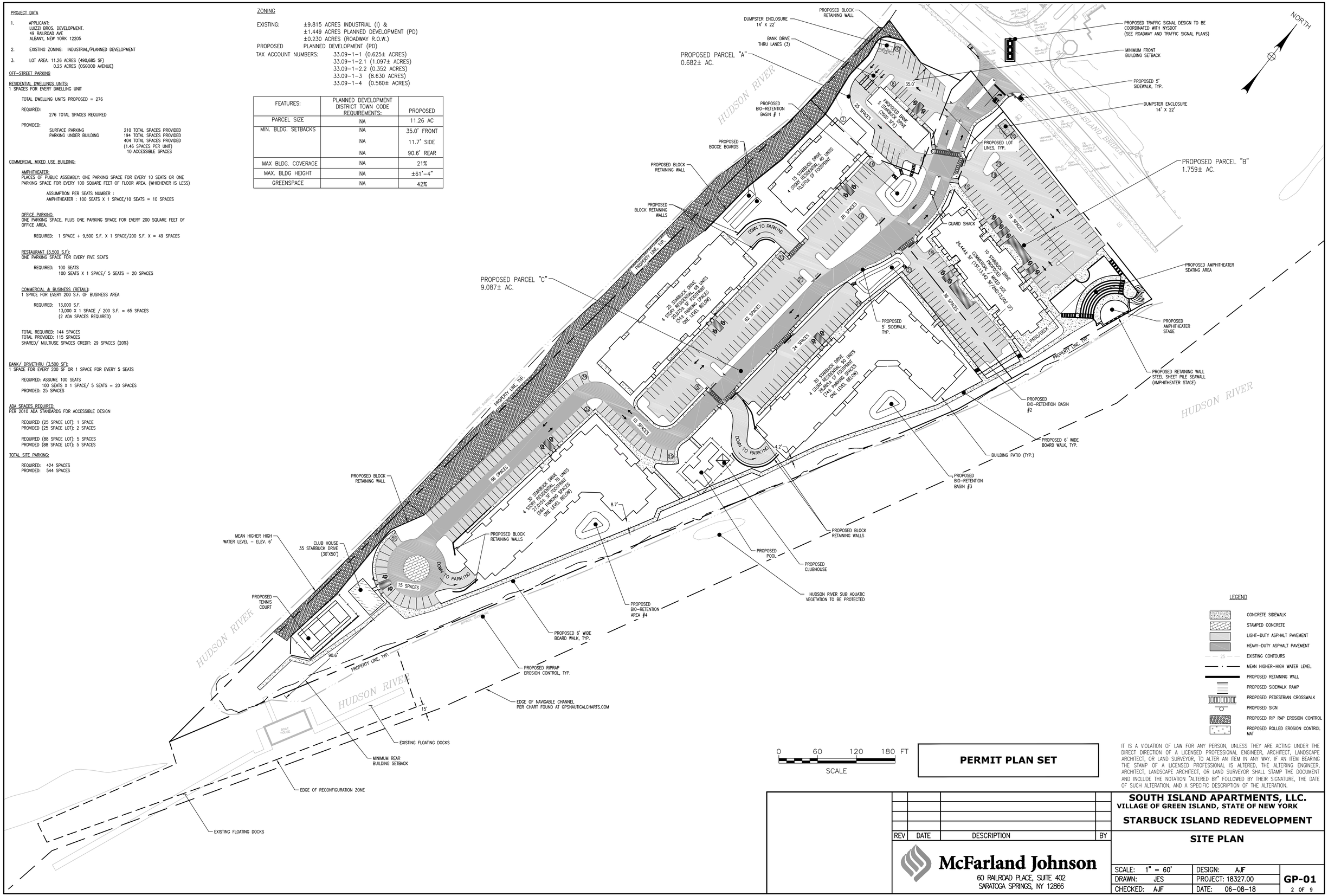
TOTAL SITE PARKING:

REQUIRED: 424 SPACES
PROVIDED: 544 SPACES

ZONING

EXISTING: ±9.815 ACRES INDUSTRIAL (I) &
±1.449 ACRES PLANNED DEVELOPMENT (PD)
±0.230 ACRES (ROADWAY R.O.W.)
PROPOSED PLANNED DEVELOPMENT (PD)
TAX ACCOUNT NUMBERS: 33.09-1-1 (0.625± ACRES)
33.09-1-2.1 (1.097± ACRES)
33.09-1-2.2 (0.352 ACRES)
33.09-1-3 (8.630 ACRES)
33.09-1-4 (0.560± ACRES)

FEATURES:	PLANNED DEVELOPMENT DISTRICT TOWN CODE REQUIREMENTS:	PROPOSED
PARCEL SIZE	NA	11.26 AC
MIN. BLDG. SETBACKS	NA	35.0' FRONT
	NA	11.7' SIDE
	NA	90.6' REAR
MAX BLDG. COVERAGE	NA	21%
MAX. BLDG HEIGHT	NA	±61'-4"
GREENSPACE	NA	42%



LEGEND

- CONCRETE SIDEWALK
- STAMPED CONCRETE
- LIGHT-DUTY ASPHALT PAVEMENT
- HEAVY-DUTY ASPHALT PAVEMENT
- 25 EXISTING CONTOURS
- MEAN HIGHER-HIGH WATER LEVEL
- PROPOSED RETAINING WALL
- PROPOSED SIDEWALK RAMP
- PROPOSED PEDESTRIAN CROSSWALK
- PROPOSED SIGN
- PROPOSED RIP RAP EROSION CONTROL
- PROPOSED ROLLED EROSION CONTROL MAT

0 60 120 180 FT
SCALE

PERMIT PLAN SET

REV	DATE	DESCRIPTION	BY

SOUTH ISLAND APARTMENTS, LLC.
VILLAGE OF GREEN ISLAND, STATE OF NEW YORK

STARBUCK ISLAND REDEVELOPMENT

SITE PLAN

McFarland Johnson
60 RAILROAD PLACE, SUITE 402
SARATOGA SPRINGS, NY 12866

SCALE: 1" = 60'	DESIGN: AJF	GP-01	
DRAWN: JES	PROJECT: 18327.00	2 OF 9	
CHECKED: AJF	DATE: 06-08-18		

LEGEND

- CONCRETE SIDEWALK
- STAMPED CONCRETE
- LIGHT-DUTY ASPHALT PAVEMENT
- HEAVY-DUTY ASPHALT PAVEMENT
- PROPOSED RETAINING WALL
- PROPOSED SIDEWALK RAMP
- PROPOSED PEDESTRIAN CROSSWALK
- PROPOSED SIGN
- PROPOSED CURBING
- PROPOSED HANDRAIL
- PROPOSED SHEET PILE WALL
- PROPOSED RIP RAP EROSION CONTROL
- PROPOSED ROLLED EROSION CONTROL

NORTH

MEDIAN HIGH WATER LEVEL - ELEV. 6'

APPROX. SHORELINE

PROPOSED WOOD GUIDERAILING (301 LF)

6" CONCRETE CURB, TYP.

PROPOSED RIP RAP EROSION CONTROL (TYP.)

PROPOSED MOUNTABLE CURBING

STAMPED CONCRETE CUL DE SAC ISLAND
COLORED AND IMPRINTED CONCRETE (NYSDOT ITEM 608.01020005)
COLOR AND PATTERN TO BE DETERMINED BY OWNER'S REPRESENTITIVE

5' WIDE CONCRETE SIDEWALK, TYP.

ACCESSIBLE PARKING SPACE MARKING, TYP.

HANDICAP PARKING SIGN (R7-8) (TYP.)

PROPOSED BLOCK RETAINING WALL WITH HANDRAIL/ TENNIS COURT FENCE (WALL 2)

ACCESSIBLE RAMP, TYPE 10

PROPERTY LINE, TYP.

PROPOSED HANDRAIL

PROPOSED TENNIS COURT

CLUB HOUSE
35 STARBUCK DRIVE
(30'X50')

PROPOSED PERIMETER FENCE
SEE DETAIL, SHEET DT-02

HUDSON RIVER

PAVEMENT MARKING, TYP.

ASPHALT PAVEMENT, TYP.

PROPOSED 5' WIDE CONCRETE SIDEWALK, TYP

ACCESSIBLE RAMP, TYPE 10

HANDICAP PARKING SIGN (R7-8) (TYP)

BLDG ENTRANCE

24.0' TYP.

18.0'

9.0'

5.1'

5.3'

R62.0'

R5.0'

R44.0'

R20.0'

R72.0'

R54.0'

R15.0'

R30.0'

R25.0'

R10.0'

R3.0'

R45.0'

R7.0'

R21.0'

R63.0'

R35.0'

R39.0'

6.0'

25 STARBUCK DRIVE
4 STORY RESIDENTIAL 68 UNITS
20,875± SF FOOTPRINT
(54± PARKING SPACES ONE LEVEL BELOW)

30 STARBUCK DRIVE
4 STORY RESIDENTIAL 78 UNITS
27,015± SF FOOTPRINT
(66± PARKING SPACES ONE LEVEL BELOW)

ACCESSIBLE RAMP, TYPE 10

PROPOSED 5' WIDE CONCRETE SIDEWALK, TYP

STOP BAR AND SIGN (R1-1)

PEDESTRIAN CROSSING SIGNS (W11A-2)

ACCESSIBLE RAMP, TYPE 1

PROPOSED CROSSWALK, TYP

ACCESSIBLE RAMP, TYPE 1

DOWN TO PARKING

MATCH LINE, TYP.

PROPOSED BLOCK RETAINING WALL WITH HANDRAIL (WALL 7)

PROPOSED POOL

PROPOSED CLUBHOUSE

PROPOSED BLOCK RETAINING WALL WITH HANDRAIL (WALL 6)

PROPOSED 6' WIDE BOARD WALK, TYP.

PROPOSED 4'(MIN) HIGH BLACK POWDER COATED METAL DECORATIVE FENCE. MANUFACTURER AND STYLE TO BE DETERMINED BY OWNERS REPRESENTATIVE.

PROPERTY LINE, TYP.

HANDICAP PARKING SIGN (R7-8) (TYP.)

PROPOSED BLOCK RETAINING WALL WITH TENNIS COURT FENCE (WALL 4)

PROPOSED HANDRAILS INTEGRATED INTO THE RETAINING WALL (TYP.)

PROPOSED BIO-RETENTION BASIN # 4

PROPOSED BLOCK RETAINING WALL WITH HANDRAIL (WALL 1)

PROPOSED BLOCK RETAINING WALL WITH HANDRAIL (WALL 5)

PROPOSED RIP RAP EROSION CONTROL, TYP.

BOAT HOUSE

EXISTING BOAT HOUSE AND DOCKS TO REMAIN

EDGE OF NAVIGABLE CHANNEL
PER CHART FOUND AT GPSNAUTICALCHARTS.COM

EDGE OF RECONFIGURATION ZONE

0 30 60 90 FT
SCALE

PERMIT PLAN SET

REV	DATE	DESCRIPTION	BY

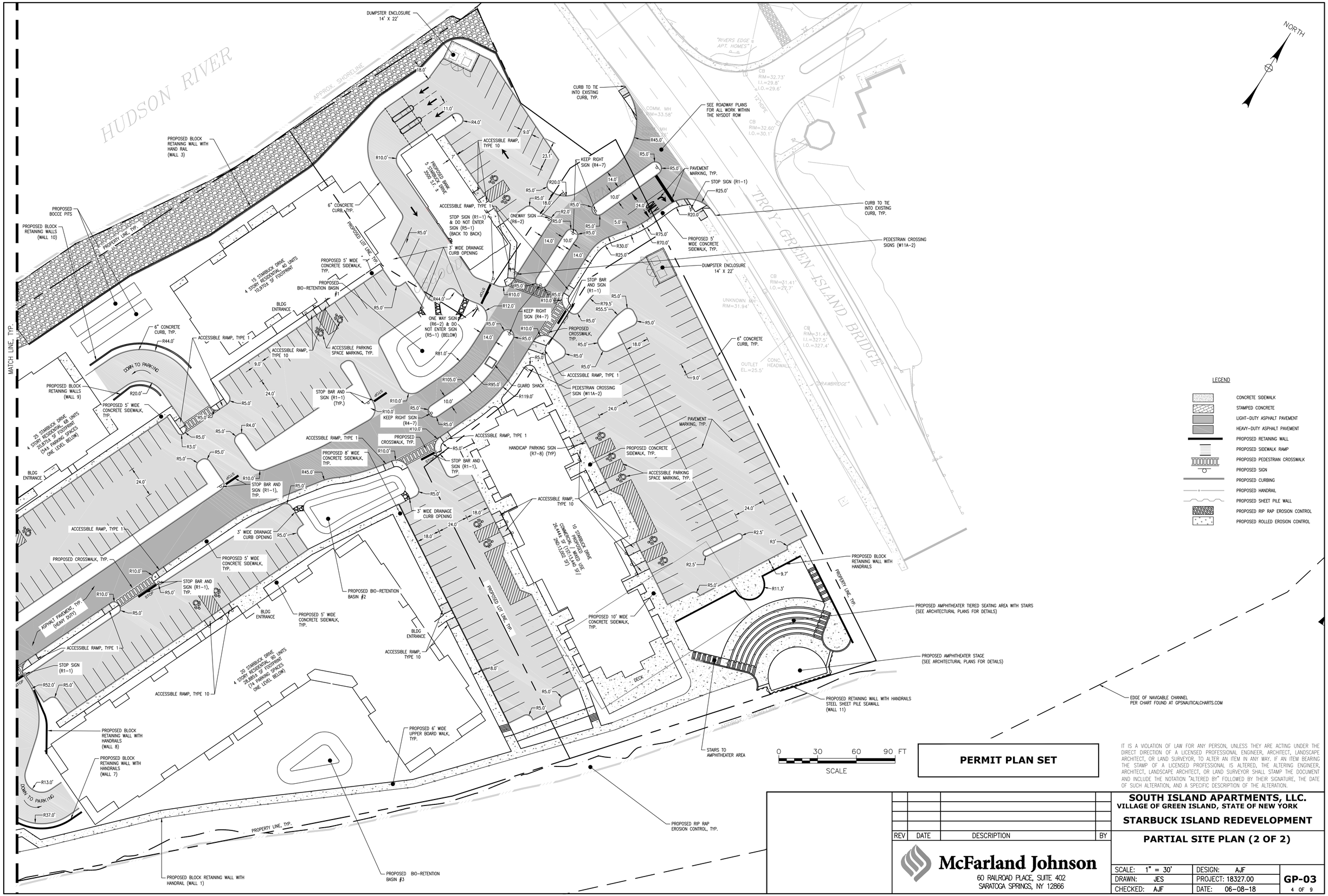
SOUTH ISLAND APARTMENTS, LLC.
VILLAGE OF GREEN ISLAND, STATE OF NEW YORK

STARBUCK ISLAND REDEVELOPMENT

PARTIAL SITE PLAN (1 OF 2)

McFarland Johnson
60 RAILROAD PLACE, SUITE 402
SARATOGA SPRINGS, NY 12866

SCALE: 1" = 30'	DESIGN: AJF	GP-02
DRAWN: JES	PROJECT: 18327.00	
CHECKED: AJF	DATE: 06-08-18	3 OF 9



PERMIT PLAN SET

REV	DATE	DESCRIPTION	BY

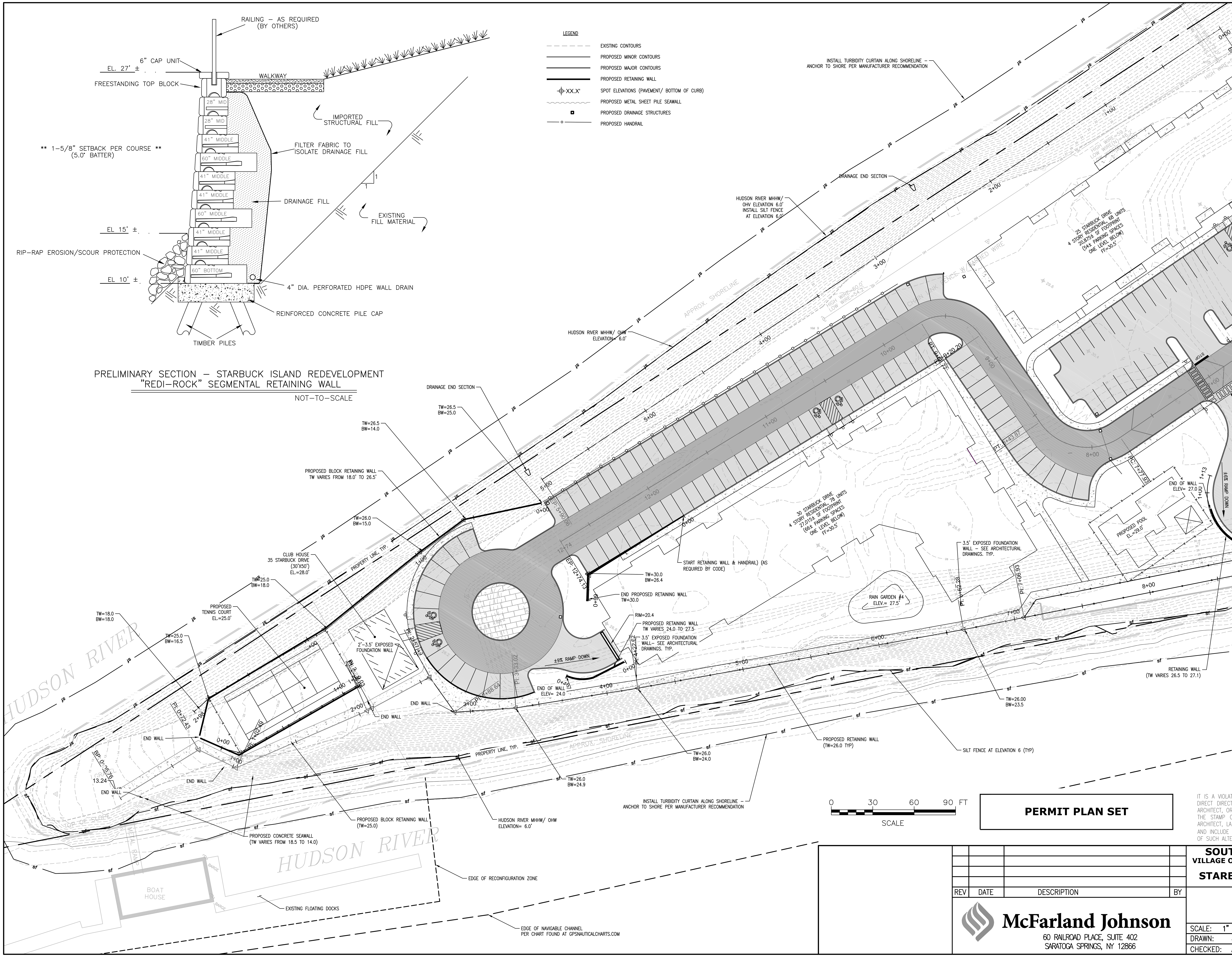
McFarland Johnson
60 RAILROAD PLACE, SUITE 402
SARATOGA SPRINGS, NY 12866

SOUTH ISLAND APARTMENTS, LLC.
VILLAGE OF GREEN ISLAND, STATE OF NEW YORK

STARBUCK ISLAND REDEVELOPMENT

PARTIAL SITE PLAN (2 OF 2)

SCALE: 1" = 30'	DESIGN: AJF	**GP-03**
DRAWN: JES	PROJECT: 18327.00	4 OF 9
CHECKED: AJF	DATE: 06-08-18	


RAILING – AS REQUIRED (BY OTHERS)
6" CAP UNIT
EL. 27' ±
FREESTANDING TOP BLOCK
WALKWAY
IMPORTED STRUCTURAL FILL
** 1-5/8" SETBACK PER COURSE ** (5.0° BATTER)
FILTER FABRIC TO ISOLATE DRAINAGE FILL
DRAINAGE FILL
EXISTING FILL MATERIAL
EL 15' ±
RIP-RAP EROSION/SCOUR PROTECTION
EL 10' ±
4" DIA. PERFORATED HDPE WALL DRAIN
REINFORCED CONCRETE PILE CAP
TIMBER PILES
PRELIMINARY SECTION – STARBUCK ISLAND REDEVELOPMENT "REDI-ROCK" SEGMENTAL RETAINING WALL
NOT-TO-SCALE
NORTH
INSTALL TURBIDITY CURTAIN ALONG SHORELINE – ANCHOR TO SHORE PER MANUFACTURER RECOMMENDATION
DRAINAGE END SECTION
HUDSON RIVER MHHW/ OHV ELEVATION 6.0' INSTALL SILT FENCE AT ELEVATION 6.0'
25 STARBUCK DRIVE 4 STORY RESIDENTIAL 68 UNITS
30 STARBUCK DRIVE 4 STORY RESIDENTIAL 78 UNITS
HUDSON RIVER MHHW/ OHW ELEVATION= 6.0'
PROPOSED BLOCK RETAINING WALL TW VARIES FROM 18.0' TO 26.5'
CLUB HOUSE 35 STARBUCK DRIVE (30'X50') EL.=28.0'
PROPOSED TENNIS COURT EL.=25.0'
2'-3.5' EXPOSED FOUNDATION WALL
START RETAINING WALL & HANDRAIL (AS REQUIRED BY CODE)
END PROPOSED RETAINING WALL TW=30.0
PROPOSED RETAINING WALL TW VARIES 24.0 TO 27.5
3.5' EXPOSED FOUNDATION WALL– SEE ARCHITECTURAL DRAWINGS. TYP.
±9% RAMP DOWN
RAIN GARDEN #4 ELEV.= 27.5'
PROPOSED POOL EL.=29.0'
END OF WALL ELEV= 27.0
MATCH LINE, TYP.
RETAINING WALL (TW VARIES 26.5 TO 27.1)
SILT FENCE AT ELEVATION 6 (TYP)
PROPOSED RETAINING WALL (TW=26.0 TYP)
PROPOSED CONCRETE SEAWALL (TW VARIES FROM 18.5 TO 14.0)
PROPOSED BLOCK RETAINING WALL (TW=25.0)
HUDSON RIVER MHHW/ OHW ELEVATION= 6.0'
INSTALL TURBIDITY CURTAIN ALONG SHORELINE – ANCHOR TO SHORE PER MANUFACTURER RECOMMENDATION
HUDSON RIVER
BOAT HOUSE
EDGE OF RECONFIGURATION ZONE
EXISTING FLOATING DOCKS
EDGE OF NAVIGABLE CHANNEL PER CHART FOUND AT GPSNAUTICALCHARTS.COM
0 30 60 90 FT
SCALE

LEGEND

- EXISTING CONTOURS
- PROPOSED MINOR CONTOURS
- PROPOSED MAJOR CONTOURS
- PROPOSED RETAINING WALL
- XX.X' SPOT ELEVATIONS (PAVEMENT/ BOTTOM OF CURB)
- PROPOSED METAL SHEET PILE SEAWALL
- PROPOSED DRAINAGE STRUCTURES
- PROPOSED HANDRAIL

GRADING NOTES:

1. ALL GRADING AND EARTHWORK SHALL BE IN CONFORMANCE WITH NEW YORK STATE STANDARD SPECIFICATIONS SECTION 203 – EXCAVATION AND EMBANKMENT, WHICH INCLUDES MAXIMUM EMBANKMENT LIFT THICKNESS ALLOWED BASED ON THE COMPACTION EQUIPMENT USED.

2. ALL PROPOSED ELEVATIONS SHOWN HEREON ARE FINISHED GRADE ELEVATION.

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5. SEE RETAINING WALL PLAN & PROFILE FOR ADDITIONAL GRADING.

6. PRIOR TO THE ISSUANCE OF ANY PERMITS, THE GEOTECHNICAL ENGINEER WILL BE GIVEN THE OPPORTUNITY TO REVIEW THE PLANS AND SPECIFICATIONS.

HUDSON RIVER FLOOD ELEVATIONS
FROM MARCH 2015 FEMA STUDY

10 YEAR = 20'
50 YEAR = 24'
100 YEAR = 26'

PERMIT PLAN SET

REV	DATE	DESCRIPTION	BY

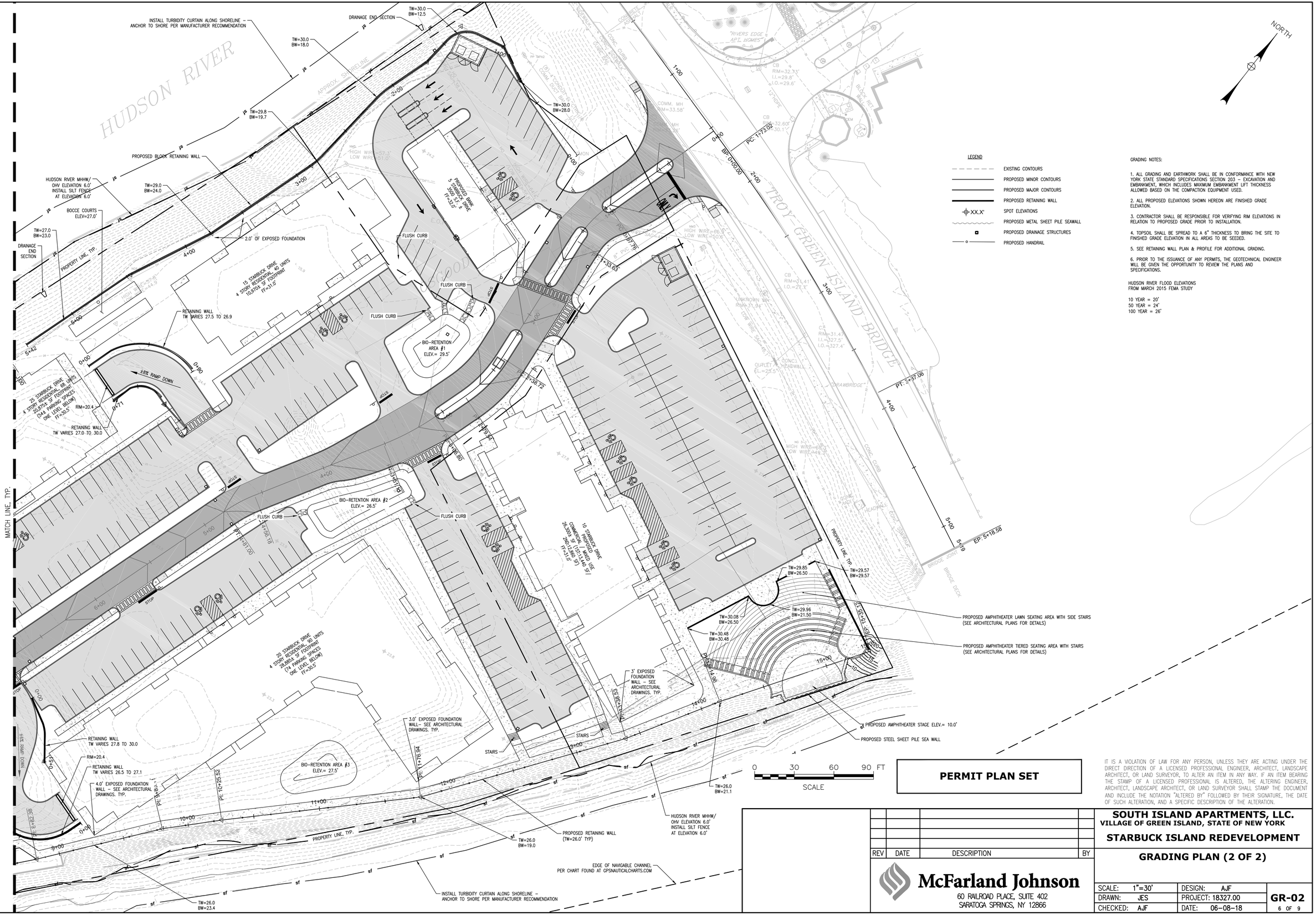
McFarland Johnson
60 RAILROAD PLACE, SUITE 402
SARATOGA SPRINGS, NY 12866

SOUTH ISLAND APARTMENTS, LLC.
VILLAGE OF GREEN ISLAND, STATE OF NEW YORK

STARBUCK ISLAND REDEVELOPMENT

GRADING PLAN (1 OF 2)

SCALE: 1" = 30'	DESIGN: AJF	**GR-01**
DRAWN: JES	PROJECT: 18327.00	
CHECKED: AJF	DATE: 06-08-18	5 OF 9



GRADING NOTES:

1. ALL GRADING AND EARTHWORK SHALL BE IN CONFORMANCE WITH NEW YORK STATE STANDARD SPECIFICATIONS SECTION 203 – EXCAVATION AND EMBANKMENT, WHICH INCLUDES MAXIMUM EMBANKMENT LIFT THICKNESS ALLOWED BASED ON THE COMPACTION EQUIPMENT USED.
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HUDSON RIVER FLOOD ELEVATIONS
FROM MARCH 2015 FEMA STUDY

10 YEAR = 20'
50 YEAR = 24'
100 YEAR = 26'

PERMIT PLAN SET

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SARATOGA SPRINGS, NY 12866

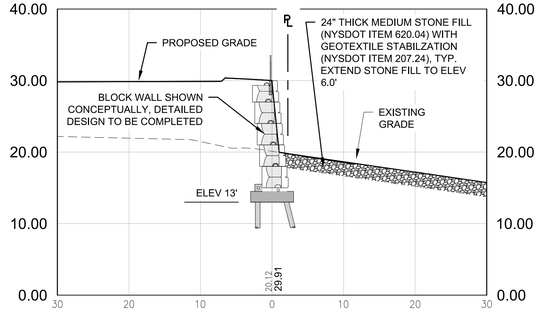
SOUTH ISLAND APARTMENTS, LLC.
VILLAGE OF GREEN ISLAND, STATE OF NEW YORK

STARBUCK ISLAND REDEVELOPMENT

GRADING PLAN (2 OF 2)

SCALE: 1"=30'	DESIGN: AJF		GR-02
DRAWN: JES	PROJECT: 18327.00		6 OF 9
CHECKED: AJF	DATE: 06-08-18		

NORTHWEST WALL



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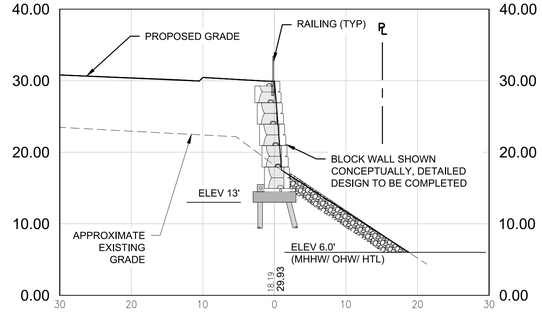

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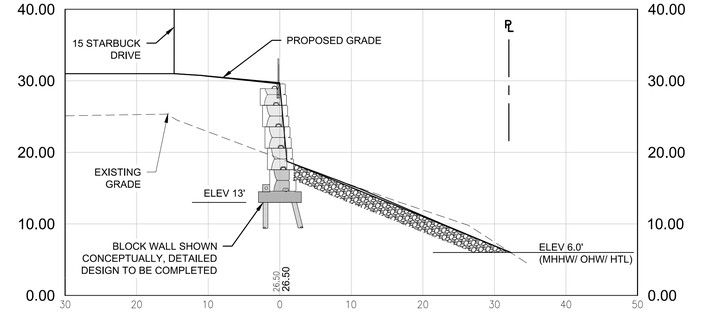

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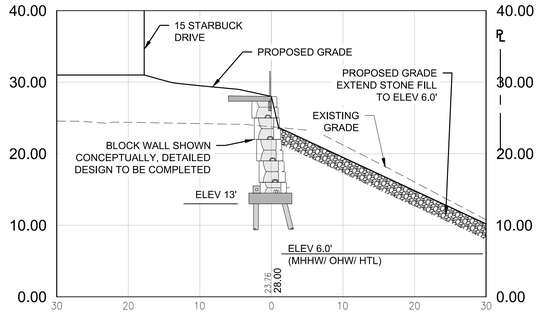

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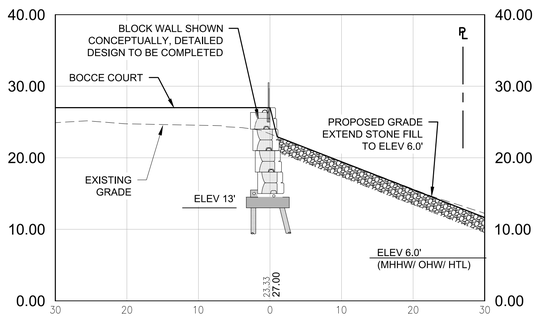

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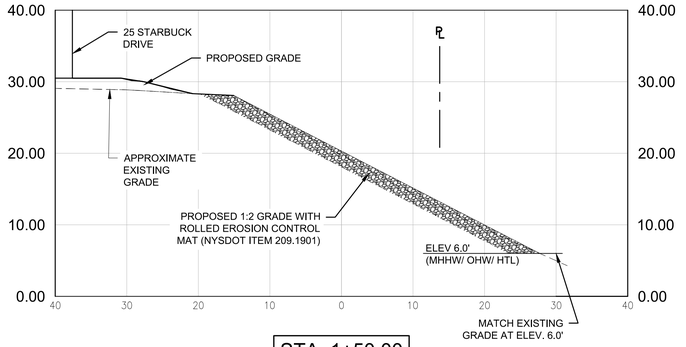
WEST BANK



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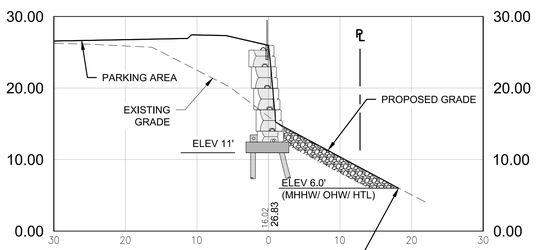
SOUTHWEST WALL



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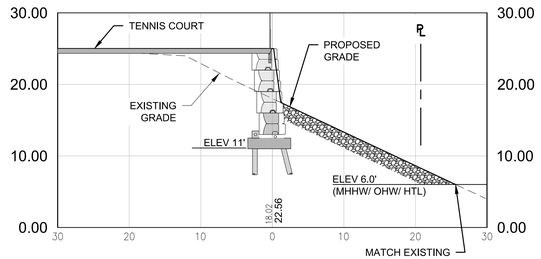

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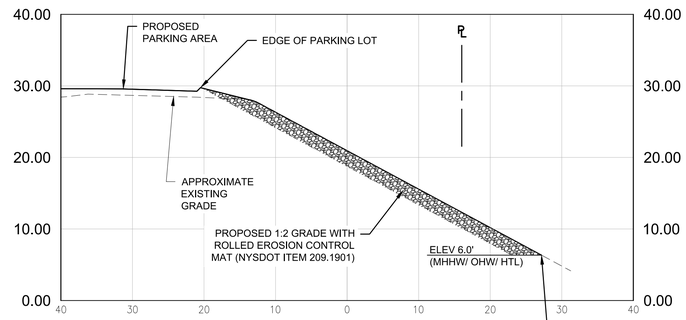


STA. 4+50.00

0 10 20 30 FT
SCALE

PERMIT PLAN SET

REV	DATE	DESCRIPTION	BY

McFarland Johnson
60 RAILROAD PLACE, SUITE 402
SARATOGA SPRINGS, NY 12866

SOUTH ISLAND APARTMENTS, LLC.
VILLAGE OF GREEN ISLAND, STATE OF NEW YORK

STARBUCK ISLAND REDEVELOPMENT

CROSS SECTIONS

SCALE: 1" = 10'	DESIGN: AJF	XS-03
DRAWN: JES	PROJECT: 18327.00	9 OF 9
CHECKED: AJF	DATE: 06-08-18	

APPENDIX C
COST ESTIMATES FOR UNRESTRICTED AND RESTRICTED RESIDENTIAL USE REMEDIES

envirospec ENGINEERING, PLLC
349 Northern Boulevard Suite 3▪ Albany, NY 12204 ▪ Phone: 518.453.2203 ▪ Fax: 518.453.2204
A Woman Owned Business Enterprise (WBE)

Table 3. Unrestricted Use Remedy Costs

Site Work

Description	Quantity	Unit cost	Total
Excavation	530,805	$25/yd^3	$ 13,270,123
Sampling	1,037	$600/sample	$ 622,200
Disposal	796,207	$35/ton	$ 27,867,258
Backfill of Excavations	445,499	$10/yd^3	$ 4,454,994
Equipment rental (PID, dust monitors)	LS	21,076.00	$ 21,076
DIRECT COST SUBTOTAL			$ 46,235,651
Reporting	LS	15,000	$ 15,000
Oversight Costs			$ 249,480
Contingency		15%	$ 6,935,348
INDIRECT COSTS SUBTOTAL			$ 7,199,828
			$ 53,435,479

Capital Cost =	$	53,435,479
Yearly O&M Costs =		
Annual O&M Cost	$	-
Present Worth 30 year O&M Costs =	$	-
Total Present Worth =	$	53,435,479

Notes:
LS - lump sum

Table 4. Restricted Residential Use Remedy Cost

Site Work

Description	Quantity	Unit cost	Total
Installation of cover	360,035	Varies	$ 4,284,793
Equipment rental (PID, dust monitors)	LS	3,194	$ 3,194
Wall Construction	LS		$ 3,500,000
DIRECT COST SUBTOTAL			$ 7,787,987
Reporting	LS	15,000	$ 15,000
Oversight Costs			$ 71,700
Contingency		15%	$ 1,168,198
INDIRECT COSTS SUBTOTAL			$ 1,254,898
			$ 9,042,885

* Ranges from $8/ft^2 to $15/ft^2 depending on whether asphalt or soil cover.

Annual Soil Cover O&M

Description	Quantity	Unit cost	Total
Maintenance	LS	5,000	$ 5,000
Site Inspections	LS	1,120	$ 1,120
Annual Reporting and Certifications	LS	3,500	$ 3,500
Total O&M			$ 9,620

Capital Cost =	$ 9,042,885
Annual O&M Cost	$ 9,620
Present Worth 30 year O&M Costs =	$ 166,349
Total Present Worth =	$ 9,209,234

Notes:
LS - lump sum
Net P/A rate set at 4%

APPENDIX D
DEVELOPMENT DRAWINGS

envirospec ENGINEERING, PLLC

349 Northern Boulevard Suite 3▪ Albany, NY 12204 ▪ Phone: 518.453.2203 ▪ Fax: 518.453.2204

A Woman Owned Business Enterprise (WBE)

ZONING

EXISTING: ±9.815 ACRES INDUSTRIAL (I) &
±1.449 ACRES PLANNED DEVELOPMENT (PD)
±0.230 ACRES (ROADWAY R.O.W.)

PROPOSED PLANNED DEVELOPMENT (PD)

TAX ACCOUNT NUMBERS: 33.09-1-1 (0.625± ACRES)
33.09-1-2.1 (1.097± ACRES)
33.09-1-2.2 (0.352 ACRES)
33.09-1-3 (8.630 ACRES)
33.09-1-4 (0.560± ACRES)

FEATURES:	PLANNED DEVELOPMENT DISTRICT TOWN CODE REQUIREMENTS:	PROPOSED
PARCEL SIZE	NA	11.26 AC
MIN. BLDG. SETBACKS	NA	35.0' FRONT
	NA	11.7' SIDE
	NA	90.6' REAR
MAX BLDG. COVERAGE	NA	21%
MAX. BLDG HEIGHT	NA	±61'-4"
GREENSPACE	NA	42%

PROJECT DATA

1. APPLICANT:
LUZZI BROS. DEVELOPMENT.
49 RAILROAD AVE
ALBANY, NEW YORK 12205

2. EXISTING ZONING: INDUSTRIAL/PLANNED DEVELOPMENT

3. LOT AREA: 11.26 ACRES (490,685 SF)
0.23 ACRES (OSGOOD AVENUE)

OFF-STREET PARKING

RESIDENTIAL DWELLINGS UNITS:
1 SPACES FOR EVERY DWELLING UNIT

TOTAL DWELLING UNITS PROPOSED = 276

REQUIRED:
276 TOTAL SPACES REQUIRED

PROVIDED:
SURFACE PARKING 210 TOTAL SPACES PROVIDED
PARKING UNDER BUILDING 194 TOTAL SPACES PROVIDED
404 TOTAL SPACES PROVIDED
(1.46 SPACES PER UNIT)
10 ACCESSIBLE SPACES

COMMERCIAL MIXED USE BUILDING:

AMPHITHEATER:
PLACES OF PUBLIC ASSEMBLY: ONE PARKING SPACE FOR EVERY 10 SEATS OR ONE PARKING SPACE FOR EVERY 100 SQUARE FEET OF FLOOR AREA. (WHICHEVER IS LESS)

ASSUMPTION PER SEATS NUMBER :
AMPHITHEATER : 100 SEATS X 1 SPACE/10 SEATS = 10 SPACES

OFFICE PARKING:
ONE PARKING SPACE, PLUS ONE PARKING SPACE FOR EVERY 200 SQUARE FEET OF OFFICE AREA.

REQUIRED: 1 SPACE + 9,500 S.F. X 1 SPACE/200 S.F. X = 49 SPACES

RESTAURANT (3,500 S.F):
ONE PARKING SPACE FOR EVERY FIVE SEATS

REQUIRED: 100 SEATS
100 SEATS X 1 SPACE/ 5 SEATS = 20 SPACES

COMMERCIAL & BUSINESS (RETAIL):
1 SPACE FOR EVERY 200 S.F. OF BUSINESS AREA

REQUIRED: 13,000 S.F.
13,000 X 1 SPACE / 200 S.F. = 65 SPACES
(2 ADA SPACES REQUIRED)

TOTAL REQUIRED: 144 SPACES
TOTAL PROVIDED: 115 SPACES
SHARED/ MULTIUSE SPACES CREDIT: 29 SPACES (20%)

BANK/ DRIVETHRU (3,500 SF):
1 SPACE FOR EVERY 200 SF OR 1 SPACE FOR EVERY 5 SEATS

REQUIRED: ASSUME 100 SEATS
100 SEATS X 1 SPACE/ 5 SEATS = 20 SPACES
PROVIDED: 25 SPACES

ADA SPACES REQUIRED:
PER 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN

REQUIRED (25 SPACE LOT): 1 SPACE
PROVIDED (25 SPACE LOT): 2 SPACES

REQUIRED (88 SPACE LOT): 5 SPACES
PROVIDED (88 SPACE LOT): 5 SPACES

TOTAL SITE PARKING:

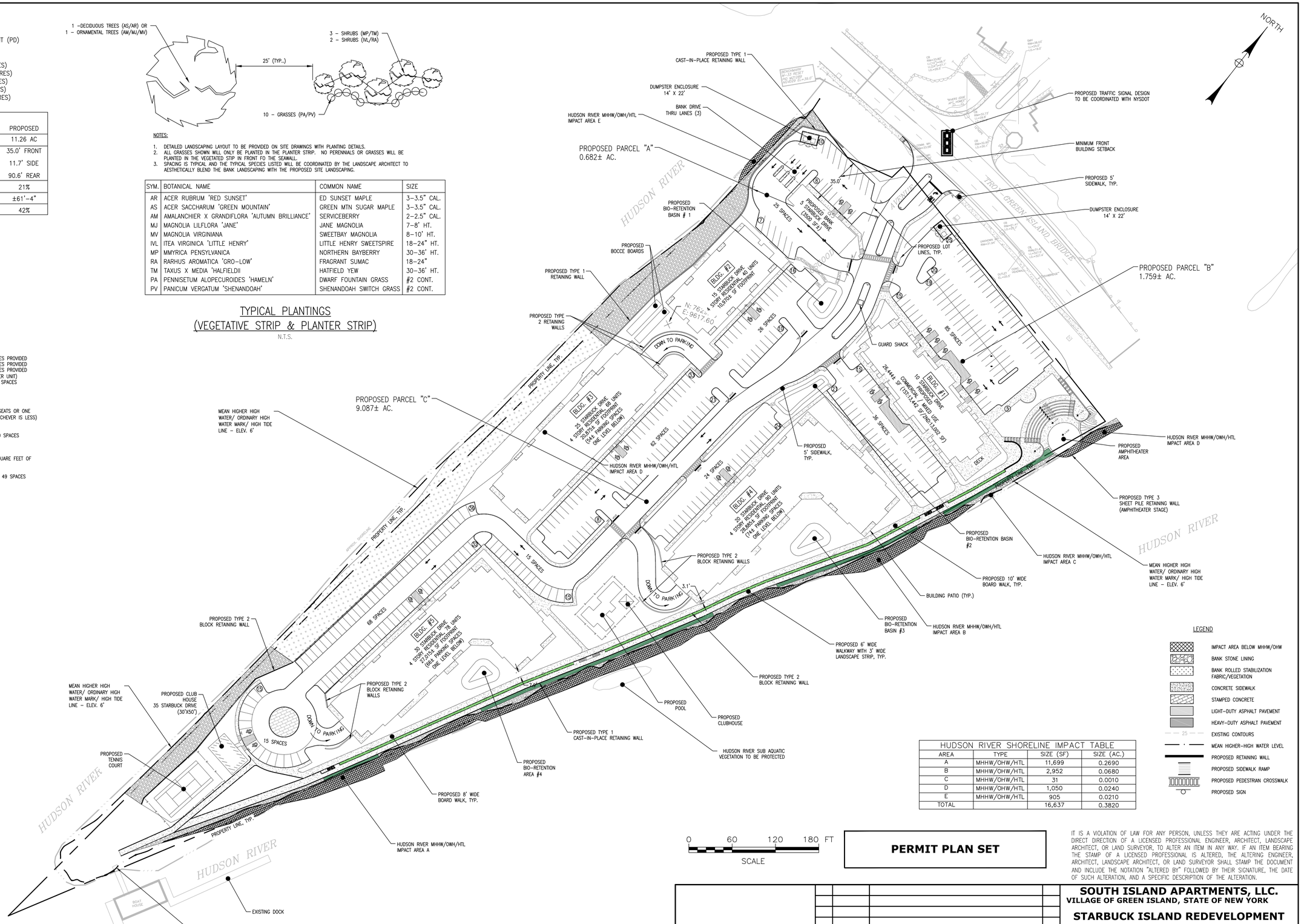
REQUIRED: 424 SPACES
PROVIDED: 550 SPACES

NOTES:

1. DETAILED LANDSCAPING LAYOUT TO BE PROVIDED ON SITE DRAWINGS WITH PLANTING DETAILS.
2. ALL GRASSES SHOWN WILL ONLY BE PLANTED IN THE PLANTER STRIP. NO PERENNIALS OR GRASSES WILL BE PLANTED IN THE VEGETATED STIP IN FRONT FO THE SEAWALL.
3. SPACING IS TYPICAL AND THE TYPICAL SPECIES LISTED WILL BE COORDINATED BY THE LANDSCAPE ARCHITECT TO AESTHETICALLY BLEND THE BANK LANDSCAPING WITH THE PROPOSED SITE LANDSCAPING.

SYM.	BOTANICAL NAME	COMMON NAME	SIZE
AR	ACER RUBRUM 'RED SUNSET'	ED SUNSET MAPLE	3-3.5" CAL.
AS	ACER SACCHARUM 'GREEN MOUNTAIN'	GREEN MTN SUGAR MAPLE	3-3.5" CAL.
AM	AMALANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	SERVICEBERRY	2-2.5" CAL.
MJ	MAGNOLIA LILFLORA 'JANE'	JANE MAGNOLIA	7-8' HT.
MV	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	8-10' HT.
IVL	ITEA VIRGINICA 'LITTLE HENRY'	LITTLE HENRY SWEETSPIRE	18-24" HT.
MP	MMYRICA PENSYLVANICA	NORTHERN BAYBERRY	30-36' HT.
RA	RARHUS AROMATICA 'GRO-LOW'	FRAGRANT SUMAC	18-24"
TM	TAXUS X MEDIA 'HALFIELDII	HATFIELD YEW	30-36' HT.
PA	PENNISETUM ALOPECUROIDES 'HAMELN'	DWARF FOUNTAIN GRASS	#2 CONT.
PV	PANICUM VERGATUM 'SHENANDOAH'	SHENANDOAH SWITCH GRASS	#2 CONT.

TYPICAL PLANTINGS
(VEGETATIVE STRIP & PLANTER STRIP)
N.T.S.



LEGEND

- IMPACT AREA BELOW MHHW/OHW
- BANK STONE LINING
- BANK ROLLED STABILIZATION FABRIC/VEGETATION
- CONCRETE SIDEWALK
- STAMPED CONCRETE
- LIGHT-DUTY ASPHALT PAVEMENT
- HEAVY-DUTY ASPHALT PAVEMENT
- EXISTING CONTOURS
- MEAN HIGHER-HIGH WATER LEVEL
- PROPOSED RETAINING WALL
- PROPOSED SIDEWALK RAMP
- PROPOSED PEDESTRIAN CROSSWALK
- PROPOSED SIGN

HUDSON RIVER SHORELINE IMPACT TABLE

AREA	TYPE	SIZE (SF)	SIZE (AC.)
A	MHHW/OHW/HTL	11,699	0.2690
B	MHHW/OHW/HTL	2,952	0.0680
C	MHHW/OHW/HTL	31	0.0010
D	MHHW/OHW/HTL	1,050	0.0240
E	MHHW/OHW/HTL	905	0.0210
TOTAL		16,637	0.3820

0 60 120 180 FT
SCALE

PERMIT PLAN SET

REV	DATE	DESCRIPTION	BY

McFarland Johnson
2525 STATE ROUTE 332
CANANDAIGUA, NEW YORK 14424

SOUTH ISLAND APARTMENTS, LLC.
VILLAGE OF GREEN ISLAND, STATE OF NEW YORK
STARBUCK ISLAND REDEVELOPMENT

SITE PLAN

SCALE: 1" = 60'	DESIGN: AJF	GP-01
DRAWN: JES	PROJECT: 18327.00	
CHECKED: AJF	DATE: 03-09-18	2 OF 9

LEGEND

- IMPACT AREA BELOW MHHW/OHW
- BANK STONE LINING
- BANK ROLLED STABILIZATION FABRIC/VEGETATION
- CONCRETE SIDEWALK
- STAMPED CONCRETE
- LIGHT-DUTY ASPHALT PAVEMENT
- HEAVY-DUTY ASPHALT PAVEMENT
- 25 — EXISTING CONTOURS
- MEAN HIGHER-HIGH WATER LEVEL
- PROPOSED RETAINING WALL
- PROPOSED SIDEWALK RAMP
- PROPOSED PEDESTRIAN CROSSWALK
- PROPOSED SIGN

NORTH

BLDG. #3
25 STARBUCK DRIVE
4 STORY RESIDENTIAL 68
20,875± SF FOOTPRINT
(54± PARKING SPACES
ONE LEVEL BELOW)

BLDG. #5
30 STARBUCK DRIVE
4 STORY RESIDENTIAL 78
21,015± SF FOOTPRINT
(66± PARKING SPACES
ONE LEVEL BELOW)

APPROX. SHORELINE

MEAN HIGHER HIGH WATER/
ORDINARY HIGH WATER MARK/
HIGH TIDE LINE - ELEV. 6'

PROPOSED WOOD GUIDERAILING

6" CONCRETE CURB, TYP.

PROPOSED BANK STABILIZATION - ROLLED FABRIC, TYP.

PROPOSED BANK STABILIZATION STONE LINING, TYP.

PROPOSED MOUNTABLE CURBING

5' WIDE CONCRETE SIDEWALK, TYP.

STAMPED CONCRETE CUL DE SAC ISLAND

ACCESSIBLE PARKING SPACE MARKING, TYP.

HANDICAP PARKING SIGN (R7-8) (TYP.)

PROPERTY LINE, TYP.

PROPOSED TYPE 2 BLOCK RETAINING WALL

ACCESSIBLE RAMP, TYPE 10

PROPOSED HANDRAIL

PROPOSED CLUB HOUSE
35 STARBUCK DRIVE
(30'X50')

PROPOSED PERIMETER FENCE
SEE DETAIL, SHEET DT-02

PROPOSED TENNIS COURT

HUDSON RIVER

HUDSON RIVER

BOAT HOUSE

EXISTING BOAT HOUSE AND DOCKS TO REMAIN

PROPOSED HANDRAIL
SEE DETAIL ON DWG DT-02

HANDICAP PARKING SIGN (R7-8) (TYP.)

PROPOSED TYPE 1
CAST-IN-PLACE RETAINING WALL
WITH HANDRAILS (SEE STRUCTURAL
PLANS)

HUDSON RIVER MHHW/OWH/HTL
IMPACT AREA A

PROPOSED TYPE 2 BLOCK
RETAINING WALL WITH HANDRAILS

PROPOSED TYPE 1
CAST-IN-PLACE RETAINING WALL
WITH HANDRAILS (SEE STRUCTURAL
PLANS)

PROPOSED TYPE 2 BLOCK
RETAINING WALL WITH HANDRAILS

PROPOSED TYPE 2 BLOCK RETAINING WALL WITH HANDRAIL

PROPOSED 8' WIDE UPPER BOARD WALK, TYP.

PROPOSED 6' WIDE LOWER WALKWAY WITH 3' WIDE PLANTING STRIP, TYP.

PROPOSED BANK STABILIZATION - ROLLED FABRIC, TYP.

PROPOSED HANDRAILS INTEGRATED INTO THE RETAINING WALLS (TYP.)

PROPOSED BIO-RETENTION BASIN # 4

PROPOSED 5' WIDE VEGETATION STRIP, TYP.

PROPOSED STAIRS (TYP.)

PROPOSED DECORATIVE FENCE

PROPOSED POOL

PROPOSED CLUBHOUSE

PROPOSED 5' WIDE CONCRETE SIDEWALK, TYP

ACCESSIBLE RAMP, TYPE 10

PAVEMENT MARKING, TYP.

ASPHALT PAVEMENT, TYP.

HANDICAP PARKING SIGN (R7-8) (TYP)

BLDG ENTRANCE

DOWN TO PARKING

STOP BAR AND SIGN (R1-1)

PEDESTRIAN CROSSING SIGNS (W11A-2)

ACCESSIBLE RAMP, TYPE 1

PROPOSED CROSSWALK, TYP

MATCH LINE, TYP.

0 30 60 90 FT
SCALE

PERMIT PLAN SET

REV	DATE	DESCRIPTION	BY

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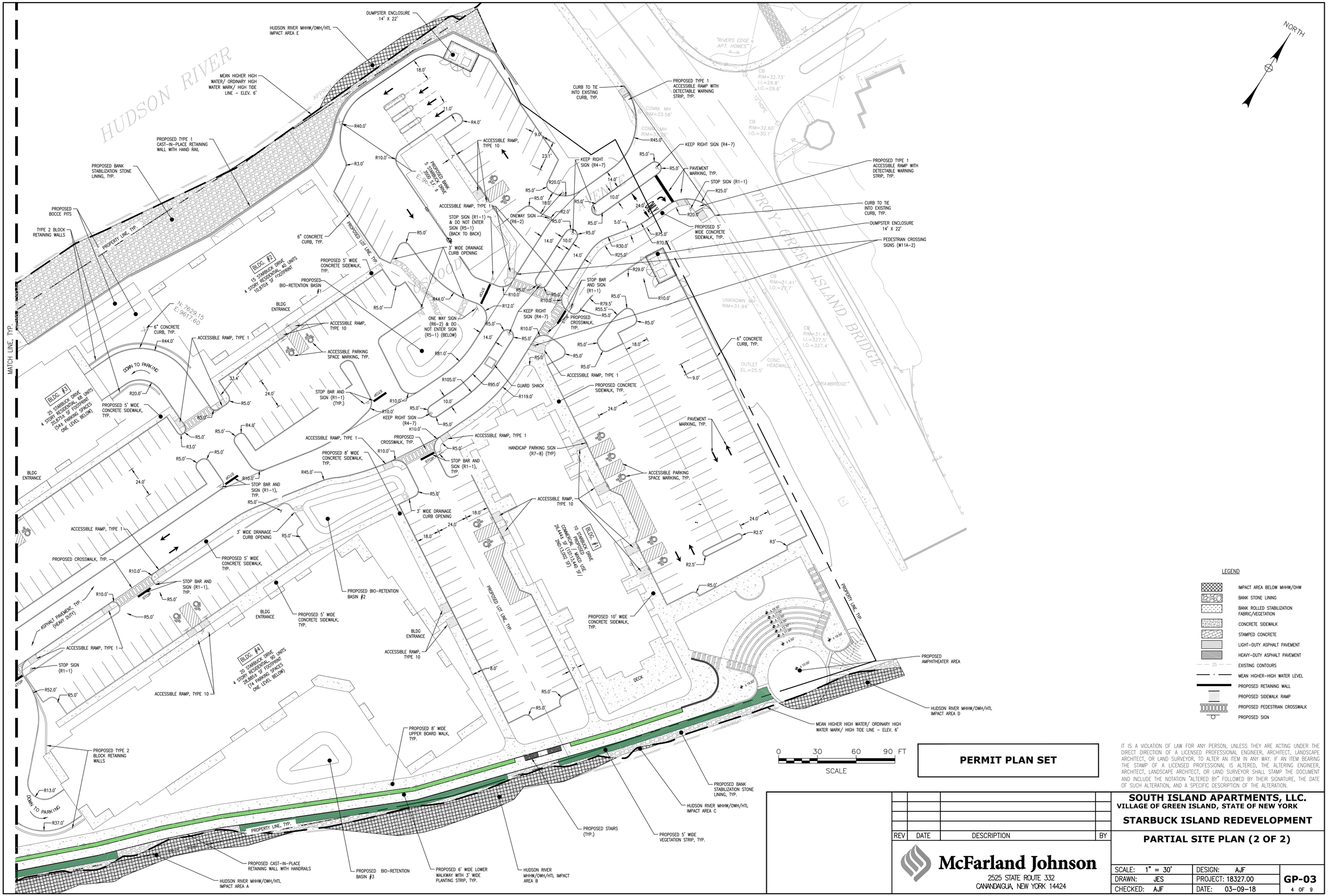
CANANDAIGUA, NEW YORK 14424

SOUTH ISLAND APARTMENTS, LLC.
VILLAGE OF GREEN ISLAND, STATE OF NEW YORK

STARBUCK ISLAND REDEVELOPMENT

PARTIAL SITE PLAN (1 OF 2)

SCALE: 1" = 30'	DESIGN: AJF	GP-02
DRAWN: JES	PROJECT: 18327.00	
CHECKED: AJF	DATE: 03-09-18	3 OF 9



PERMIT PLAN SET

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SOUTH ISLAND APARTMENTS, LLC.
VILLAGE OF GREEN ISLAND, STATE OF NEW YORK
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PARTIAL SITE PLAN (2 OF 2)

SCALE: 1" = 30'	DESIGN: AJF	GP-03
DRAWN: JES	PROJECT: 18327.00	
CHECKED: AJF	DATE: 03-09-18	4 OF 9

LEGEND

- EXISTING CONTOURS
- PROPOSED MINOR CONTOURS
- PROPOSED MAJOR CONTOURS
- PROPOSED RETAINING WALL
- [X FT] APPROXIMATE RETAINING WALL HEIGHT
- XX.X' SPOT ELEVATIONS
- PROPOSED METAL SHEET PILE SEAWALL

GRADING NOTES:

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HUDSON RIVER FLOOD ELEVATIONS
FROM MARCH 2015 FEMA STUDY

10 YEAR = 20'
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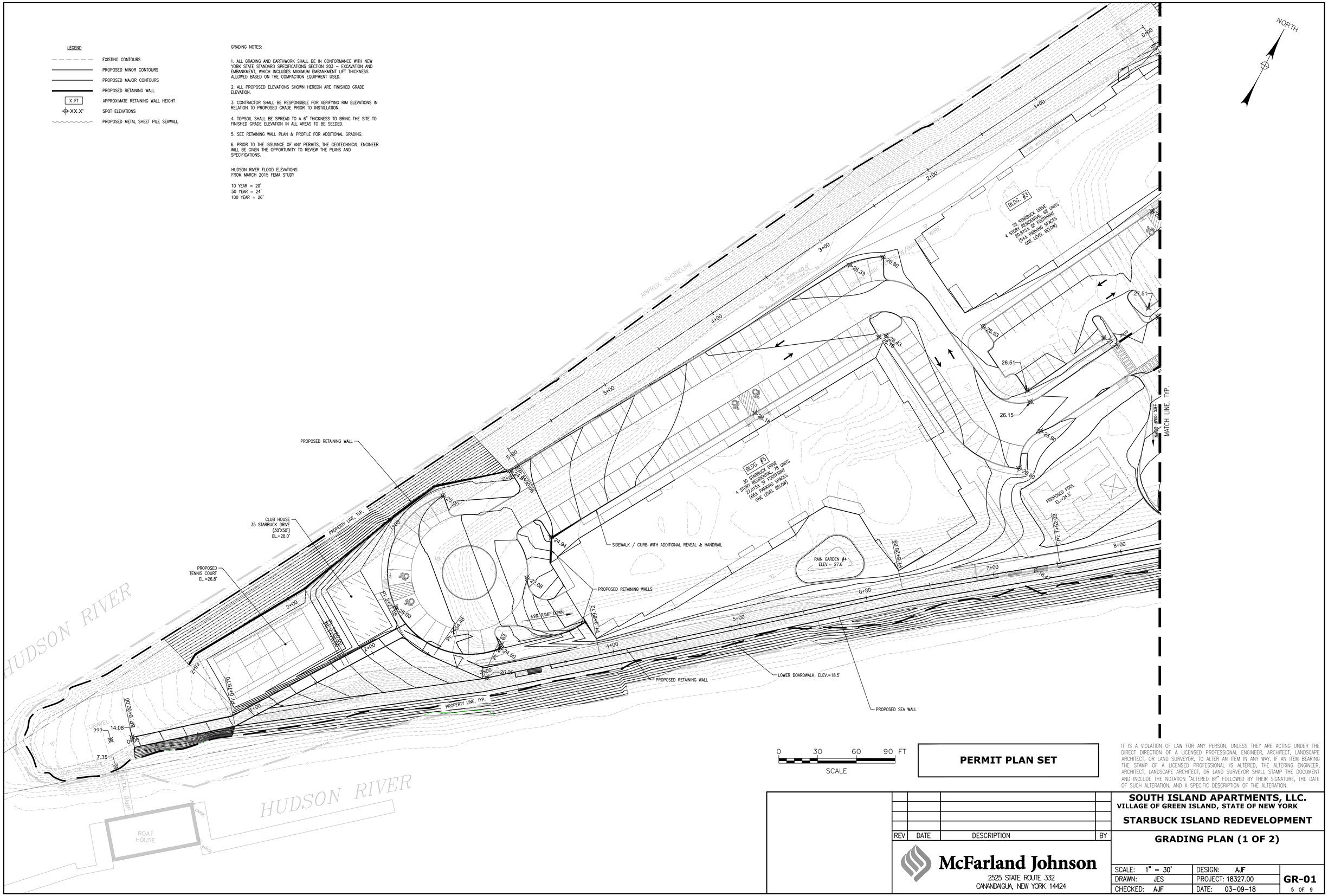

0 30 60 90 FT
SCALE

PERMIT PLAN SET

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GRADING PLAN (1 OF 2)

SCALE: 1" = 30'	DESIGN: AJF	**GR-01**	
DRAWN: JES	PROJECT: 18327.00		
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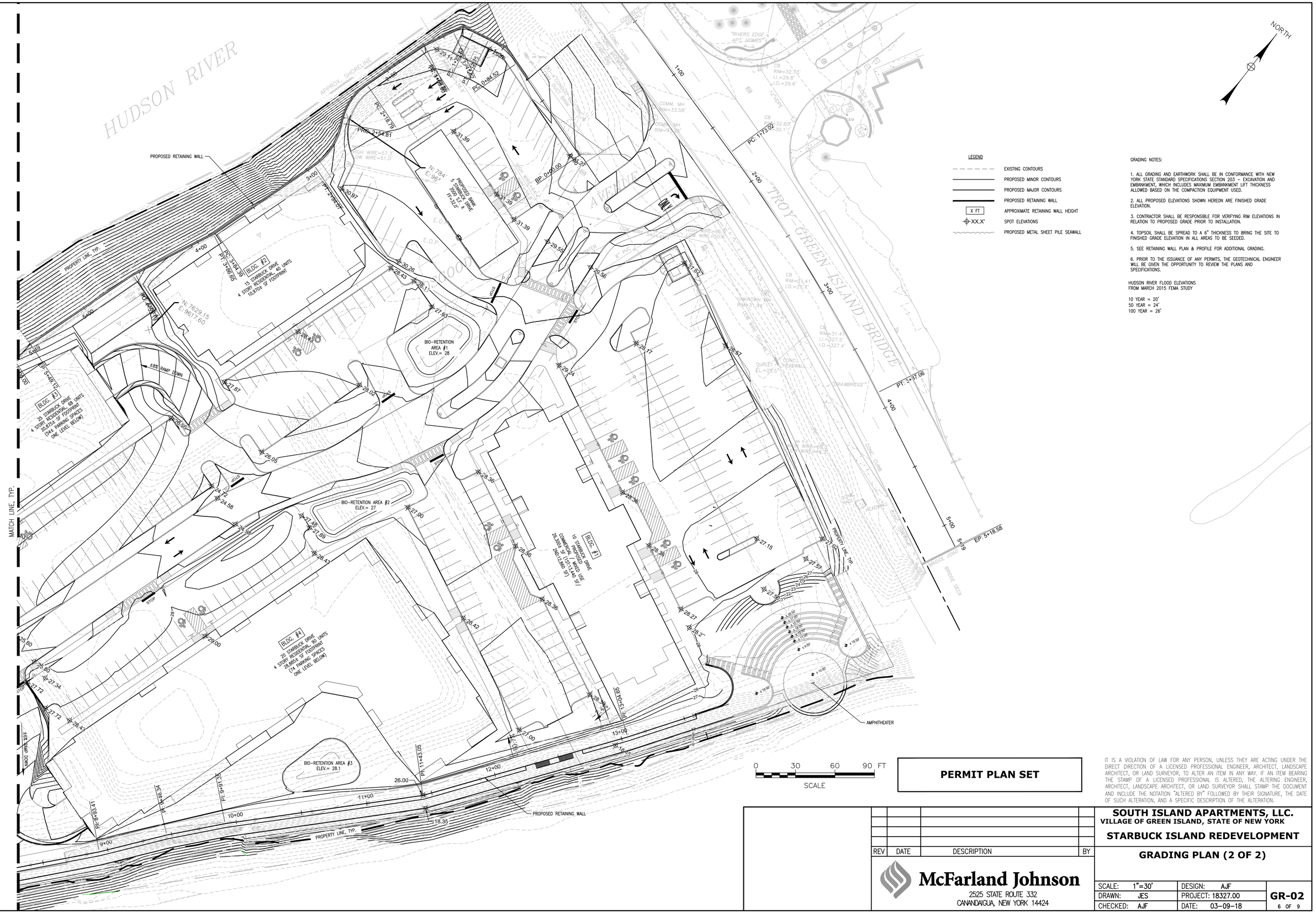

NORTH

LEGEND

- EXISTING CONTOURS
- PROPOSED MINOR CONTOURS
- PROPOSED MAJOR CONTOURS
- PROPOSED RETAINING WALL
- X FT — APPROXIMATE RETAINING WALL HEIGHT
- XX.X' — SPOT ELEVATIONS
- PROPOSED METAL SHEET PILE SEAWALL

GRADING NOTES:

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4. TOPSOIL SHALL BE SPREAD TO A 6" THICKNESS TO BRING THE SITE TO FINISHED GRADE ELEVATION IN ALL AREAS TO BE SEEDED.
5. SEE RETAINING WALL PLAN & PROFILE FOR ADDITIONAL GRADING.
6. PRIOR TO THE ISSUANCE OF ANY PERMITS, THE GEOTECHNICAL ENGINEER WILL BE GIVEN THE OPPORTUNITY TO REVIEW THE PLANS AND SPECIFICATIONS.

HUDSON RIVER FLOOD ELEVATIONS
FROM MARCH 2015 FEMA STUDY

10 YEAR = 20'
50 YEAR = 24'
100 YEAR = 26'

PERMIT PLAN SET

REV	DATE	DESCRIPTION	BY

McFarland Johnson
2525 STATE ROUTE 332
CANANDAIGUA, NEW YORK 14424

SOUTH ISLAND APARTMENTS, LLC.
VILLAGE OF GREEN ISLAND, STATE OF NEW YORK
STARBUCK ISLAND REDEVELOPMENT

GRADING PLAN (2 OF 2)

SCALE: 1"=30'	DESIGN: AJF	GR-02
DRAWN: JES	PROJECT: 18327.00	
CHECKED: AJF	DATE: 03-09-18	6 OF 9

APPENDIX E
REMEDIAL ACTION SCHEDULE

envirospec ENGINEERING, PLLC

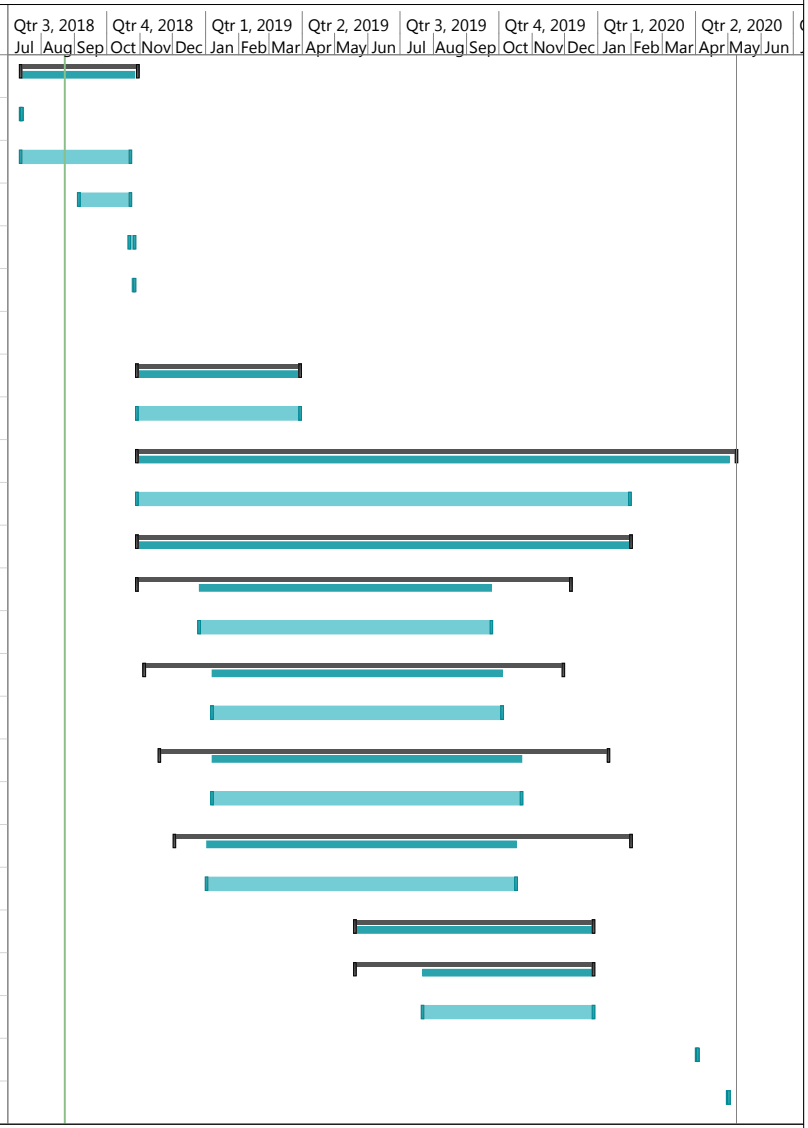
349 Northern Boulevard Suite 3▪ Albany, NY 12204 ▪ Phone: 518.453.2203 ▪ Fax: 518.453.2204

A Woman Owned Business Enterprise (WBE)

Starbuck Island Development | **RAWP Schedule Overview** | **South Island Apartments**

8/23/18

ID	Task Name	Start	Finish
1	**Remedial Action Work Plan**	**Fri 7/13/18**	**Mon 10/29/18**
2	RAP Submittal	Fri 7/13/18	Fri 7/13/18
3	DEC Review	Fri 7/13/18	Mon 10/22/18
4	Public Comment	Wed 9/5/18	Mon 10/22/18
5	Decision Document	Mon 10/22/18	Fri 10/26/18
6	DEC Approval	Fri 10/26/18	Fri 10/26/18
7			
8	**Bank Cover and Wall**	**Mon 10/29/18**	**Fri 3/29/19**
9	Construction of Bank Cover and Wall	Mon 10/29/18	Fri 3/29/19
10	**Building Construction/ Cover**	**Mon 10/29/18**	**Fri 5/8/20**
11	Monthly Progress Reports	Mon 10/29/18	Thu 1/30/20
12	**Residential Buildings**	**Mon 10/29/18**	**Fri 1/31/20**
13	**15 Starbuck**	**Mon 10/29/18**	**Fri 12/6/19**
14	Brownfield Cover/Final Grade (Clean Fill/Pavements/etc)	Wed 12/26/18	Mon 9/23/19
15	**25 Starbuck**	**Mon 11/5/18**	**Fri 11/29/19**
16	Brownfield Cover/Final Grade (Clean Fill/Pavements/etc)	Mon 1/7/19	Thu 10/3/19
17	**30 Starbuck**	**Mon 11/19/18**	**Fri 1/10/20**
18	Brownfield Cover/Final Grade (Clean Fill/Pavements/etc)	Mon 1/7/19	Mon 10/21/19
19	**20 Starbuck**	**Mon 12/3/18**	**Fri 1/31/20**
20	Brownfield Cover/Final Grade (Clean Fill/Pavements/etc)	Wed 1/2/19	Wed 10/16/19
21	**Commercial Buildings (5 and 10 Starbuck)**	**Mon 5/20/19**	**Fri 12/27/19**
22	**Building construction**	**Mon 5/20/19**	**Fri 12/27/19**
23	Brownfield Cover/Final Grade (Clean Fill/Pavements/etc)	Mon 7/22/19	Fri 12/27/19
24	FER Submittal	Thu 4/2/20	Thu 4/2/20
25	SMP Submittal	Fri 5/1/20	Fri 5/1/20



Project: Starbuck Island Apts.
Date: Thu 8/23/18

Task	Inactive Task	Manual Summary Rollup	External Milestone
Split	Inactive Milestone	Manual Summary	Deadline
Milestone	Inactive Summary	Start-only	Progress
Summary	Manual Task	Finish-only	Manual Progress
Project Summary	Duration-only	External Tasks	

APPENDIX F
HEALTH AND SAFETY PLAN

SITE SPECIFIC
HEALTH AND SAFETY PLAN

SOUTH ISLAND APARTMENTS
1 OSGOOD AVENUE/CENTER ISLAND
GREEN ISLAND, NY

BCP Site #C401074

Prepared for:
South Island Apartments, LLC
540 Broadway, 7th Floor
Albany, New York 12201-2222

Prepared by:

349 Northern Blvd, STE 3
Albany, New York 12204

July 2018

Disclaimer: The enclosed Health and Safety Plan (HASP) has been designed for the methods presently contemplated by Envirospec Engineering, PLLC (Envirospec) for execution of the proposed work. Therefore, the HASP may not be appropriate if the work is not performed by or using the methods contemplated by Envirospec. In addition, as the work is performed, conditions different from those anticipated may be encountered and the HASP may have to be modified. Therefore, Envirospec only makes representations or warranties as to the adequacy of the HASP for currently anticipated activities and conditions.

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TABLES

APPENDICES

LIST OF ACRONYMS

ACGIH	American Conference of Governmental Industrial Hygienists
ANSI	American National Standards Institute
BP	Breath pipe
BT	Body temperature
BTEX	Benzene, Toluene, Ethylbenzene, and Xylene
BWL	Body water loss
BWT	Body water temperature
CET	Certified Environmental Trainer
CFR	Code of Federal Regulations
CGI	Combustible gas indicator
CHMM	Certified Hazardous Materials Manager
CIH	Certified Industrial Hygienist
COHN	Certified Occupational Health Nurse
CNS	Central nervous system
CPR	Cardio-pulmonary resuscitation
CRZ	Contaminant reduction zone
CSE	Confined space entry
CSP	Certified Safety Professional
CZ	Clean zone
DM	Dust-particulate monitor
DOT	Department of Transportation
DT	Detector tube
DZ	Decontamination zone
EKG	Electrocardiogram
EMR	Environmental Medical Resources
EMS	Emergency Medical Services
EPA	Environmental Protection Agency
EZ	Exclusion zone
FID	Flame ionization detector
FP	Flashpoint
GFCI	Ground fault circuit interrupter
GM	Geiger-Mueller
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HBV	Hepatitis B-virus
HCL	Hydrochloric Acid
HEPA	High efficiency particulate air purifying
HR	Heart rate

LIST OF ACRONYMS (continued)

HSM	Health and Safety Manager
HVDPE	High vacuum dual-phase extraction
HZ	Hot zone
IDLH	Immediately dangerous to life or health
ILO	International Labor Organization
IP	Ionization potential
IR	Incident Reporting Form
JSA	Job safety analysis
LEL	Lower explosive limit
LO/TO	Lockout / Tagout
mg/M_3	Milligrams per cubic meter
mg/L	Milligrams per liter
MSDS	Material Safety Data Sheet
MSHA	Mine Safety and Health Administration
N	NIDA drug screen
NA	Not available
NBR	Nitrile butyl rubber
NEC	National Electrical Code
NIDA	National Institution on Drug Abuse
NIOSH	National Institute for Occupational Safety and Health
NFPA	National Fire Prevention Association
NL	NIDA-like drug screen
NRR	Noise reduction rating
O_2	Oxygen
O_3	Ozone
OM	Operations Manager
OJT	On the job training
OT	Oral temperature
OSHA	Occupational Safety and Health Administration
PEL	Permissible exposure limit
PID	Photoionization detector
PM	Project Manager
ppb	Parts per billion
PPE	Personal protective equipment
ppm	Parts per million
RB	Random Breathalyzer
RBP	Random breath pipe
RCRA	Resource Conservation and Recovery Act of 1976

LIST OF ACRONYMS (continued)

REL	Recommended exposure limit
RN	Registered Nurse
RR	Relative responses
RT	Random ten panel drug screen
SHSO	Site Health and Safety Officer
SLM	Sound level meter
SOW	Scope of work
SPL	Sound pressure level
STEL	Short-term exposure limit
SZ	Support zone
TLV	Threshold limit value
TP	Envirospec Engineering, PLLC ten panel drug screen
TSF	Tons per square foot
TWA	8-hour time-weighted average
UEL	Upper explosive limit
µg/L	Micrograms per liter
UST	Underground storage tank
VP	Vapor pressure
WBGT	Wet bulb globe temperature

UTILITY MARKER EMERGENCY TELEPHONE NUMBERS

Utility	Color Code	Telephone Number
Water Gas Electric Telephone/Cable Sewer	Blue Yellow Red Orange Green	Call UFPO- number below
Dig Safely Telephone Number: Underground Facilities Protective Organization @ 1-800-962-7962 or 811		

SITE EMERGENCY FORM

Contaminants of Concern: **Primary Contaminants of Concern (COC) consist of Heavy Metals. Other potential COCs include Polychlorinated Biphenyls (PCB), Volatile Organic Compounds (VOC) and Semi-Volatile Organic Compounds (SVOC). Potential COCs are expected to be limited throughout the Site.**

Note: Other contaminants have been detected in limited concentrations. These are presented in the tables 1-7 contained in Appendix D with MSDS.

Minimum Level of Protection: Level D.
Hazard Determination: Serious _____ Moderate XXXXX Low _____

Do not endanger your own life. Survey the situation before taking any action.

South Island Apartments	(518) 426-4600
Site Location Address	1 Osgood Avenue/Center Island, Green Island, NY
Telephone Located at	TBD

EMERGENCY PHONE NUMBERS **IN THE EVENT OF ANY EMERGENCY CONTACT PROJECT MANAGER (PM) OR HEALTH AND SAFETY REPRESENTATIVE**

Ambulance	911
Fire	911
Police	911 or (518) 273-2401
Poison Control	(800) 222-1222
Hospital Name	St. Mary's Hospital
Hospital Phone Number	(518) 268-5000
South Island Apartments	Adam Schultz, (518) 320-3411
Project Manager	Gianna Aiezza, (518) 339-1973
Site Health and Safety Officer	Lauren Babb, (315) 530-3137
New York State DOH	Steve Lawrence, (518) 402-7860
NYSDEC	Alicia Barraza, (518) 402-9690
NYSDEC- Region - 4	To be Determined
NYSDEC Site Trailer Phone Number	To Be Determined
Town of Green Island Fire Department	(518) 273-2201

HOSPITAL LOCATION MAP

HOSPITAL DIRECTIONS:
From the project site, turn right onto the Green Island Bridge (0.2 miles). Turn Left at the first cross street onto King Street (0.1 miles) Turn left to stay on King Street (0.1) miles. Continue onto River Street (0.6 miles). Turn right onto Middleburgh Street (0.4 miles). Turn right onto Oakwood Drive (358 ft). Drive to Massachusetts Avenue (0.1 miles). Turn left onto Massachusetts Avenue (285 ft). Turn Right onto Massachusetts (230 ft). Destination will be on the right.

HOSPITAL INFORMATION:

Name: St. Mary's Hospital
Address: 1300 Massachusetts Ave
City, State: Troy, NY

Phone: (518) 268 5000

EMERGENCY FIRST AID

FIRST AID

Ingestion:	DO NOT INDUCE VOMITING. Call Poison Control - follow instructions. Administer cardiopulmonary resuscitation (CPR), if necessary. Seek medical attention.
Inhalation:	Remove person from contaminated environment. Administer CPR if necessary. Seek medical attention. DO NOT ENTER A CONFINED SPACE TO RESCUE SOMEONE WHO HAS BEEN OVERCOME UNLESS PROPERLY TRAINED, EQUIPPED AND A STANDBY PERSON IS PRESENT.
Skin Contact:	Brush off dry material; remove wet or contaminated clothing. Flush skin thoroughly with water. Seek medical attention if irritation persists.
Eye Contact:	Flush eyes with water for 15 minutes. Seek medical attention.
Exposure Symptoms:	Headache, dizziness, nausea, drowsiness, irritation of eyes, nose, throat, breathing difficulties.
Contingency Plan:	Report incident to PM and Site Health and Safety Officer (SHSO) after emergency procedures have been implemented.

RESPONDER MUST HAVE A CURRENT CERTIFICATE TO ADMINISTER FIRST AID OR CPR

1. Survey the situation. Do not endanger your own life. DO NOT ENTER A CONFINED SPACE TO RESCUE SOMEONE WHO HAS BEEN OVERCOME UNLESS PROPERLY EQUIPPED AND TRAINED. ENSURE ALL PROTOCOLS ARE FOLLOWED INCLUDING THAT A STANDBY PERSON IS PRESENT.

2. Call 911 (if available) or the fire department **IMMEDIATELY**. Explain the physical injury, chemical exposure, fire, or release.

3. Decontaminate the victim without delaying life-saving procedures.

4. If the victim's condition appears to be non-critical, but seems to be more severe than minor cuts, he/she should be transported to the nearest hospital by trained Emergency Medical Services (EMS) personnel: let the doctor assume the responsibility for determining the severity of the injury. If the condition is obviously serious, EMS must transport the victim.

5. Notify the PM and the SHSO immediately. Complete the Envirospec Injury Report and any subcontractor required injury report and notifications within 24 hours.

EMERGENCY FIRST AID PROCEDURES	
To Stop Bleeding	**CPR**
1. Give medical statement. 2. Assure airway, breathing, and circulation. 3. Use **DIRECT PRESSURE** over the wound with clean dressing or your hand (use non-permeable gloves). Direct pressure will control most bleeding. 4. Bleeding from an artery or several injury sites may require **DIRECT PRESSURE** on a **PRESSURE POINT**. Use pressure points for 30 - 60 seconds to help control severe bleeding. 5. Continue primary care and seek medical aid as needed.	1. Give medical statement. 2. Arousal: Check for consciousness. 3. Open airway with chin-lift. 4. Look. listen, and feel for breathing. 5. If breathing is absent, give 2 slow, full rescue breaths. 6. Check the pulse for 5 to 10 seconds. 7. If pulse is present, continue rescue breathing: **1 breath every 5 seconds**. 8. If pulse is absent, initiate CPR; 30 compressions for each two breathes.

1.0 INTRODUCTION

South Island Apartments, LL (SIA) will be completing investigation and interim remedial measures (IRMs) at the South Island Apartments Site (Site) located in Green Island, New York.

This Health and Safety Plan (HASP) is written to assure the well being of all field personnel and the community surrounding the site. Accordingly, SIA and approved SIA subcontractors, visitors, consultants, and representatives of government agencies must follow the policies and procedures established in the HASP. All SIA personnel, subcontractors, consultants and representatives of government agencies assigned to this project must sign the Agreement and Acknowledgment Form (**Appendix A**) to confirm that they understand and agree to abide by the provisions of the plan. This HASP covers only those activities occurring at the site. Off-site activities associated with trucking, handling, treatment, disposal or landfilling of the soils and wastes offsite is the responsibility of the waste hauler in accordance with their written procedures.

All work will comply with SIA and Envirospec health and safety guidelines in concurrence with all applicable sections of the Occupational Safety and Health Act (OSHA), 29 Code of Federal Regulations (CFR) 1910 and 1926; specifically 29 CFR 1910.120 and 1926.65 Standards, "Hazardous Waste Operations and Emergency Response," (29 CFR 1910.120) as well as other federal, state, and local regulations that require the development and implementation of a site specific health plan (SSHP). Generation of this document certifies that the workplace has been evaluated for the hazards as described. A hazard assessment has been performed and the adequacy of the personal protective equipment (PPE) selected is hereby certified per 29 CFR 1910.132(d) and is duly noted by the signature(s) and date appearing on the cover page of this document.

This HASP addresses the safety issues associated with this site and surrounding properties, involving the following site tasks:

- Site preparation,
- Site sampling during investigation,
- Building and structure demolition exclusive of asbestos abatement,
- Excavation of soil during IRMs,
- UST Closures;
- Equipment Decontamination,
- Backfilling and Site Restoration.

If necessary, asbestos abatement work will be completed under a separate HASP to be developed by the abatement contractor.

The minimum level of protection for this site is Level D. For each task, the potential hazards for employee exposure to site contaminants and/or air monitoring results, will determine the level of protection. Modified Level D will be worn during tasks that may have the potential for skin contact with contaminated media (soil or water). An Upgrade to Level C, B and/or Modified Level B will occur when the possibility of exposure exists from the onset of site-specific tasks or results of real-time monitoring exceed established action levels listed in **Table 6, Air Monitoring Action Levels**. This HASP must be modified or amended when circumstances or conditions develop that are beyond the scope of this plan.

Any changes in project work scope and/or site conditions as described must be amended in writing by the Site Health and Safety Officer (SHSO) on the HASP Amendment Sheet (**Appendix A**) and approved by the Project PM.

Table 1, Responsibilities of On-Site Personnel lists those accountable and responsible for the implementation of the HASP. **Table 2, Hazard Analysis Matrix**, presents an overview of site-specific job tasks and the associated hazards. **Table 3, Contaminants of Concern Profile**, presents an overview of the hazards and control measures associated with the site contaminants of concern. Lastly, **Table 4**, **Envirospec Health and Safety Training Programs**, presents an overview of the Envirospec health and safety programs in which all field personnel are required to participate. These include the medical surveillance and comprehensive training programs in accordance with OSHA Hazardous Waste Operations and Emergency Response standard, 29 CFR 1910.120.

1.1 Site Description/ Background Information

The property is bounded by Troy/Green Island Bridge and a commercial property to the north and south and by the Hudson River to the east and west of the Site. The Site is identified on the Albany 2016 Final Tax Map as 33.09 Block 1 Lot 3. According to the tax map, the property comprises approximately 8.9 acres. Land uses in the surrounding area include various commercial and residential uses as shown on Figure 2.

The Site is former petroleum terminal located on the southern portion of Starbuck Island in the Town of Green Island, New York. According to the Supplemental Site Investigation by Spec Engineering (Spec) in May, 2016, the terminal was demolished between 2008 and 2010. According to the Albany County Assessor, the Site is zoned as vacant - industrial.

According to a 2008 Phase I ESA by Shifrin & Associates, Inc. (Shifrin), the Site historically operated as a petroleum terminal since 1918. During its operation, the Site was improved with sixteen (16) aboveground storage tanks (ASTs), potentially two (2) underground oil-water separator

tanks, a truck loading rack, a barge dock, an office building, an electrical shed, storage sheds, brick buildings, earthen dikes, and internal roads. When in the service, the terminal loaded and unloaded products that were transported to the Site by barge. Fuels previously stored at the former terminal included kerosene, low sulfur diesel, ultra-low sulfur diesel, and No. 2 fuel oil. The terminal was not connected to a sewer line; wastewater was discharged to a septic tank and leach field on-Site. The Site has documented petroleum spills.

The terminal is no longer in operation, and was reportedly demolished sometime between 2008 and 2010 although the earthen dikes, at least one (1) underground oil-water separator, and a handful of small, vacant structures remain on the site. There were no other noted uses of this property.

Site surfaces consist of a mix of small structures, grassy areas, and compacted gravel.

1.2 Project Personnel and Responsibilities

The following management structure will be instituted for the purpose of successfully and safely completing this project.

Name	Company	Project Position	Address	Phone Number
Josh Meppen	SIA, LLP	SIA Project Manager	49 Railroad Ave Albany, NY 12205	O:(518) 482-8954
Bill Jewett	SIA, LLP	SIA Construction Manager	49 Railroad Ave Albany, NY 12205	O:(518) 482-8954 C: (518) 407-7311
Gianna Aiezza, PE	Envirospec	Project Director	349 Northern Blvd, STE 3, Albany, NY	O:(518) 453-2203 C:(518) 339-1973
Rachel Farnum, PE	Envirospec	Project Manager	349 Northern Blvd, STE 3, Albany, NY	O:(518) 453-2203 C:(518) 331-3279
Lauren Babb	Envirospec	Project Scientist	349 Northern Blvd, STE 3, Albany, NY	O:(518) 453-2203
Ian Beilby, PE	NYSDEC	NYSDEC Project Manager	625 Broadway Albany, NY 12233	O: (518) 402 9767
Steve Lawrence	NYSDOH	NYSDOH Project Manager	Empire State Plaza Corning Tower Room 1787 Albany, NY 12237	O: (518) 402-7860

The specific duties of the technical advisors include:

- Providing technical input into the design and implementation of the site HASP,

- Advising on potential for worker exposure to project hazards along with appropriate methods and/or controls to eliminate site hazards.

A site health and safety officer (SHSO) will be assigned during site activities. The SHSO shall have the responsibility and authority to implement and enforce the approved HASP, this includes modifying/halting work, and removal of personnel from the site if work conditions change and effect on-site/off-site health and safety matters. The Onsite Superintendent (SS) will serve as the main contact for any on-site emergency situation.

Table 1 Responsibilities of On-Site Personnel

Title	General Description	Responsibilities
Project Manager (PM) Rachel Farnum PE	Reports to SIA Project Manager. Has authority to direct response operations. Assumes total control over site activities.	• Prepares and organizes background review of the project, the work plan, the HASP, and the field team. • Obtains permission for site access and coordinates activities with appropriate officials. • Sees that the work plan is properly carried out and on schedule. • Briefs the field personnel on specific assignments. • Together with the SHSO sees that health and safety requirements are met. • Conducts periodic site audit(s) • Implements and reports findings for any near miss, first-aid and OSHA recordable incidents; assuring corrective action is taken. Reviewing and signing the Envirospec Incident Review Board form for all OSHA Recordable and Chargeable Vehicle Incidents.
SHSO Rachel Farnum/ Lauren Babb	Advises the PM on all aspects of health and safety on site. Stops work if site operations threaten worker or public health and safety.	• Periodically inspects protective clothing and equipment. • Sees that protective clothing and equipment are properly stored and maintained. • Reviews entry and exit at the access control points (e.g. exclusion zone). Monitors the workers or designates a contractors' representative to monitor for signs of stress, including heat stress, cold exposure, and fatigue. • Publicizes emergency procedures, evacuation routes, and telephone number of local hospital, poison control center, fire department, and police department during HASP orientation. • Notifies, when necessary, local public emergency officials. Re-evaluates site conditions on an on-going basis Coordinates protective measures including engineering controls, work practices and personal protective equipment. • Prepares, presents and documents daily safety meetings • Conducts and prepares reports of daily safety inspections of work processes, site conditions, equipment conditions discussing any necessary corrective actions with the PM and reviewing new procedures. • Oversees the performance of air monitoring as required by the Site Specific Health and Safety Plan.

Title	General Description	Responsibilities
		• Assists the PM in incident investigations. • Prepares or approves permits for special operations, e.g., hot work, confined spaces, LOTO etc. • Maintains appropriate safety records. • Audits weekly inspections of all fire extinguishers, supplied air respirators, first-aid kits, and eye washes/emergency showers. • Informs onsite personnel of the elements of the HASP. • Requests contractor personnel to prepare the job safety analysis for unusual tasks • Assists in the coordination of the daily Safety Observer Program. • Coordinates emergency medical care. • Sets up decontamination lines and decontamination solutions appropriate for the chemical contaminants encountered. • Audits the implementation of site procedures for the decontamination of equipment, personnel, and samples from contaminated areas. • Audits the implementation of site procedures for proper disposal of contaminated clothing and materials. • Advises Envirospec PM of potential exposures. • Notifies emergency response personnel in the event of an emergency if required. • Maintains and oversees operation of monitoring equipment and interpretation of data from the monitoring equipment. • Conducts periodic field health and safety inspections (Appendix K).
Onsite Project Scientist Lauren Babb		• Manages field operations. • Executes the work plan and schedule. • Enforces safety procedures. • Enforces site control. • Documents field activities and sample collection. • Notifies when necessary, local public emergency officials. • Completes Site Specific Job Safety Analyses for all principal tasks. • Conducts weekly safety inspections of job sites. Corrects PM deficiencies as noted on Project Safety Management Systems Review and safety department

Title	General Description	Responsibilities
		audits, within recommended time frames. • Investigates and reports findings for any near miss, first-aid, and/or OSHA recordable incidents; assures corrective actions are taken. • Completes the Envirospec incident Review form for all OSHA Recordable incidents
Work Team	Reports to project supervisor for on-site activities. Work parties must comprise at least two people for high hazard operations.	• Safely completes on-site tasks required to fulfill the work plan. • Complies with the HASP. • Attends and participates in Daily Safety Tailgate Meetings. • Notifies SHSO/supervisor of suspected unsafe conditions. • Reports all safety incidents to SHSO/SS.

Subcontractor Health and Safety

If a subcontractor of this project chooses to adopt this Envirospec Health and Safety Plan, the subcontractor shall acknowledge this with signatures of all personnel being utilized on site, in the agreement and acknowledgment section (**Appendix A)** accepting the plan. All signatures must be obtained prior to the subcontractor's commencing work activities and the plan will be reviewed in full on site with an Envirospec representative. The subcontractor must make an independent determination of the applicability of this HASP to his/her work and must comply with all applicable statutes, federal, state and local regulations and codes. Envirospec does not warrant that this plan will be sufficient for the subcontractors work.

If the subcontractor adopts this HASP, this HASP becomes their responsibility to implement as it pertains to their work. The subcontractor assumes all liabilities for such adoption and implementation. All subcontractor personnel will read and sign the Envirospec HASP.

If a subcontractor chooses to develop its own HASP, the subcontractor will provide a copy for

Envirospec to review within five (5) days of award of this subcontract or at least 5 days prior to commencement of work activities at the site, whichever occurs last. The subcontractor will insure his/her HASP will be in compliance with the minimum requirements presented in this HASP, and all appropriate federal state and local regulations.

Prior to starting of work on this project all subcontractors' personnel will receive the site orientation from the SHSO/SS. All subcontractor safety related incidents including near misses, shall be reported to the Site Safety Officer and Envirospec Project Manager immediately.

1.3 Hazard Analysis, Site-Specific Health and Safety Program Requirements

Site-specific job tasks and the associated hazards are identified in **Table 2, Hazard Analysis Matrix**. For each task involved with the project are the type of hazards that may be encountered. Utilize the hazard analysis table as a guide for implementing specific health and safety programs. **Table 5, Potential Hazards and Controls** provides additional guidelines to follow when conducting the tasks involved with this project.

Table 2 Hazard Analysis Matrix

Hazards	Site Constr. Activities	Excav./UST Closures	Demolition	Decontamination	Sampling
Contaminants of Concern Exposure	X	X	X	X	X
OSHA Chemicals Exposure	X	X	X	X	X
Mechanical Equipment/ Construction	X	X	X	X	X
Electrical		X	X		X
Fire and Explosion	X	X	X	X	X
Heat/Cold Stress	X	X	X	X	X
Vehicular Traffic	X	X	X	X	X
Pedestrian Traffic	X	X	X	X	X
Overhead Utilities	X	X	X		X
Underground Utilities	X	X	X		X
Noise	X	X	X	X	X

Hazards	Site Constr. Activities	Excav./UST Closures	Demolition	Decontamination	Sampling
Contaminants of Concern Exposure	X	X	X	X	X
Confined Space Entry (CSE)			X	X	X
Poisonous Plants	X	X	X		X
Snakes/Spiders/ Insects	X	X	X		X

Site-Specific Health and Safety Program Requirements

Based upon the site-specific hazard analysis, the following programs must be implemented and the accompanying forms, found in the appendices of the HASP, completed. The completed forms can then be attached to this document.

SITE-SPECIFIC PROGRAM	HASP APPENDIX
Site-Specific Lockout/Tagout (LO/TO) Procedures	C
Air Monitoring Program	E
Noise Monitoring Form	E
Excavation and Trenching	F
Confined Space Entry (CSE)	G
Hot Work Permit	H
Heat/Cold Stress Procedure	I
Daily Safety Meeting	L

1.4 Contaminants of Concern Profile

Based on the findings related to historic use of the Site and previous investigations, the contaminates of concern (COCs) for the Site are primarily metals. In limited locations, PCBs, VOCs and SVOCs are potential COCs in certain areas of the Site but are not suspected to be Site- wide COCs. Summarized in **Table 3, Contaminants of Concern Profile**, the profile provides an overview of the hazards associated with potential exposure to the contaminants of concern and the preventative measures.

Table 3 Contaminants of Concern Profile

Contaminant of Concern	Profile of Hazards and Control Measures to Follow
VOCs, SVOCs and PCBs	All are constituents of gasoline and are very flammable. The target organs include the central nervous system, eyes, GI tract, liver, kidneys and skin.
Polychlorinated biphenyl (PCB's)	Suspected human carcinogen. Anticipated at the site in low levels measured in PPM. Target organs include skin, eyes, liver and fatty tissues of body if ingested.
Heavy Metals	Heavy metal toxicity can result in damaged or reduced mental and central nervous function, lower energy levels, and damage to blood composition, lungs, kidneys, liver, and other vital organs. Long-term exposure may result in slowly progressing physical, muscular, and neurological degenerative processes that mimic Alzheimer's disease, Parkinson's disease, muscular dystrophy, and multiple sclerosis. Allergies are not uncommon, and repeated long-term contact with some metals (or their compounds) may cause cancer.
Preventive Measures	
• Wash hands regularly after working and before eating, • Wear gloves and dust masks and required PPE as necessary during work activities. • Use proper dust control suppression measures to prevent airborn dust and vapors. • Use proper vapor control measures to prevent airborn vapors. • Implement proper air monitoring activities per the CAMP to monitor conditions.	

Table 4 Envirospec Health and Safety Training Programs

Training Program	Requirement/Action
• Training requirements and programs comply with the OSHA Hazardous Waste Operations and Emergency Response standard, 29 CFR 1910.120.	• Field personnel must complete a minimum of 40 hours of hazardous waste activity instruction. • Field personnel must complete a minimum of 3 days supervised field instruction to be completed by the contractor's representative. (On the Job Training) • Field personnel assigned to the site will also receive 8 hours of refresher training each year. • On-site managers and supervisors directly responsible for employees engaged in hazardous waste operations receive an additional 8 hours of supervisory training. Field personnel assigned to site may also receive first aid/Cardio-pulmonary resuscitation (CPR) and blood borne pathogen training. • Construction personnel and subcontractors assigned to site must participate in "Daily Safety Meeting" and document their attendance.
• Competent person training for excavation/trenching operations meet requirements outlined in 29 CFR 1926, Subpart P.	• An on-site supervisor directly responsible for employees engaged in excavation/trenching operations receives OSHA Competent Person Training.
• Authorized supervisor, attendant, and entrant training for permit required confined space entry meet requirements outlined in 29 CFR 1910.146.	• Field personnel assigned to site who must supervise, watch over and/or enter permit required confined spaces receive OSHA Confined Space Entry Training.
• Fall protection training that meets requirements in 29 CFR 1926.503	• Field personnel assigned to site who work in areas with fall hazards six feet or greater receive Fall Protection/Prevention Training.

2.0 HAZARD IDENTIFICATION AND CONTROL

Based upon the hazard analysis of the tasks that will be conducted for the project, **Table 5, Potential Hazards and Control**, lists the general procedures and practices to follow to prevent injury or illness. Appropriate training for specific hazards must be completed by field personnel prior to initiating work activities. Precautions must be taken to prevent injuries and exposures to the following potential hazards. For additional information, refer to the Envirospec Health and Safety Policies and Procedures, or consult with your health and safety professional.

Table 5 Potential Hazards and Control

Potential Hazard	Control
Exposure to Surface/ Subsurface Airborne Dust	1. Stand up-wind whenever intrusive activities occur and generate visible signs of airborne dust. 2. Monitor air for airborne soil dust (surface or subsurface soil) with portable aerosol dust-direct reading instrument. 3. Sustained readings >2.5 mg/M^3 in breathing zone requires upgrade to Level C. 4. > 25 mg/M^3 in breathing zone requires upgrade to Level B. Approval for Level B must first be approved by SHSO. 5. Utilize wet methods (spraying ground, wet drilling, etc.) when visible signs of airborne dust are generated.
Exposure to OSHA Defined Hazardous Materials (See Appendix D: MSDS Definitions and MSDSs)	1. All bulk chemicals brought on-site by Envirospec personnel or their subcontractors, such as pipe glues, solvents, reagents, decontamination solutions, or any other OSHA defined hazardous material must be adequately labeled and the MSDSs available on-site. 2. MSDSs brought on-site can be attached in **Appendix D**. Training on OSHA defined hazardous materials must be completed and documented. Use the Daily Safety Meeting Form in **Appendix L** to record training attendance.
Erecting a Temporary Structure or Working From an Aerial Lift	1. Wear leather gloves while attaching support members to protect against pinching injuries. 2. While working from elevated levels greater than 6 feet, ensure that all employees have 100% fall protection with full body harnesses and guardrails. 3. Do not stand under loads that are being raised or lowered with cranes or aerial lifts. 4. Conduct pre-operational inspection of aerial lifts to include: tire air pressure, hydraulic fuel level and pressure check, make sure pivot pins are

Potential Hazard	Control
	secured, check hoses for worn areas, check for cracks or deviations in welded parts, the safety limit switch should work freely, security of the guardrail system on the platform, check both ground and platform control functions, raise and lower each boom system separately, listen for any unusual noises, vibrations, or uneven operations. 5. Maintain a safe distance of 10 feet from unguarded overhead power lines. 6. Conduct site evaluation to determine proper positioning for the unit. Make sure surface is level. Cordon off holes, drop-offs, bumps or weak ground surfaces. 7. Never climb a raised platform or stand on the mid-rail or top-rail. 8. Tools should always be hung or put into a belt whenever possible.
Working Over or Near Water	1. Employees working over or near water, where the danger of drowning exists, shall be provided with U.S. Coast Guard-approved life jacket or buoyant work vests. 2. Prior to and after each use, the buoyant work vests or life preservers shall be inspected for defects which would alter their strength or buoyancy. Defective units shall not be used. 3. Ring buoys with at least 90 feet of line shall be provided and readily available for emergency rescue operations. Distance between ring buoys shall not exceed 200 feet. 4. At least one lifesaving skiff shall be immediately available at locations where employees are working over or adjacent to water.
Vehicular Traffic	1. Wear traffic safety vest or other appropriate PPE when vehicle hazard exists. 2. Use cones, flags, barricades, and caution tape to define work area. 3. Use vehicle to block work area. 4. Engage police detail for high-traffic situations. 5. Refer to **Section 5.3, Site Control: Work Zones,** for specific details and guidance.
Fall Protection	1. Assess the work to determine if there is a potential for falling. 2. Make a determination of the distance of the potential fall. 3. A fall protection system must be used for potential falls greater than 6 feet. 4. Consult a competent person, such as the SHSO, regarding the applicability requiring fall protection and what type of protection systems should be used. 5. Inspect all fall protection equipment and anchoring points prior to their use.

Potential Hazard	Control
	6. Ensure Fall Protection training for applicable employees is completed prior to initiating work activities.
Confined Space Entry (CSE)	1. Ensure personnel assigned meet CSE training requirements. 2. Complete CSE permit. Post sign. 3. Ensure pre-entry CSE safety meeting is conducted. 4. Remove vault cover using proper lifting techniques. 5. Promote natural ventilation by opening the space to fresh air, if needed utilize mechanical purge ventilation. 6. Conduct remote air monitoring prior to entry. 7. Attendant can act as CSE Supervisor and must be present at CSE entry point all times when entrant is in CSE. 8. Access work for fall hazards and ensure provisions for non-entry rescue have been met. 9. Enter only when safe; conduct continuous air monitoring.
Inclement Weather	1. Stop outdoor work during electrical storms and other extreme weather conditions such as extreme heat or cold temperatures. 2. Take cover indoors or in vehicle. 3. Listen to local forecasts for warnings about specific weather hazards such as tornados, hurricanes, and flash floods.
Utility Lines Contact	1. Contact Dig Safe to have utility lines marked prior to excavation/trenching 2. Refer to site drawings or customer interviews if on private property for utility locations. 3. Hand dig 3 to 5 feet down and 5 feet each side of utility marker to avoid breaking utility lines.
Noise	1. Wear hearing protection when equipment such as a drill rig, jackhammer, cut saw, air compressor, blower or other heavy equipment is operating on the site. 2. Wear hearing protection whenever you need to raise your voice above normal conversational speech due to a loud noise source; this much noise indicates the need for protection. 3. Hearing protection is required when measured sound pressure levels (SPL) exceed 85 dB(A) where employees stand or conduct work. 4. Conduct noise monitoring of suspected high noise operations at the beginning of the workday or start up of new operations to verify noise control/hearing protection requirements. 5. Refer to **Section 3.2**, **Noise Monitoring** for guidance.
	1. Maintain appropriate distance from overhead utilities **10-foot minimum clearance from power lines required; if within**

Potential Hazard	Control
Electric Shock	**ten feet it has to be shielded.** 2. Use ground-fault circuit interrupters as required. 3. Perform LO/TO procedures (**Appendix C**). 4. Use three-pronged plugs and extension cords. 5. Contact your local underground utility-locating service. 6. Follow code requirements for electrical installations in hazardous locations.
Physical Injury	1. Wear hard hats and safety glasses when on-site. 2. Maintain visual contact with the equipment operator and wear orange safety vest when heavy equipment is used on-site. 3. Avoid loose-fitting clothing (driller and driller's helper). 4. Prevent slips, trips, and falls; keep work area uncluttered. 5. Keep your hands away from moving parts (i.e., augers). 6. Test the emergency shut-off switch on the drill rig daily.
Back Injury	1. Use a mechanical lifting device or a lifting aid where appropriate. 2. If you must lift, plan the lift before doing it. 3. Check your route for clearance. 4. Bend at the knees and use leg muscles when lifting. 5. Use the buddy system when lifting heavy or awkward objects. 6. Do not twist or jerk your body while lifting.
Heat Stress	1. Increase water intake while working. 2. Minimize and/or avoid alcohol intake the night before working in heat stress situations. 3. Increase number of rest breaks and/or rotate workers in shorter work shifts; take breaks in shaded areas. 4. Watch for signs and symptoms of heat exhaustion and fatigue. 5. Plan work for early morning or evening during hot months. 6. Use ice vests when necessary. 7. Rest in cool, dry areas. 8. In the event of heat stroke bring the victim to a cool environment and initiate first aid procedures. Refer to **Appendix I**.
Cold Stress	1. Take breaks in heated shelters when working in extremely cold temperatures. 2. Remove the outer layer of clothing and loosen other layers to promote evaporation of perspiration, upon entering the shelter. 3 Be aware of cold stress symptoms such as shivering, numbness in the extremities, and sluggishness. 4. Drink warm liquids to reduce the susceptibility to cold stress. Refer to **Appendix I**.

Potential Hazard	Control
High Crime Areas	1. Be aware of surroundings. 2. Use the buddy system. 3. Request police detail when appropriate.
Insects	1. Tuck pants into socks. 2. Wear long sleeves. 3. Use insect repellent. 4. Avoid contact by always looking ahead to where walking, standing, sitting, leaning, grabbing, lifting or reaching-in-to. 5. Check for signs of insect/spider bites, such as redness, swelling, and flu-like symptoms. 6. Use buddy system to check each other for signs of insect/spider bites. 7. Remove ticks immediately with fine tipped tweezers by grasping the tick as close to your skin as possible and gently pulling straight out. Do not squeeze the tick's body as this may inject fluids into you. Wash the bite area of skin and apply antiseptic.
Poisonous Plants (Such as Poison Ivy, Oak or Sumac)	1. Don't enter areas infested with poisonous plants. 2. Immediately wash any areas that come into contact with poisonous plants. 3. Protect exposed skin area with gloves and Tyvek™ suits. 4. Be aware that the oil from the plant can be carried on boots, clothes and equipment. Always protect skin from contact. 5. If you have known or suspected allergies, carry an Epi-Pen at all times and notify co-workers that you are allergic.
Poisonous Snakes	1. Avoid walking in areas where snake may nest or hide. Always look ahead to where walking for signs of snakes. 2. Use extreme caution when moving or lifting objects, which could be used by snakes as cover. 3. Never reach under or behind objects or into other areas where snakes may hide. 4. Wear sturdy leather boots.
Ladders	1. Assess work areas for fall hazards. 2. Make sure ladder rungs are sturdy and free of cracks. 3. Use ladders with secure safety feet. 4. Pitch ladders at a 4:1 ratio. 5. Secure ladder at the top or have another person at the bottom to help stabilize it. 6. Do not use ladders for access to air stripper towers. 7. Use non-conductive ladders near electrical wires.

Potential Hazard	Control
Fire Control	1. Smoke only in designated areas. 2. Keep flammable liquids in closed containers. 3. Keep site clean; avoid accumulating combustible debris such as paper. 4. Follow Hot Work Safety Procedures when welding or performing other activities requiring an open flame. **(Appendix H)** 5. Isolate flammable and combustible materials from ignition sources. 6. Ensure fire safety integrity of equipment installations.
Static Electricity	1. Do not create static discharge in flammable atmospheres. 2. Electrically bond and ground pumps transfer vessels, tanks, drums, bailers and probes, when moving liquids. 3. Electrically bond and ground vacuum trucks and the tanks they are emptying. 4. Do not splash fill containers with flammable liquids.
Rapid Response	1. Ensure emergency response activities have been completed prior to beginning rapid response field activities. 2. Conduct hazard assessment of project site and communicate findings through a "Daily Safety Meeting" to all Envirospec employees and subcontractors prior to beginning rapid response field activities. 3. Communicate applicable Envirospec health and safety programs to other contractors on site that may be impacted and coordinate field activities with them.
Welding, Cutting, Brazing	1. Conduct fire safety evaluation. 2. Complete Hot Work Permit (**Appendix H**). 3. Ensure flammable materials are protected from hot work, sources of ignition. 4. Ensure fire watch/fire extinguisher is on standby by hot work location.
Cleaning Equipment	1. Wear appropriate PPE to avoid skin and eye contact with isopropyl alcohol, alconox, or other cleaning materials. 2. Stand upwind to minimize any potential inhalation exposure. 3. Dispose of spent cleaning solutions and rinses accordingly.
**First aid kit, blood borne pathogen kit, emergency eye wash/shower station, fire extinguisher and Absorbent pads will be located on-site either in the decontamination zone or construction trailers.	

3.0 AIR MONITORING AND NOISE MONITORING

3.1 Air Monitoring

The following section is a description of air monitoring activities that are applied towards on-site workers and activities. A Community Air Monitoring Plan is included with **Appendix O**.

Air monitoring must be performed on all sites in accordance with New York State Department of Health Generic CAMP practices. Airborne dust/particulate concentrations are measured with a real-time aerosol monitor (using a scattered light photometric sensing cell) at all times when work on Site is in progress. Benzene and Vinyl Chloride Detector Tube grab sampling is conducted when results of non-specific real-time monitor action levels are reached and when their presence is suspected. Organic vapor and/or concentrations are monitored in the field with a FID or PID with a 10.2 eV (electron-volts) lamp. Flammable vapor and/or gas are monitored with an oxygen/combustion meter (O_2/LEL) real-time instrument.
Both area and personal air monitoring readings are to be taken to characterize site activities. Air monitoring results must be documented on the Air Monitoring Form (**Appendix E**).

ATTENTION:

SITE PERSONNEL ASSIGNED RESPONSIBILITY TO CONDUCT AIR MONITORING MUST HAVE BEEN TRAINED IN AIR MONITORING EQUIPMENT OPERATION AND CALIBRATION PRIOR TO ENVIROSPEC USE.

Calibration and maintenance of air monitoring equipment must follow manufacture specifications and must be documented on appropriate forms. Recalibration and adjustment of air monitoring equipment must be completed when site conditions and equipment operation reveal the need or at a minimum daily. Record all air monitoring equipment calibration information on form in **Appendix E**.

Air monitoring action levels (**Table 7, Air Monitoring Action Levels at Exclusion Zone Work Areas**) have been developed to indicate the chemical concentrations in the breathing zone that require an upgrade in level of PPE. Action levels are typically set at either one-half the OSHA Permissible Exposure Limit (PEL), National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limits (REL), or the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV). Rationale for establishing action levels is based upon the data available that characterizes contaminants of concern in soil or water. Calculation for estimating action levels is then completed using the principles of proportionality (particulates in soil), Henry's Law (volatiles in water) and fugacity (volatiles in soil). When analytical data is not available, a qualitative assessment is conducted based on knowing the contaminants of concern and then setting action levels based on the compound(s) with the lowest OSHA PEL, NIOSH REL or ACGIH TLV, and following an air monitoring schedule that will minimize any potential for over exposure. At no time will action levels be relaxed by the SHSO without approval from health and safety professionals and New York State Department of Health.

All workers on-site must have been properly fitted with PPE (i.e., respirators) and have been trained in their use (i.e., donning and doffing). Air monitoring measurements will be taken in the breathing zone of the worker most likely to have the highest exposure. Transient peaks will not automatically trigger action. Action will be taken when levels are consistently exceeded in a 5-minute period. Similarly, if chemical odors are detected that are a nuisance, bothersome, or irritating, an upgrade in respiratory protection can provide an extra level of comfort or protection when conducting site activities. Guidelines for frequency of air monitoring are presented in **Table 6, Air Monitoring Frequency Guidelines**. Job tasks that require air monitoring, the applicable action levels that apply for those tasks, and the frequency of air monitoring are described in **Table 6** and **Table 7** respectively.

Engineering controls such as the venturi air mover (supplied by compressed air) to exhaust or dilute solvent vapors emanating from monitoring wells or when conducting intrusive activities can be utilized as a means to downgrade PPE requirements (Level B to C, Level C to D).

Engineering controls such as foam suppressants, surfactants, temporary covers (i.e., tarps), or other appropriate engineering controls and reducing the limits of excavation will be implemented to reduce and control the emission of VOCs during excavation activities.

Table 6 Air Monitoring Frequency Guidelines

Conduct periodic monitoring when:

1. It is possible that an immediately dangerous to life or health (IDLH) condition or a flammable atmosphere has developed, or

2. There is an indication that exposures may have risen over established action levels, permissible exposure limits or published exposure levels since the last monitoring. Look for a possible rise in exposures associated with these situations:

- **Change in site area** - work begins on a different section of the site.
- **Change in contaminants** - handling contaminants other than those first identified.
- **Visible signs of particulate exposure from intrusive activities such as drilling/boring and excavation.**
- **Perceptible chemical odors or symptoms of exposure.**
- **Change in on-site activity** - one operation ends and another begins.
- **Handling leaking drums or containers**.
- **Working with obvious liquid contamination** (e.g., a spill or lagoon).

Conduct air monitoring when the possibility of volatilization exists (such as with a new monitoring well or a well containing known product). **(Appendix O)**

Table 7 Air Monitoring Action Levels at Exclusion Zone Work Areas

Instrument* Function	Measurement	Action
Dust/Particulate Monitor		
Conduct air monitoring for dust particulate when site activities may cause dust emissions, such as excavation, soil handling vehicle/heavy equipment operation.	0 - 2.5 mg/m^3	Modified Level D required.
	2.5 - 25 mg/m^3	Upgrade to Level C.
	>25 mg/M^3	Stop work. Contact PM for guidance.
FID or PID (10.2 eV lamp) - Measures Total Organic Vapors		
Conduct air monitoring for volatile organic compounds during activities where contaminated media are present.	0 -5 ppm	Modified Level D required. Check for benzene and vinyl chloride with detector tubes. If benzene or vinyl chloride detected >0.5 ppm, upgrade to Level C PPE; determine source of emission and conduct integrated air sampling.
	>5 - 25 ppm	Upgrade to Level C.
	>25 - 1,000 ppm	Upgrade to Level B and conduct perimeter monitoring. Coordinate with PM and SHSO for guidance.
	>1,000 ppm	Stop work required. Leave work area, contact PM for guidance.
Benzene and Vinyl Chloride Detector Tubes (Based on existing analytical data, limited anticipation in groundwater)		
Conduct grab sampling for benzene and vinyl chloride when sustained PID/FID readings are detected in the breathing zone; if results exceed 0.5 ppm conduct integrated sampling to determine 8hr TWA.	0 - 0.5 ppm	Modified Level D required.
	>0.5 – 25 ppm	Upgrade to Level C required.
	>25 - 1,000 ppm	Upgrade to Level B required and conduct perimeter monitoring.
	>1,000 ppm	Stop work required. Contact PM for guidance.
Cyanide Detector Tubes (Based on existing analytical data, not anticipated to be present)		
Conduct air monitoring when intrusive activities such as drilling, boring or excavation could release cyanide gas.	0 - 2.5 mg/m^3	Modified Level D required
	>2.5 - 12 mg/m^3	Upgrade to Level C required and conduct perimeter monitoring.
	>12 mg/m^3	Stop work required. Leave work area, contact PM and SHSO for guidance.
Oxygen/Combustimeter (O_2/LEL) Measures oxygen level (O_2) and lower explosive limit (LEL)		

Instrument*	Function	Measurement	Action
Conduct air monitoring for O_2/LEL when conditions exist where flammable vapors/gases and/or oxygen deficiency or enrichment can occur. A decreased O_2 reading of 0.1% (e.g., 20.9% to 20.8%) actually represents a change in the total air envelope of approximately 0.5% or 5,000 ppm. This represents little hazard if the displacing gas is inert; if the displacing gas is toxic/flammable/reactive, such a concentration represents a real hazard. Verify reasons for O_2 depletion by conducting air monitoring with instruments that can measure suspected contaminants (PID/FID) or that can confirm presence of contaminants (detector tubes or chemical specific real-time air monitors).		O_2 = 20.9 %	Acceptable
		O_2 >19.5 - 20.8%	Verify reasons for O_2 depletion with appropriate air monitoring instrumentation before work continues. Utilize appropriate engineering controls/PPE once atmospheric contaminants have been verified.
		O_2 >20.9 % - 22 %	Verify reasons for O_2 enrichment before entering area. Utilize appropriate engineering controls/PPE to control O_2 enriched atmosphere.
		O_2 >22 %	**Leave area immediately;** this atmosphere is extremely flammable. Notify PM for guidance.
		O_2 <19.5%	**Leave area immediately;** this atmosphere is oxygen deficient. Verify reasons for O_2 depletion with appropriate air monitoring instrumentation before work continues. Utilize appropriate engineering controls/PPE once atmospheric contaminants have been verified.
		LEL <10%	Acceptable conditions. Continue normal activity.
		LEL >10%	**Leave area immediately.** Contact PM or CIH for guidance on venting and other safety measures.

*Note: Instruments must be calibrated according to manufacturer's recommendations.

Table 8 Hazard Summary

AIR MONITORING SUMMARY		
Job Task	Instruments	Frequency
Site and Preparation	DM[5] SLM[6]	No monitoring for organic contaminants expected to be required. If noise levels from machinery interfere with hearing, or if dusty conditions are encountered, monitoring for noise levels and dust levels should be conducted by the SHSO.
Temporary storm water system construction	DM[5] PID	Start up of work, then 30 minutes, or continuously based on sampling results and sample location. Continuously if action level is exceeded. Depending on levels recorded, the SHSO may decrease the frequency of monitoring, if levels are well below action levels in the HASP.
Sampling Activities	DM[5] PID	Start up of work, then 30 minutes, or continuously based on sampling results and sample location. Continuously if action level is exceeded. Depending on levels recorded, the SHSO may decrease the frequency of monitoring, if levels are well below action levels in the HASP.
Excavation/ Trenching in Non-contaminated soils Or Demolition of non-hazardous material, Tank closures	DM[5] PID	Before excavation, upon start up of work, then 30 minutes, or continuously based on sampling results and sample location. Continuously if action level is exceeded. Depending on levels recorded, the SHSO may decrease the frequency of monitoring to less than every 30 minutes if levels are well below action levels in the HASP. If visible dust is observed and wet methods of control do not remove the visible dust, particulate levels should be measured on a continuous basis.
Contaminated Soil & Solid Waste Excavation, Tank Closures In designated AEC's	PID[1] or FID[2], O2/LEL[3], DT[4], DM[5],	Before excavation, upon start up of work, then 30 minutes or continuously based on sampling results and sample location. Continuously if action level is exceeded.

[1] PID, Photoionization Detector
[2] FID, Flame Ionization Detector
[3] O_2/LEL, Oxygen Level and Combustible Gas Meter
[4] DT, Detector Tube
[5] DM, Dust/ Particulate Monitor
[6] SLM, Sound Level Meter
Note: "Start up of work at each new task location" means to monitor the air quality at each new operation on the site. The breathing zone is the area inside a 1-foot radius around the head.

3.2 Noise Monitoring

Noise monitoring must be performed in accordance with Envirospec practices when onsite activities call for noise monitoring (see Table 8). Noise levels are monitored in the field with either a Type I or Type II Sound Level Meter (SLM). Noise dosimeter readings can also be obtained to determine the percent (%) noise dose. Noise levels and percent (%) dose measured are then compared to limits listed in OSHA standard 29 CFR 1910.95, Hearing Conservation.

Action levels listed in **Table 9**, **Noise Monitoring** (i.e. for extended periods of time-greator than 5 seconds) will trigger upgrade in PPE to include appropriate hearing protectors (muffs or plugs) or initiate possible noise control engineering. Noise monitoring equipment must be calibrated prior to use each shift and checked at the end of the shift to determine accuracy. Noise readings must be recorded on data form in **Appendix E**, Noise Monitoring Form. Noise monitoring will be performed to identify background readings at the seven perimeter air monitoring locations prior to activities expected to cause excessive noise and with therefore require monitoring. Additional air monitoring surveys will be completed during work needing noise monitoring to establish hearing protection requirements. Noise monitor readings will then be taken two additional times at the air monitoring stations during the work.

Selection of hearing protection must match the employees' needs and the ability to attenuate noise below 90dB(A). Each hearing protection device (muff or plugs) has a Noise Reduction Rating (NRR) assigned by the U.S. Environmental Protection Agency (EPA). To calculate the hearing protector's effectiveness use the following formula:

$$\text{Noise Reading dB(A)} - (\text{NRR} - 7\text{dB}) < 90\text{dB(A)}$$

Table 9 Noise Monitoring

Instrument	Measurement	Action
Type I or Type II SLM - Calibrate Before Use		
	>80 dB(A) < 85 dB(A)	Hearing protection recommended. Limit work duration to 8-hour shifts.
	>85 dB(A) < 90 dB(A)	Hearing protection required. Limit work duration to 8-hour shifts.
	>90 dB(A) < 115 dB(A)	Hearing protection required. Investigate use of engineering controls. Limit work duration to 8-hour shifts.
	> 115 dB(A)	Stop work. Contact PM.

4.0 CONFINED SPACE ENTRY (CSE) PROCEDURES

In the event site work may require personnel to enter confined spaces, **No Envirospec employee or subcontractor shall enter an area identified as a confined space without using the CSE procedure and the site-specific entry procedures presented in Appendix G.** Before entering a confined space the Site Supervisor must be notified. The Site supervisor must be notified when all entrants have exited the confined space. The purpose of the CSE procedure is to protect employees from potentially hazardous environments and to facilitate rescue in an emergency situation. A CSE Permit must be posted at the entrance to each confined space. Permit required confined spaces may exist in the water treatment facility and must be followed if maintenance operations require entry into tanks or other equipment. **Entry into a confined space shall not occur without first notifying the Site Supervisor.**

5.0 CHEMICAL HAZARD CONTROL

5.1 Chemical Handling Procedures

Personnel must practice the chemical-specific handling procedures outlined below.

Table 10 Chemical Handling Procedures

Chemical	Description	Procedures
Soil and Groundwater Sampling		
		•
Activated Carbon (if applicable)	Granular adsorbent medium used to remove residual hydrocarbons from water and/or air.	• Use respiratory protection when activated carbon creates a dusty environment. • Avoid using Activated Carbon Filter Beds for Ketone Solvents - an exothermic reaction can develop over time and result in a possible explosion. • Contact PM for task-specific evaluation.

5.2 PPE

The following protection levels have been established for the site work activities based on the information obtained by the site history concerning the levels of site contaminants and the scope of work. Results of site air monitoring and/or visual inspection of the work activities may indicate the need for changes in final PPE level(s). (See Site Activities on the next page.)

Task	Initial PPE Level	Upgrade/Downgrade PPE Level	Skin Protection	Respiratory Protection	Other PPE
Site Setup	Level D	---	Generally none; Some clearing/grubbing activities require Tyvek™ coveralls to prevent insect bites/contact with poisonous plants	None	Hard-hat, Steel-toe work boots, safety glasses with side shields, or goggles and face shield), work gloves and hearing protection >85 dBA
Clearing, grubbing	Level D+	Level C	Tyvek™ suit, leather gloves, chaps when using chain saws. Tape-up hand and foot areas	Initial: None Upgrade: APR with Survivor 1053 cartridge	Hard-hat, Steel toe work boots, latex gloves, latex boots, and hearing protection > 85 dBA
Utility Trench Construction	Level D	Level D+	Leather gloves	None	Hard-hat, Steel toe work boots, latex gloves, latex boots, and hearing protection > 85 dBA
Site excavations	Level D+	Level C or Level B	Tyvek™ suit, surgical and nitrile gloves	Initial: None Upgrade: APR with Survivor type 1053 cartridge or Supplied air respirator.	Hard-hat, Steel toe boots, latex boots, and hearing protection > 85 dBA.
Decontamination	Level D+	Level C	PVC rain suit or Tyvek™ coveralls	None	Hard-hat, Steel toe work boots, goggles/face shield, latex boots and hearing protection > 85 dBA.
General Activities(includes soil and groundwater investigation activities and excavation)	Level D	---	None	None	Hard-hat, Steel toe work boots, work gloves, Safety glasses.
UST Cleaning and Removals	Level C	Level B	One piece coated Tyvek™ coveralls	Initial: APR with Survivor type 1053 cartridge. Upgrade: Supplied air respirator.	Hard-hat, Steel toe work boots, latex boots, nitrile gloves, hearing protection > 85 dBA.

5.2.1 PPE Exceptions/Modifications

While the minimum acceptable level of PPE requirements for this project site is Level D, exceptions have been granted for specified areas and duties for which the level of hazards encountered have been determined to be of minor impact.

Safety glasses and hard hats are not required when walking within the parking areas near the staff trailers. These areas have been designated with appropriate signage indicating at what point beyond the trailers it is necessary to don PPE. Proper PPE must be worn when outside of this designated area. When performing physical work (involving heavy equipment, etc) within this area, proper PPE according to the type of work is required to be worn. The SHSO will have the final say of when to don PPE and the proper PPE requirements.

Office staff is not required to wear steel-toed work boots. If office staff members perform work that may, by nature of the work, pose potential risk, proper PPE must be worn. The SHSO will determine when and what PPE is required.

No hard hat is required when within the enclosed cab of equipment or vehicles. Appropriate PPE for that area is required when walking to and from the equipment. The SHSO will determine when and what level of PPE is required.

The SHSO and/or Safety Consultant will determine when the exceptions listed above will or will not be implemented. Final determination in the field, of the proper level of PPE, based on activities, work area, visual assessment, or air monitoring data, will be made and enforced by the SHSO.

Only PPE that meets the following American National Standards Institute (ANSI) requirements are to be worn.

- Eye protection - ANSI Z87.1-1989
- Head protection - ANSI Z89.1-1986
- Foot protection - ANSI Z41-1991

Employees must maintain proficiency in the use and care of PPE that is to be worn. Typically this is covered during formal and informal OSHA refresher training sessions completed by a consultant or contractor.

Level D is the typical acceptable level of protection for this project site. Modified Level D is required when the possibility of contact to the skin or work uniform can occur from contaminated media. Upgrade to Level C will occur when results of air monitoring reveals action levels have been exceeded. Upgrade to

Level B occurs when results of air monitoring reveals action levels have been exceeded, and site personnel meet training requirements. Wear hearing protection when in areas where high noise levels are generated.

Table 11 Personal Protective Equipment (PPE)

Level	Requirements
Level D	• Work uniform • Steel-toed boots • Approved safety glasses or goggles • Hard hat • Fluorescent vest, when vehicular traffic is on or adjacent to the site • Leather gloves for all material handling tasks • Nitrile gloves for sampling activities
Modified Level D (D+)	**Add one or more of the following to Level D:** • Chemical resistance (acid or solvent) boot covers; e.g. latex booties • PE-coated Tyvek™ suit, NBR outer and nitrile inner gloves if skin contact with contaminants is possible. • Hearing protection (muffs and/or plugs).
Level C	• Level D and Modified Level D • Cooling vests/Thermal Protection • NIOSH/MSHA-approved full-face respirator or half face respirator with organic vapor/acid gas high efficiency particulate air-purifying (HEPA) cartridges.
Level B	• Level D and Modified Level D • Cooling vests/Thermal Protection • NIOSH/MSHA approved full-face positive pressure demand supplied air respirator, either airline or self contained.
Modified Level B	• Level D and Modified Level D • Cooling vests/Thermal Protection • NIOSH/MSHA approved full-face positive pressure demand supplied air respirator, either airline or self contained. • One Piece Chemical Resistant Suits
Prior to use, all equipment must be inspected to ensure proper working condition.	

5.3 Site Control: Work Zones

The entire site is surrounded by chain link fencing for security purposes and is locked to prevent access during non-working hours. Interior work areas will be barricaded and tapped off to prevent access during non-working hours.

Work zones will be established in order to:

- Delineate high-traffic locations,
- Identify hazardous locations, and
- Contain contamination within the smallest area possible.

Employees entering the work zone must wear the proper PPE for the area and work activity (See **Section 5.2, PPE**). Work and support zones will be established based on ambient air monitoring data, necessary security measures, and site-specific conditions. Work zones will be identified as either Exclusion Zone (EZ); Contamination Reduction Zone (CRZ); Support Zone (SZ), using physical barriers or visual aids.

Listed are general guidelines for delineation of work zones. CRZs will be developed for decontamination procedures listed in **Section 5.4, Decontamination Procedures**.

1. The EZ is identified to contain areas of contaminated soils or other environmental media where exposure to air borne contaminants exceeds air monitoring action levels. A minimum ten-foot distance surrounding this area will be demarcated with cones, barricades and/or caution tape depending on location to employees, general public, and high traffic areas.

2. The CRZ will be demarcated at its boundaries with barricades, cones, and/or caution tape depending on location to employees, general public, and high traffic areas.

3. Support areas are the areas outside the exclusion zone or contamination reduction zones, where no contamination has been identified.

Table 12 Safety Requirements for Working in Roadways and Excavations

WORKING IN STREET OR ROADWAY
 	
• Wear traffic vest and hardhat when vehicle hazard exists.
• Use cones, flag-mounted cones, caution tape and/or barricades.
• Use vehicle strobe light and block area with truck.
• Develop traffic patternization plan for high traffic situations:
  • Use flag person,
  • Use flashing arrow sign,
  • Use "MEN WORKING" signs liberally,
  • Obtain lane closing permits, and
  • Engage police details.

WORKING AT EXCAVATION/TRENCHING SITES • "Competent person" is required per OSHA 29 CFR 1926 Subpart P. • Safety guard open excavations by restricting unauthorized access. • Highlight work area using prominent warning signs (cones, saw horses/barricades and signage) placed a minimum of 10' back from excavation opening.
EXCAVATIONS LEFT UNATTENDED OR OVERNIGHT **Use one of the following methods to address these situations:** • Surround entire perimeter with plastic or cloth construction net fencing. Anchor fence to ground using steel posts driven into ground. Space out posts no greater than 8 feet apart. Fence height minimum 4-feet high. Fence material must be of a quality capable of withstanding a pressure of 200 pounds. Place fence a minimum of 10 feet back from excavation opening. • Place 8-foot long barricades affixed with flashing lights end to end with 4-foot high construction net fence attached to barricades. • Utilize temporary curbing or concrete "jersey" barriers affixed with flashing signal lights or other effective warning signs. • If Site is deemed secure with the existing perimeter fencing excavations will be barricaded with equipment and caution tape during non-working hours.

5.4 Decontamination Procedures

Operations conducted at this site have the potential to contaminate field equipment and PPE. To prevent the transfer of contamination to vehicles, administrative offices and personnel, the

procedures presented in **Table 13, Decontamination Procedures**, must be followed. Specific decontamination requirements will be followed by utilizing the equipment for that purpose. Contaminated work uniforms and Level D PPE must not be brought to employee residences and left either on-site, at the office location, or in the company vehicle. Laundering of company uniforms must be by Envirospec approved laundering services and not done at employees residence.

Table 13 Decontamination Procedures

Item	Examples	Procedure
Field Equipment	Excavators, shovels and miscellaneous construction equipment	• If required, remove excess material with hand tools. • Decontaminate with water; rinse prior to leaving the site. • Protect from exposure by covering with disposable covers such as plastic to minimize required decontamination activities.
Disposable PPE	Tyvek™ suits, inner latex gloves, respirator cartridges	• Dispose of according to the requirements of the client and state and federal agencies. • Change out respirator cartridges on a daily basis and dispose accordingly.
Nondisposable PPE	Respirators	• Wipe respirator with disinfecting pad prior to donning. (Do not use alcohol-based product.) • Decontaminate respirator on-site at the close of each day based upon extent of contamination. This procedure could include disassembling the respirator and cleaning, rinsing, sanitizing, and drying all parts with approved powders and solutions. Dry respirator and keep in resealable plastic bag.
	Boots and gloves	• Decontaminate outside with a solution of detergent and water; rinse with water prior to leaving the site. • Protect from exposure by covering with disposable covers such as plastic to minimize required decontamination activities.

All water used in decontamination procedures should be stored in portable storage tanks until a sufficient amount is stockpiled to facilitate disposal. Disposable sampling and PPE will be placed in plastic bags and temporarily stored in designated drums. These drums shall be disposed of according to regulatory guidelines, if necessary.

5.5 Example Decontamination Diagram

If Level D, C or Level B PPE is required, a CRZ will be constructed. The decontamination procedure for this project site is a two-stage process.

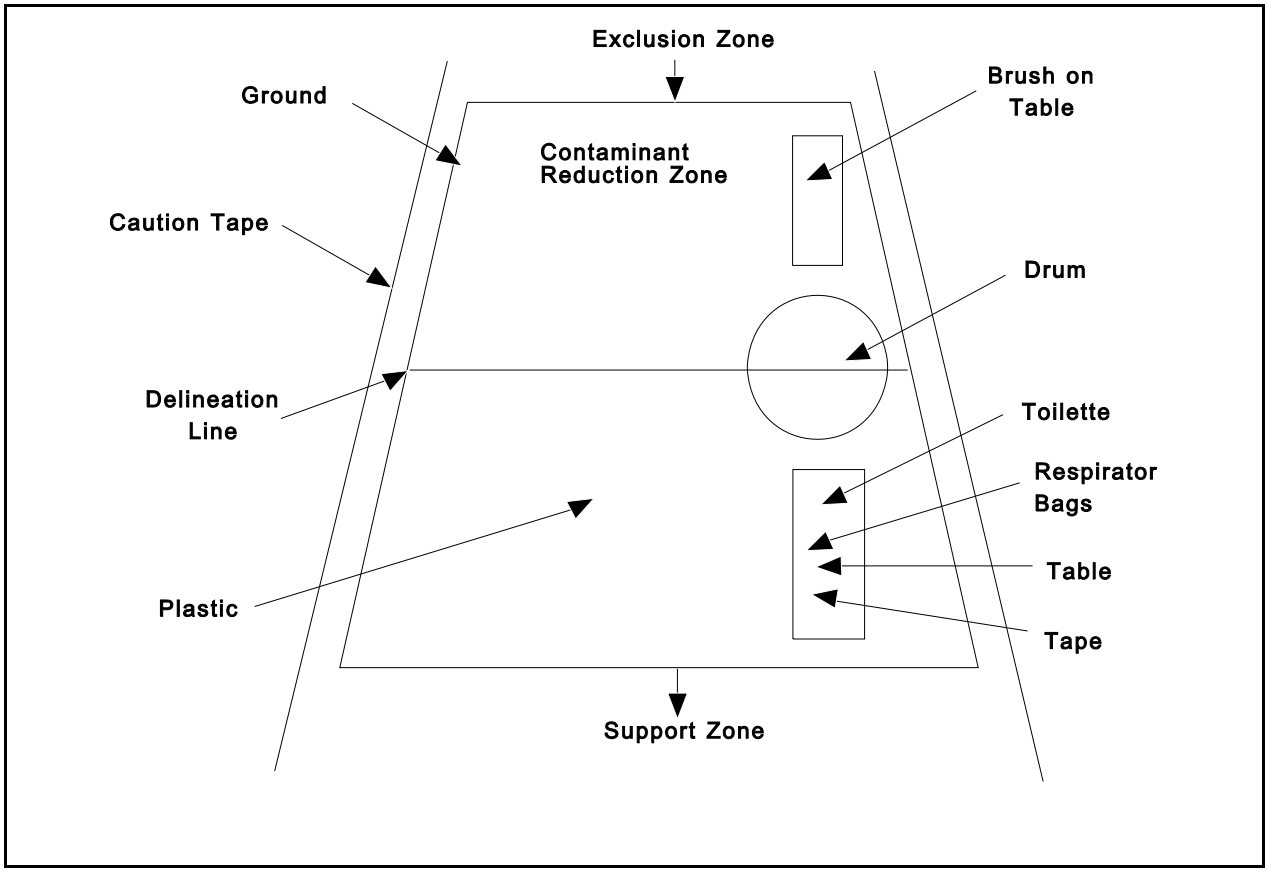
STAGE 1

- Gross contamination removal with a brush.
- Remove outer boots and dispose in a drum.
- Remove Tyvek™ suit and dispose in a drum.
- Remove outer gloves and dispose in a drum.
- Walk to Stage 2.

STAGE 2

- Remove respirator.
- Remove cartridge and dispose in a drum.
- Clean respirator and insert into a bag.
- Remove inner gloves and dispose.
- Wipe hands with a toilette and dispose.
- Walk out of decontamination area.

**Exclusion Zone Plan



6.0 CONTINGENCY PLANS

Table 13, Contingency Plans for Site Emergencies, presents contingency plans for potential emergency situations. Ensure that the information in the contingency plans have been clearly communicated to all project personnel and to those within the vicinity that may be affected, such as plant personnel and other contractors on site.

Table 14 Contingency Plans for Site Emergencies

Situation	Action
Evacuation	1. Immediately notify all on-site personnel of an emergency requiring evacuation. 2. Leave the dangerous area and report to a designated rally point. 3. Notify emergency medical service (EMS), as appropriate. 4. Account for all personnel. 5. Contact the PM and the SHSO and SS as soon as possible. 6. Maintain site security and control measures for community safety until emergency responders arrive. 7. Maintain contact with town response personnel such that the community shall remain informed
Medical Emergency	1. Survey the situation: **Do not enter an area that may jeopardize your safety.** • Establish the patient's level of consciousness. • Call for help. • Contact EMS and inform them of patient's condition. 2. Primary assessment (patient unconscious) • Arousal • Airway • Breathing • Circulation **Only trained personnel should perform CPR or First Aid - State that you are medically trained** 3. Secondary assessment (patient conscious) • Check for bleeding: Control with direct pressure. • Do not move patient (unless location is not secure). • Monitor vital signs. • Provide First Aid to the level of your training. • Contact the PM and SHSO and SS as soon as possible. • Document the incident on Envirospec Employee Injury Report and associated forms.

Situation	Action
Fire Emergency	1. Evacuate the area. 2. Notify the Fire Marshall 3. Notify the EMS. 4. Extinguish small fires with an all-purpose extinguisher. 5. Contact the PM, SHSO and SS. 6. Document the incident using the Envirospec form.
Spill/ Release	Prevent problems by documenting the location of underground lines (e.g., product, sewer, telephone) before starting site work. If you drill through a line or tank or another leak occurs, document the spill/release in writing. Include dates, times, actions taken, agreements reached and names of people involved. In the event of a spill/release, follow this plan. 1. Wear appropriate PPE; stay upwind of the spill/release. 2. Turn off equipment and other sources of ignition. 3. Turn off pumps and shut valves to stop the flow/leak. 4. Plug the leak or collect drippings in a bucket, when possible. 5. Place sorbent pads to collect product, if possible. 6. Call Fire Department immediately if fire emergency develops. 7. Inform Envirospec PM about the situation. 8. Determine if the client wants to repair the damage or if the client will use an emergency repair contractor. 9. Based on agreements, contact emergency spill contractor for containment of free product. 10. Advise the client of spill discharge notification requirements and determine who will complete and submit forms. Do not submit or report to agencies without the client's consent. Document each interaction with the client and regulators and note, in writing: name, title authorizations, refusals, decisions, and commitments to actions. 11. Do not transport or approve transportation of contaminated soils or product until proper manifests have been completed and approved. Be aware that soils/product may meet criteria for hazardous waste. 12. Do not sign manifests as generator of wastes; contact the regional compliance manager to discuss waste transportation. 13. Document the incident using the accident/injury investigation reporting forms.
**The PM must contact the client or generator. The generator is under obligation to report to the proper government agencies. If the spill extends into waterways, the Coast Guard and the National Response Center ([800] 424-8802) must be notified immediately by Envirospec with their permission.	

6.1 Emergency Communications

Emergency communications at the work site can be accomplished by verbal and/or non-verbal means to ensure contact with Envirospec and subcontractors. Verbal communication can be impacted by the on-site background noise and while wearing respiratory protection. **Table 15, Emergency Communication Methods**, lists the type of emergency communication methods and equipment to use, depending on site conditions. Communication equipment must be checked daily to ensure proper operation. All project personnel must be initially briefed on the communication methods prior to starting work and periodically reviewed in the Daily Safety Meetings.

Table 15 Emergency Communication Methods

COMMUNICATION DEVICE	TYPE OF COMMUNICATIONS	SIGNAL
Telephone On-Site or Cellular Telephone	Emergency notification	Initiate phone call using applicable emergency numbers
Two-Way Radio	Emergency notification among site personnel	Initiate radio communication with Code Red message
Compressed Air Horn	Emergency evacuation	Three long continuous blasts
Visual	Hailing site personnel for distress, need help	Arms waved in circle overhead
Visual	Hailing site personnel for emergency evacuation	Arms waved in criss-cross over head
Visual	Contaminated air/strong odor	Hands clutching throat

7.0 MEDICAL MONITORING PROGRAM

Envirospec Engineering, PLLC, requires that all subcontractors follow a medical monitoring program to track the physical conditions of their employees on a routine basis; starting with a baseline assessment, then periodic follow-up (annual or biennial) or specific project requirements based upon site contaminants or as assessment tool to aid in determining possible exposure. All potential or suspected exposures to hazardous wastes/ substances will be reported to the Envirospec Site Representative, the subcontractor's medical director and project PM.

Table 16 Medical Monitoring Program

WORKER MEDICAL PROFILE		
Item	**Initial**	**Annual**
Medical History	X	X
Work History	X	X
Visual Acuity and Tonometry	X	X
Pulmonary Function Tests	X	X
Physical Examination	X	X
Audiometry Tests	X	X
Chest X-Ray	X	X
Complete Blood Counts	X	X
Blood Chem. (SSAC-23 or equivalent)	X	X
Urinalysis	X	X
Dermatology Exam	X	X
Electrocardiogram (Stress Test) – based on age	X (based on age)	X (based on age)
Tetanus Booster Shot (if no inoculation has been received in the last five (5) years)	X	-

All site personnel shall participate in a medical monitoring program, such as outlined above. This program is initiated when the employee starts work with a complete physical and medical history and is continued on a regular basis.

Subcontractor employees are examined initially upon start of employment, bi-annually or annually thereafter, and may be examined upon termination of employment. Unscheduled

medical examinations are conducted:

- At subcontractor employee request after known or suspected exposure to toxic/hazardous materials or extreme environmental conditions, e.g. heat or cold stress.

- At the instruction of the PM, SHSO, or subcontractor employer occupational physician after known or suspected exposure to toxic/hazardous materials, or extreme environmental environment.

- At the discretion of the subcontractor employer occupational physician based on prior or present medical conditions.

APPENDICES

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A Woman Owned Business Enterprise (WBE)

APPENDIX A

Agreement and Acknowledgement Form
HASP Amendment Sheet
Visitor / Trainee Guidelines
Trainee / Observer Agreement Form

AGREEMENT AND ACKNOWLEDGEMENT SHEET

Envirospec Engineering, PLLC (Envirospec) personnel have the authority to stop field activities at this site if any activity is not performed in accordance with the requirements of the Health and Safety Plan. All Envirospec project personnel, subcontractor personnel, and visitors are required to sign the Agreement and Acknowledgment Sheet **prior** to conducting field activities at this site.

Envirospec Engineering, PLLC **AGREEMENT AND ACKNOWLEDGEMENT STATEMENT**	
1. I have read and fully understand the SSP and my responsibilities. **2. I agree to abide by the provisions of the SSP.**	
Name	Signature
Company	Date
Name	Signature
Company	Date
Name	Signature
Company	Date
Name	Signature
Company	Date
Name	Signature
Company	Date
Name	Signature
Company	Date

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ENVIROSPEC ENGINEERING, PLLC

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ENVIROSPEC ENGINEERING, PLLC
AGREEMENT AND ACKNOWLEDGEMENT STATEMENT

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2. I agree to abide by the provisions of the SSP.

Name	Signature
Company	Date
Name	Signature
Company	Date
Name	Signature
Company	Date
Name	Signature
Company	Date
Name	Signature
Company	Date
Name	Signature
Company	Date

VISITOR/TRAINEE GUIDELINES

Envirospec Engineering, PLLC (Envirospec) is committed to providing a safe environment on all work sites for visitors, trainees, employees and/or passersby. In order to accomplish this, the following guidelines must be followed.

1. VISITORS

Any person not actively participating in the work at the site is regarded as a "visitor" and must follow Envirospec's visitor/trainee guidelines. Visitors must be accompanied by a representative while on-site.

Sites must be marked with signs, placards, and/or barricades to designate hazardous boundaries. Visitors will not be allowed on any site that is not adequately marked.

2. TRAINEES

Trainees are employees of Envirospec who have not yet completed Envirospec's required safety training program. New hires and in-house company transfers will be considered trainees until safety training requirements are met.

Trainees will be informed of restrictions by their supervisor and must abide by them before visiting active sites.

Trainees will be permitted to visit Envirospecsites as observers as long as the following conditions are met:

- Trainees are supervised at all times while observing on-site.
- Trainees do not perform work functions of any type while on-site.
- Trainees do not handle any equipment, tools and/or supplies while on-site.
- Trainees do not enter any hazardous or hot zone or confined space areas while on-site.

Supervisors will be responsible for informing trainees of the above conditions and for ensuring that the conditions are met. Supervisors will also ensure that trainees will not be asked to violate the conditions listed above.

A Trainee/Observer Agreement Form must be signed by both the trainee and the supervisor and placed on file in the Regional Human Resources department.

Infractions of the above agreement will be viewed as extremely serious and will be subject to discipline up to and including termination for either the trainee and/or supervisor.

TRAINEE/OBSERVER AGREEMENT FORM

Envirospec Engineering, PLLC (Envirospec) is committed to providing a safe working environment for all employees. In addition, Envirospec will comply with OSHA requirements for employee safety training prior to working on any hazardous site.

The following section is to be filled out by trainee.

Agreement between:

__________________________ _______________ and Envirospec Engineering, PLLC (Envirospec)

Name (print/type) SS#

Because we have your safety in mind, you will be considered a trainee until all training criteria are met. This means you must complete all training requirements prior to performing work activities on-site. As a requirement of the training program, you will be asked to visit Envirospec sites as an observer. You must be supervised on all of these site visits.

As an on-site observer trainee, your signature below indicates your agreement to these restrictions.

You may not:

1. Perform work functions of any type.
2. Handle any equipment/tools and/or supplies of any type.
3. Enter any hazardous or hot zone areas.

I agree to adhere to the above conditions in all instances while on-site as a trainee/observer.

Signature Date

- -

This section is to be filled out by supervisor.

As supervisor to the above trainee, I agree to the above restrictions and agree not to request him/her to perform activities contrary to those restrictions.

Signature Date

SITE SPECIFIC HEALTH & SAFETY PLAN
AMENDMENT DOCUMENTATION

Project Name: _____ Project No,: _____

Amendment No.: _____ Date: _____

Amendment Revises: Page: _____ Section: _____

Task(s) Amendment Affects: *_____

_____

_____

** (Attach New/Revised Job Safety Analysis if applicable)*

Reason For Amendment

_____

_____

_____

_____

_____

Amendment: *(Attach separate sheet(s) as necessary)*

_____

_____

_____

_____

Completed by: _____ **Approved by:** _____

envirospec ENGINEERING, PLLC

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APPENDIX B

Envirospec Engineering, PLLC Accident Prevention and Reporting Forms

1.0 PURPOSE

The intent of this Accident Prevention Plan is to describe procedures to protect the lives and health of all persons associated with the referenced project, to prevent damage to property and materials, and to avoid work interruptions due to accidents. The Accident Prevention Plan must be considered in conjunction with the Emergency Spill Response Plan and the Site Specific Health and Safety Plan.

2.0 DUTIES AND RESPONSIBILITIES

Envirospec Engineering, PLLC (Envirospec) will oversee and act accordingly during all phases of the project. The following management structure will be instituted for the purpose of successfully and safely completing this project.

A Site Safety Supervisor (SSS) shall be assigned to the site during all site activities and shall assist and shall represent the Site Health and Safety Manager. The SSS shall have the responsibility and authority to implement and enforce the approved Site Health and Safety Plan (HASP), this includes modifying/halting work, and removal of personnel from the site if work conditions change and effect on-site/off site health and safety matters. The SSS will serve as the main contact for any on-site emergency situation. The SSS shall be required to conduct various types of area air monitoring as describes in the HASP for the purpose of verifying worker exposure and proper selection of personal protective equipment. The SSS shall be consulted before any changes in the recommended procedures or levels of protective clothing are made.

The responsibilities of the SSS are:

- Maintain a daily logbook for recording all significant health and safety activities and incidents;
- Provide on-site technical assistance;
- Conduct routine air monitoring, including equipment maintenance and calibration;
- Issue/obtain any required work permits;
- Conduct daily inspections of all mechanical equipment;
- Conduct daily health and safety inspections;
- Ensure all appropriate personnel have received the necessary training;
- Provide daily tailgate safety meeting and document meeting attendance on the Daily Safety Meeting Form;
- Ensure that appropriate personnel have received the necessary physical examinations;
- Provide routine negative pressure respirator checks, if required;
- Periodically review the adequacy of the HASP;
- As appropriate, draft necessary amendments to the HASP for review;

- Assure that all Site, oversight, project and authorized personnel are made aware of the provisions of the HASP and have been informed of the nature of any physical, chemical and/or biological hazards associated with site activities; and

- Maintain control of required documents for record keeping purposes.

3.0 HEALTH AND SAFETY MANAGER

The Health and Safety Manager has the overall responsibility for establishing health and safety procedures. The Health and Safety Manager is responsible for documenting that employees have received proper health and safety training and have participated in a medical surveillance program. The Health and Safety Manager shall be responsible for developing the site specific HASP and conducted unannounced health and safety audits.

4.0 INSPECTIONS AND AUDITS

All inspections and audits shall be conducted in accordance with the provision describes in Section 4.0 Inspections and Audits, of the Envirospec Health and Safety Policy and Procedures Manual. All employees are responsible for continuously inspecting their workplace and procedures and correcting deficient conformance to Envirospec health and safety policies.

The Site Safety Supervisor shall conduct daily site safety inspections or as needed and document the results on Field Safety Inspection Checklist.

Project Managers are responsible for establishing inspection type and frequency at their sites and correcting deficient compliance to health and safety policy and procedures. During the duration of the project, two unannounced health and safety audits will be conducted by the Health and Safety Manager. The results of the audit shall be documented on Field Safety Audit Inspection Checklist.

Business Unit Managers are responsible for ensuring that field audits are conducted in a timely manner and that all deficiencies are corrected.

Health and Safety professionals are responsible for providing technical guidance on procedures and corrective actions.

Copies of all completed Field Safety Inspection and Audit Checklist shall be provided to the Project Engineer.

6.0 SITE HAZARDS

The site tasks to be performed at the site include:

- Site preparation,

- Site sampling during investigation,
- Building and structure demolition exclusive of asbestos abatement,
- Excavation of soil during IRMs,
- Equipment Decontamination,
- Backfilling and Site Restoration.

Control measures are described in the HASP, Section 2.0, Potential Hazards and Control.

Good housekeeping at the site will be continuously enforced as an accident prevention technique. Smoking will be allowed only in designated areas in the support (cold) zone.

7.0 COMPLIANCE RECORDKEEPING

The Site Safety Supervisor shall maintain the referenced compliance records on-site for the duration of the project. At the completion of the project, records shall be maintained in the project file. The SSS shall establish a project file which will include separate files for the following:

- Safety Meeting Attendance forms
- Preliminary Incident Reports (PIRs)
- Copies of all site personnel training certificates (8 hr. refresher), fit test records, and proof of medical evaluation.
- Copies of SSS daily field notes.
- Copies of competed air monitoring forms.
- Copy of OSHA Form 200.
- Copies of all project permits.
- Copy of the HASP.

8.0 ACCIDENT AND INCIDENT REPORTING PROCEDURES

All incidents must be reported and investigated in accordance with the provisions of Section 2, Incident Investigation and Reporting of the Envirospec Health and Safety Policy and Procedures Manual. Incidents shall be reported to the Project Manager and Project Engineer immediately, always within 24 hours. The Preliminary Incident Report (PIR) form shall be utilized to record and report the facts about the incident. The manager shall determine the extent and scope of follow-up actions to investigate the incident, take corrective actions and report. Class II and III incidents shall be reported to the Health and Safety Manager and Operations Manager within 24 hours. A manager shall issue a signed report within 30 days of all Class II and III incidents. The Director of Health and Safety is responsible for maintaining and communicating the results of trend analysis for incidents. A copy of the PIR form is included in Appendix D.

Envirospec Engineering, PLLC
PRELIMINARY INCIDENT REPORT

Person Completing Report:_____ Phone:_____ Today's Date:

Incident Date:_____ Time:_____ am/pm Location:_____ Dept. #:

Type of Incident:

☐ Personal Injury/Illness	☐ Fire/Explosion	☐ Chemical Exposure
☐ Unsafe Condition/Action	☐ Equipment Damage	☐ Customer Incident
☐ Property Damage	☐ Spill/Release	☐ Near Miss
☐ Permit/Code Compliance	☐ Newspaper/Radio/Television	☐ Motor Vehicle

☐ Other

Personal Injury: ☐ Yes ☐ No (If no, go to next section)

☐ First Aid Only ☐ Hospitalization ☐ Medical Treatment ☐ Possible Injury, Not Confirmed

Person Injured: ☐ Envirospec Employee ☐ Subcontractor ☐ Customer/Public/Other

Injured Name:_____ Telephone

Office/Address:

Nature of Injury, Illness or Exposure:

Describe nature of incident, how it occurred, who was involved, witnesses, and possible causal factors:

Describe actions taken and persons notified:

Manager Responsible for Follow-up:_____ Telephone

Provide this report to the responsible manager within 24 hours.

Distributed to:_____,

,

envirospec ENGINEERING, PLLC

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INCIDENT REPORTING GUIDE

Incident Class	**Class I** A minor incident that is dealt with at the local level.	**Class II** A serious incident that requires notification to Corporate within 24 hours	**Class III** A highly significant incident requiring immediate notification and assistance from Corporate
Examples of Incidents	■ First Aid injury ■ Minor damage to SIA property (less than $200) ■ Non-reportable quantity spill ■ Near miss incident ■ Unsafe condition or behavior	■Personal injury (more than first aid to employee, sub-contractor or public) ■Vehicle accident involving injury or damage to vehicle or property ■Damage to SPEC property greater than $200 ■Near miss incident that could have been deadly ■Fire ■Explosion ■Facility damage or business interruption greater than $10,000 ■Non-emergency notification of regulatory agency is required	■Hospitalization (of one or more persons) ■Death ■Regulatory agency response to incident site ■Multiple injury of employees sub-contractors or public ■Emergency notification of regulatory agency
Notification Actions	1. On-scene person notifies manager immediately by phone 2. Provide PIR form to manager within 24 hours 3. Manager investigates and follows up	1.On-scene person notifies manager immediately by phone 2.Manager investigates 3.Manager notifies the business unit manager, H&S manager and corporate H&S with PIR form within 24 hours of the incident 4.Manager provides a detailed final investigation report within 30 days to corporate H&S	1.On-scene person notifies manager immediately by phone 2.Incident management team conferences by phone and formulates an action plan

APPENDIX C

Lock-Out / Tag-Out Procedures

SITE-SPECIFIC LOCKOUT/TAGOUT PROCEDURES		
Equipment	**Operation**	**Lockout Method/Location**

SITE-SPECIFIC LOCKOUT/TAGOUT PROCEDURES		
Equipment	**Operation**	**Lockout Method/Location**

LINE BREAKING PROCEDURE & LOCKOUT/TAGOUT

15.1 Purpose

This program establishes the safe line breaking and lockout & tagging methods to be used by the contractor. It applies to process lines, which may contain process liquids, utility lines with stored energy, electrical equipment, valves, or equipment capable of activation during removal, cleaning or repair, which may present a hazard to personnel and/or a release of a regulated substance. The contractor is responsible for development and submittal of a site specific line break and lock out / tag out procedure. The contractor's site-specific procedure shall be submitted to the owner for approval prior to implementation. At a minimum the following items are to be addressed in this procedure.

15.2 Policy

No process lines are to be broken, disassembled, disconnected or removed without following the established line breaking and lockout / tag out procedure. A standard lockout and tagging procedure consistent with OSHA requirements shall be utilized to assure accountability and control during operations in which equipment or systems are present which could endanger the lives of personnel or result in a release of a regulated substance should equipment or a system be activated, disassembled or energized.

15.3 Responsibility

15.3.1. The site contractors Health and Safety Officer is responsible for the following:

15.3.1.1 Identifying the personnel who are authorized to break product lines and act as lockout/tagging authorities.

15.3.1.2 Controlling and maintaining accountability of line breaks and tags/locks.

15.3.1.3 Approving the breaking of product lines and the removal of locks or tags from equipment or when systems keys are lost.

15.3.1.4 Coordinating system isolation activities that affect sub-contractors.

15.3.1.5 Maintaining a log for controlling and tracking lockout and tagging activities.

15.3.1.6 Checking the log on a monthly basis for the status of outstanding locks or tags

15.3.2 The lockout/tagging authority is responsible for the following:

15.3.2.1 Making or receiving requests for lockout/tagging.

15.3.2.2 Processing requests and coordinating the lockout/tagging activities.

15.3.2.3 Making appropriate log entries for the requested lockout/tagging.

15.3.2.4 Assuring that system status and configuration is appropriate for lockout/tagging.

15.3.2.5 Ensuring receipt of tags when work is complete.

15.3.2.6 Making appropriate log entries to release the equipment into service.

15.3.3 Supervisors are responsible for:

15.3.3.1 Educating their employees in the proper procedures of lockout/tagging.

15.3.3.2 Assuring that the equipment has the capability of being locked out

15.3.3.3 Checking on the jobs in progress to verify that they are properly locked or tagged out.

15.3.3.4 Administering appropriate disciplinary action for violations of the Lockout Program

15.3.4 All Employees are responsible for:

15.3.4.1 Reading, understanding, and having the lockout procedures available at all times.

15.3.4.2 Making sure that equipment is properly locked out with his/her own lock before beginning work on the equipment.

15.3.4.3 Ensure that if any employee has been released from a job, they remove their lock and have their replacement install their own lock.

15.4. Locking and Tagging System Control

All tags shall be numerically sequenced or personally identified and logged out for each system control operation. Log and rag information shall include job description, requester's name, requester’s social security number, division, supervisor’s name and date.

The Health and Safety Officer shall control padlocks. Pad locks must be used when there is a potential for danger to personnel or equipment. When pad locks are used to lock out a system or component they must be accompanied by a "Danger-Do-Not-Operate" tag. After the tag and lock have been installed, the employee shall maintain the key.

Everyone working on a piece of equipment requiring lockout will use individual locks or danger tags.

15.5 Lost Keys or Absence of Employee

If an employee cannot find their key, only the Health and Safety Officer can authorize removal of the locks and tags. The following steps must be taken prior to this authorized removal.

15.5.1 Ensure that the released equipment will not harm personnel or equipment.

15.5.2 Verify that it is essential to remove the locks and tags.

15.5.3 Verify that all reasonable effort has been expended to recover the key.

15.5.4 Verify that the absent employee has been notified and has acknowledged that the lockout/tagged system has been removed.

15.5.5 Note any special circumstances in the log.

15.6 Isolation Procedures

15.6.1 Machinery or equipment capable of movement shall be stopped and the power source deenergized or disengaged. When necessary, the moveable parts shall be physically blocked to prevent inadvertent movement during servicing or adjusting.

15.6.2 Any electrical equipment undergoing service, or adjustment shall be DE-ENERGIZED locked out.

15.6.3 Every prime mover or power driven machine shall be locked out or positively sealed in the off position during maintenance work. Where lockable controls are not available, compliance with this section shall be met through the use of positive means such as de-energizing or disconnecting the equipment from its power source, or other positive action which will prevent inadvertent movement of the equipment. In all cases, signed and dated tags of an appropriate type shall be affixed to the controls of the machines or equipment during work.

15.6.4 Each division lockout/tagging authority shall provide tags, padlocks, and chains, which may be required to complete and identify lockout conditions.

15.6.5 On machines or equipment where cleaning adjustment, or testing cannot be performed with the prime mover or energy source disconnected, such operations may be performed under the following conditions:

15.6.5.1 The operating station where the machine may be activated shall be under the control of a qualified operator at all times.

15.6.5.2 All participants in the cleaning, adjustment, etc., shall be in clear view of the control operator or in positive communication with him.

15.6.5.3 All participants must be beyond reach of equipment, which may present a hazard to them.

15.7 Electrical Equipment

15.7.1 Lock out the main power source in the off position before commencing work on electrical components. Lock out control circuits and associated drive mechanism(s) only when it is impossible or impractical to lock out the main power source.

15.7.2 Make all lockouts with a padlock and tag. Each employee working on or exposed to the hazard shall add his/her lock to the lockout. (Each lock must be noted in the appropriate log)

15.7.3 The control switch or valve shall be tested after the lockout has been made in order to assure that it cannot be operated.

15.8 Process Piping Systems

All process piping systems are to be positively isolated using the described procedures prior to line breaking. Personnel performing the line break shall be equipped with the appropriate PPE, and equipment necessary to drain, purge, and inert (if necessary) process piping systems, which contain regulated products. All free liquids are to be pumped, drained or purged into 55-gallon drums provided by the owner. Different process liquids CANNOT be mixed with other liquids. All drums shall be sealed labeled and stored in an area designated by the owner.

Pipelines may be isolated by the following methods:

15.8.1 Misalignment

15.8.1.1 Pipelines may be misaligned by unbolting them at a flange and then re-bolting them in the misaligned position.

15.8.1.2 A "Danger" tag and seal must also be attached to the pipeline.

15.8.1.3 Misalignment may be used for liquid lines, to enter vessels, etc. It should not be used on gas lines.

15.8.2 Blinding

15.8.2.1 Pipelines may be isolated by the use of blinds in the piping system at flanges.

15.8.2.2 On gas pipelines when double block and bleeds are not available for use, blinds shall be the primary method of isolation. When the blind is installed, sufficient bolts shall be places around the blind to keep it in place. The blind shall be rated no less than the operating pressure of the line. A “DANGER” tag shall also be attached to the blind.

15.8.3 Valves
Double Block and Bleed Procedures

15.8.3.1 Since blocked valves may leak, the techniques of the double block and bleed shall be used whenever possible.

15.8.3.2 When using double block and bleed procedures, both valves shall be locked and tagged.

15.8.3.3 If the double block and bleed cannot be used, then a blind shall be used if possible. However, if blinding is impractical, a single block valve may have to be utilized to isolate piping system.

15.8.4 Isolation by Valves
If it is necessary to isolate piping systems using valves, they shall be locked and tagged with a "Danger" tag. Pneumatic or electrically operated valves shall have the activation systems on the valves disconnected.

15.8.5 Pneumatic Operated Valves
When pneumatic operated valves are used as block valves, the pneumatic systems shall have the makeup air to the system blocked and the bleed valve of the air system shall be left open and tagged with a "Danger" tag.

15.8.6 Motor Operated Valves

15.8.6.1 When motor operated valves are used as block valves, the motor operated valves shall be locked into position by locking out the electrical activation switch and/or circuit breaker.

15.8.6.2 If these measures are not possible, the fuses for the system, if any, shall be pulled or the electrical leads to the motor operated valves disconnected and properly secured so no accidental contact can be made.

15.8.6.3 A "Danger' tag shall be attached to the disconnected electrical leads.

15.9 Block-Out Procedure for Equipment

15.9.1 Air-operated, gear-driven, hydraulically operated units, or suspended parts of a machine or equipment shall be physically blocked out to prevent movement.

15.9.2 Steam, air, gas, hydraulic cylinders, etc., shall be bled down.

15.9.3 Blocks shall be placed under raised parts, lifts, or any equipment that might descend or slide.

15.9.4 Coiled springs, spring-loaded devices, and securing cams shall be released prior to commencement of work.

15.9.5 Blocks or stands shall be utilized under raised vehicles, machines, or equipment to prevent failure or slippage of the jack or elevating device.

CAUTION: Under no circumstances is anyone allowed to remove a lock and tag other than the employee who installed them, unless specifically authorized in writing to do so by that employee's supervisor, and then only after careful inspection of the work area and the equipment which has been de-energized.

15.10 Control of Stored Energy

Take any of the following steps that are necessary to guard against energy left in the equipment after it has been isolated from its energy sources.

15.10.1 Inspect the system to make sure all parts have stopped moving.

15.10.2 Install ground wires.

15.10.3 Relieve tapped pressure.

15.10.4 Release the tension on springs, or block the movement of spring-driven parts.

15.10.5 Block or brace parts that could fall because of gravity.

15.10.6 Block parts in hydraulic and pneumatic systems that could move from loss of pressure. Bleed the lines and leave vent valves open.

15.10.7 Drain process piping systems and dose valves to prevent the flow of hazardous materials.

15.10.8 If a line must be blocked where there is no valve, use a blank flange.

15.10.9 Purge reactor tanks and process lines.

15.10.10 Dissipate extreme cold or heat, or wear protective clothing.

15.10.11 If stored energy can reaccumulate, monitor it to make sure it stays below hazardous levels.

15.11 Verifying Isolation

Use the following procedures to verify that equipment has been properly locked out.

15.11.1 Make sure all danger areas are clear of personnel.

15.11.2 Verify that the main disconnect switch or circuit breaker cannot be moved to the on position.

15.11.3 Use a voltmeter or other equipment to check the switch.

15.11.4 Press all start buttons and other activating controls on the equipment itself. Shut off all machine controls when the testing is finished.

APPENDIX D

SDS Definitions

DEFINITIONS

(TLV-TWA)	*Threshold Limit Value - Time Weighted Average*. The time-weighted average concentration for a normal 8-hour work day and a 40-hour work week, to which nearly all workers may be repeatedly exposed without adverse effect.
(PEL)	Time-weighted average concentrations similar to (and in many cases derived from) the Threshold Limit Values.
(REL)	*Recommended Exposure Limit* as defined by NIOSH similar to the Threshold Limit Values.
(IDLH)	*Immediately dangerous to life or health* means any atmospheric condition that poses an immediate threat to life, or which is likely to result in acute or immediate severe health effects. This includes oxygen deficiency conditions.
(LEL)	*Lower Explosive Limit* The minimum concentration of vapor in air below which propagation of a flame will not occur in the presence of an ignition source.
(UEL)	*Upper Explosive Limit* The maximum concentration of vapor in air above which propagation of a flame will not occur in the presence of an ignition source.
Flash Point (F.P.)	The lowest temperature at which the vapor of a combustible liquid can be made to ignite momentarily in air.
Vapor Pressure (V.P.)	The pressure characteristic at any given temperature of a vapor in equilibrium with its liquid or solid form, often expressed in millimeters of mercury (mm Hg).
Odor Threshold	A property displayed by a particular compound, low detection indicates a physiological sensation due to molecular contact with the olfactory nervous system (Based on 50 percent of the population).
Ionization Potential	The amount of ionization characteristic a particular chemical compound (I.P.) displays.

APPENDIX E

Air Monitoring Form
Daily Instrument Calibration Check Form
Noise Monitoring Form

ENVIROSPEC ENGINEERING, PLLC
AIR MONITORING FORM

Project Name:

Project Number:

Contaminants:

Date	Time	Ionization Detector Reading		Explosimeter Reading		Detector Tube Reading	Location	Purpose	Initials
		FID	PID	%LEL	$\%O_2$	ppm			

DAILY INSTRUMENT CALIBRATION CHECK FORM

Project Name_____ Instrument_____

Job Number_____ ID #_____

DATE	INSTRUMENT	BATTERY CHECK OK?	ZERO ADJUST OK?	CALIBRATION GAS (PPM)	READING (PPM)	CALIBRATED BY:	COMMENTS

NOISE MONITORING FORM

Project Name:

Project Number:

Noise: Equipment Used: (Type/Model)*

Date	Task	Location/Employee	Noise Reading dB(A)	Initials

*Pre-calibrate noise monitor prior to conducting noise survey.

APPENDIX F

Excavation and Trenching

EXCAVATION/TRENCHING SAFETY PROCEDURES

Evaluation: Conducted by Competent Person 29 CFR 1926.

- Two soil classifications must be completed to determine sloping/shoring requirements.
- Conduct daily inspections of all open excavations prior to entry.

Egress: Excavation areas 4 feet (1.22M) or more deep

- Ladders must be spaced no more than 25 feet (7.62M) apart so that a person in the trench is always within 25 feet (7.62M) of a ladder for egress.

Shoring: Excavation areas 5 feet (1.52M) or more deep

- Excavations must be sloped or shored if personnel will be entering the excavation.
- Soil classification may be done only by a competent person using both a visual and manual test.

WARNING: One soil classification may not be enough. Outside disturbances during excavation may change even the best classification.

Inspect the soil after any condition change.

Storage: All excavations

- Spoils and heavy equipment must be stored a minimum of 2 feet (.61M) from the edge of the excavation.
- Store spoils on the downhill side.

Maximum Allowable Slopes

Soil or Rock Type	Maximum allowable slopes (H:V) [1] for excavations less than 20 feet (6.10M) deep [3]
Stable Rock	Vertical (90°)
Type A [2]	3/4:1 (53°)
Type B	1:1 (45°)
Type C	1½:1 (34°)

Notes:

1. Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angles have been rounded off.

2. A short-term maximum allowable slope of 1/2 H:1V (63°) is allowed in excavations in Type A soil that are 12 feet (3.67M) or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67M) in depth shall be 3/4 H:1V (53°)

3. Sloping or benching for excavations greater than 20 feet (6.10M) deep shall be designed by a registered professional engineer.

EXCAVATION/TRENCHING - UNDERGROUND UTILITIES

Documentation:

- Contact the local utility service (Digsafe, Misutility...), and document Permit No.
- Accompany utility representative in questionable areas, elaborate trenching projects tight/tricky areas or whenever drilling adjacent to a building or structure
- Contact the property owner and/or town building department for plans

Physical Location:

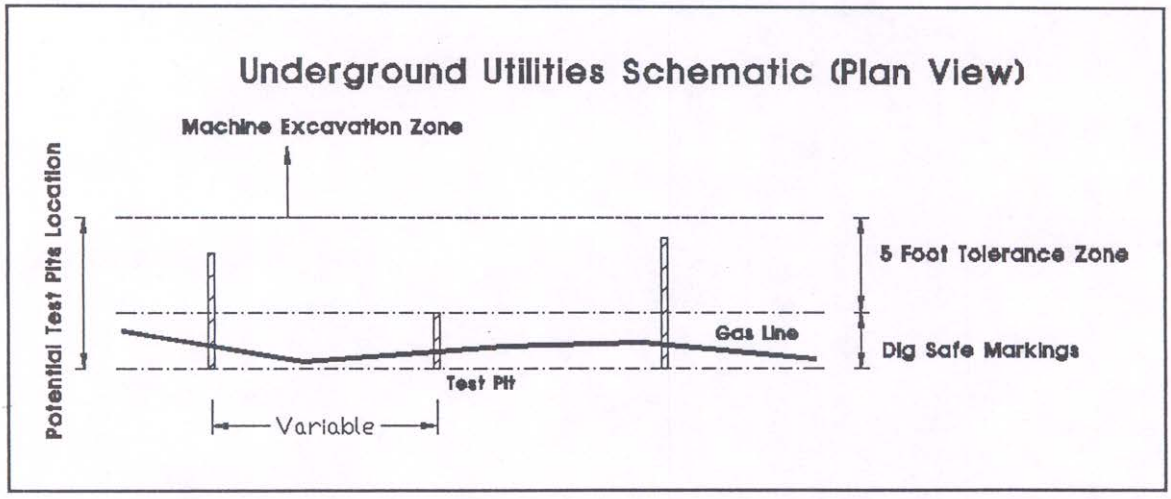
- Use a metal detector to aid in the identification of obstructions
- Observe utility markers, vent pipes, catch basins, newly paved areas, etc.

Safety Procedures:

- Machine excavate five feet from any underground utility, tank, or utility marker
- Hand dig in utility "five-foot tolerance zone" until the service is exposed
- Utilize test pits to establish and QC markers for sensitive utility locations

General Notes:

- Comply with local and state codes and regulations
- Utilize experienced and trained equipment operators
- Use appropriate subcontractors and applicable insurance riders
- Hand dig per customer mandate



APPENDIX G

Confined Space Entry Procedures
Confined Space Entry Permit

CONFINED SPACE ENTRY PERMIT

This permit must be completed prior to entering any confined space and is **ONLY VALID FOR THE DATE AND TIME INDICATED ON THIS FORM.** All procedural requirements contained in Envirospec Engineering, PLLC (Envirospec) Health & Safety Policy & Procedure must be followed.

In the event a confined space emergency situation develops and rescue is required, notify the following appropriate emergency services:

Ambulance Fire: Police:

Purpose of entry Location of confined space:

Date: Authorized Duration: Expires on:

Atmospheric Hazards: [ ] Oxygen Deficiency [ ] Flammable [ ] Toxic [ ] Other [ ] Other

Physical Hazards: [ ] Mechanical [ ] Electrical [ ] Chemical [ ] Engulfment [ ] Other

PRE-ENTRY REQUIREMENTS

Yes	N/A		Yes	N/A	
[ ]	[ ]	Entry area is free of debris and objects	[ ]	[ ]	Non-sparking tools used
[ ]	[ ]	Warning barriers and signs are in place	[ ]	[ ]	Low voltage (less than 25v) lighting used
[ ]	[ ]	Atmospheric monitoring conducted	[ ]	[ ]	Electrical equipment rated for explosive atmospheres
[ ]	[ ]	All hazardous lines have been isolated	[ ]	[ ]	No compressed gas cylinders in the confined space
[ ]	[ ]	Hot work permit attached	[ ]	[ ]	Host employer and/or contractors notified
[ ]	[ ]	All energy sources have been locked out/tagged out	[ ]	[ ]	Entry and emergency procedures have been reviewed
[ ]	[ ]	The confined space has been drained and flushed	[ ]	[ ]	All personnel have been trained (classroom/exercise)
[ ]	[ ]	Forced air or exhaust ventilation is provided	[ ]	[ ]	All personnel have been informed of potential hazards
[ ]	[ ]	Electrical equipment is properly grounded	[ ]	[ ]	Attendant stationed at entrance and property inspected
[ ]	[ ]	Ground fault circuit interrupters (GFCI) provided	[ ]	[ ]	Rescue equipment on location and readily accessible

PROTECTIVE EQUIPMENT

Yes	No		Yes	No		Yes	No	
[ ]	[ ]	Hard Hat	[ ]	[ ]	Protective clothing	[ ]	[ ]	Communications Equipment
[ ]	[ ]	Eye/Face Protect.	[ ]	[ ]	Hearing protection	[ ]	[ ]	Ventilation to provide fresh air
[ ]	[ ]	Boots	[ ]	[ ]	Retrieval Device/Tripod	[ ]	[ ]	Respirator (type)
[ ]	[ ]	Gloves	[ ]	[ ]	Harness and Lifeline	[ ]	[ ]	Other

Atmosphere Test(s) to be taken*	Yes	No	Acceptable Entry Conditions	Time	Time	Time	Time	Time	Time	Time	Time	Time	Time	Time
			Allowable Limits	**Enter Air Monitoring Findings Below**										
Oxygen			19.5% - 22.0%											
Combustible Gas			Below 10% LEL											
PID/FID														
Carbon Monoxide			0-15 PPM											
Hydrogen Sulfide			0-5 PPM											
Hydrogen Cyanide			0-2 PPM											
Sulfur Dioxide			0-1 PPM											
Ammonia			0-10 PPM											
Other														

SUPERVISOR APPROVAL: I certify that all necessary precautions have been taken to make this confined space safe for entering and conducting the work during the prescribed time(s) as well as emergency response procedures.

Print Name Sign Name Date

Entry Supervisor

Permit Prepared by

Atmosphere Tester

Attendant

ENTRANT ACKNOWLEDGEMENT: I HAVE BEEN PROPERLY INSTRUCTED FOR SAFE ENTRY INTO THIS CONFINED SPACE AND UNDERSTAND MY DUTIES AND EMERGENCY PROCEDURES

Print Entrant Name Sign Entrant Name Employee or S.S. No. Date Time

*An evaluation should be performed to consider all potential air contaminants which could be present and represent a hazard.

CONFINED SPACES

Definition

A confined space has limited or restricted means of entry or exit, is large enough for an employee to enter and perform assigned work, and is not designed for continuous occupancy by the employee.

Examples

These spaces may include, but are not limited to, underground vaults, tanks, storage bins, pits and diked areas, vessels, and silos.

Characteristics

A permit-required confined space is one that meets the definition of a confined space and has one or more of these characteristics:

- Contains or has the potential to contain a hazardous atmosphere,
- Contains a material that has the potential for engulfing an entrant,
- Has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section, and/or
- Contains any other recognized serious safety or health hazards.

Protocol for Confined Space Entry

- Personnel trained to conduct confined space entry procedures.
- Perform the appropriate air monitoring activity at various depths in the space prior to entry. Monitor for: (1) oxygen level, (2) flammable vapors, and (3) toxic vapors.
- Ventilate the atmosphere in the space so that entry may be made safely without respiratory protection. If this is not feasible, appropriate respiratory protection must be worn by authorized entrants and attendants.
- Wear respiratory protection when ventilation alone can not achieve acceptable atmospheric levels of oxygen or flammable or toxic vapors.
- Have appropriate retrieval equipment worn by employees in the event of a mishap.

Location	Permit Required (Y or N)	Buddy Required (Y or N)	Specific Entry Procedures

CONFINED SPACE PERSONNEL REQUIREMENTS

ENTRANT INSTRUCTIONS

All personnel who enter confined spaces must be thoroughly familiar with the following duties for entrants as listed below. Your primary responsibilities include:

- Understand the hazards of the confined space to be entered and the physical effects of those hazards.
- Continuously monitor the atmosphere inside of the confined space with a calibrated, direct reading, air monitoring instrument.
- Evacuate the confined space:
  - If atmospheric hazards exceed the action level
  - If a hazardous condition is identified inside of the confined space
  - Whenever attendant signals entrants to evacuate
- Read and understand the rescue procedures.
- If personal protective equipment is required, the entrant must be properly trained on the use of the equipment prior to entry. Personal protective equipment must be in good working condition.

ATTENDANT INSTRUCTIONS

You should be thoroughly familiar with the following duties when you assume the responsibility of attendant for a person or persons inside of a confined space. Your primary responsibilities are:

- The safety of the personnel inside.
- Understand the hazards of the confined space to be entered and the physical effects of those hazards.
- Maintain the conditions and requirements listed on entry permit.
- Evacuate the space if you observe any condition which you consider hazardous.
- Read and understand the rescue procedures. Get help if an emergency situation develops. never enter the confined space in an emergency unless you are trained and equipped with the proper equipment for confined space rescue operations (i.e., self contained breathing apparatus, safety harness, life line) and are relieved by another attendant.
- Keep an accurate count of all personnel inside of the confined space at all times.
- Do not leave the entrance to the confined space while any personnel are still inside unless you are properly relieved. These instructions must be passes onto your relief.
- If you have any questions regarding the job, check with your supervisor or a health and safety professional.

ENTRY SUPERVISOR'S INSTRUCTIONS

You should be thoroughly familiar with the following details to quality as the Entry Supervisor for a permit-required confined space entry procedure.

- Requirements for confined space entrant and attendant instructions.
- Knowledge of the hazards that may be faced during entry, including information in the mode, signs and symptoms and consequences of exposure.
- Verifies that the appropriate entries have been made on the permit, and that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin.
- Terminate the entry permit when the confined space entry operations hate been complete or when a condition exists that is not allowed under entry permit requirements.
- Verifies that rescue services are available and that the means of summoning them are operable.
- Removes unauthorized individuals who enter or who attempt to enter the permit space during entry operations.
- Responsibility for the confined space when entry is transferred to other personnel.
- Determines that entry operations are still consistent with the terms of the confined space entry permit and that the prescribed intervals regardless of changes in entry personnel.

APPENDIX H

Hot Work Procedures
Hot Work Permit

HOT WORK PROCEDURES

1.0 PUROPSE

The purpose of this permit procedure is to protect the personnel and equipment form fires and/or explosions that could result from hot work performed in a hazardous area. This section outlines minimum precautions for safety when performing hot work in any location not designated as a routine hot work area. In all such areas, a “Hot Work Permit” is required for all hot work.

2.0 SCOPE

Hot work is any activity performed with or on equipment that can ignite a flammable atmosphere by heat or spark. Included are energized electrical circuits, grinders, welding or brazing equipment, explosives, open fires, portable grinders, unattended internal combustion engines, concrete busters, soldering irons, electric motors, floor or string lights, dry sandblasting, explosion activated tools, electric hot plates, turbine and coriolis meter, portable generators, electrical cameras and instruments proving using portable equipment or any other flame or spark providing equipment. Excluded are devices approved for hazardous areas, or devices in enclosures approved for hazardous areas.

3.0 Responsibilities

A. The contractor or his designated representative, such as: Mechanical Supervisor, contract man, and the HSM Representative are responsible for determining that all blinding and clearing of equipment necessary for execution of hot work is completed.

   1. Equipment which has been removed from service for hot work and has contained flammable and/or toxic material or is connected to equipment that contains flammable and/or toxic material must be (1) blinded, inverted and vented, (2) blinded and cleaned or (3) disconnected and cleaned before issuing “Hot Work Permit.”

   2. Each designated person shall personally inspect the job, and consider it safe for the designated hot work activity prior to the signing of the permit.

B. The designated HSM Representative is primarily responsible for issuing the “Hot Work Permit.” The contractor is responsible for doing any work necessary to prepare the equipment for the hot work to be done safely and designating boundaries within which the permit applies. The contractor is responsible for posting the permit at a conspicuous location at the job site.

C. The contractor’s representative is primarily responsible for seeing that only the type of work covered by the permit is performed and that conditions at the jobsite are safe for the schedule work assuring that hot work is confined to the item for which the permit was issued.

D. The HSM Representative is responsible for performing any required gas tests and inspecting the jobsite before signing the permit. By signing the permit, the representative is signifying that the contractor considers all conditions and equipment to be safe for performing hot work.

E. If a hazardous condition develops, all hot work and machines shall be stopped at once. The employees shall immediately vacate the vicinity. The permit shall be removed and the person removing the “Hot Work Permit” shall notify others involved. Before work may be resumed, a new “Hot Work Permit” shall be issued. When an employee returns to a jobsite, they shall check to see that the permit has not been removed before they resume work.

F. The employee is responsible for checking the “Hot Work Permit” to be sure that it is current, valid and properly signed. If any signature is missing, work shall not be started until the permit is complete.

G. The HSM Representative shall not issue a “Hot Work Permit” while other potential conflicting activities are in existence in that area. The area of concern shall cover the geographical limits where there is a remote possibility that sparks from a hot work could cone into contact with any vapors which could be released from an opening, or from a spill which could flow to a point where sparks might ignite them. If a potential conflict exists it is the responsibility of the HSM Representative to see that a “Hot Work Permit” is not issued until all of the existing conflicts are eliminated.

H. When electric welding is to be performed, the contractor shall assure that the ground connection are attached within the area covered by the permit, and the welding machine is positioned in this area or in an approved one.

4.0 PROCEDURES

A. Before the HSM Representative is requested to review a task requiring a hot permit, the contractor shall determine that the area is prepared for hot work as follows:

1. Check to see that flammable liquids or solids have not been released or trapped in the equipment.

2. Cover all sewer catch basins and manholes as appropriate in the immediate area

3. Check to see that adequate fire-fighting equipment is at the jobsite.

4. Check for other flammable or combustible material such as an accumulation of chemicals, trash, wood, or dry grass. Due caution should be taken to prevent convection or conduction of heat to flammable or combustible materials which might cause ignition of these materials. Where hot work is to be carried out over dry grass, the area shall be saturated with water before performing hot work, and a water hose left connected as part of the first protective requirement.

5. Check for the possible release of flammable vapors upwind of the hot work area, such as safety valve discharges, leaks from pumps, compressors, or other equipment handling flammable materials.

6. If hot work is to be performed on containers or lines in service, determine that the container is full of liquids; or if a line, that adequate flow is provided with appropriate venting.

7. It hot work is to be performed inside vessels, tanks or confined spaces such as pits, sewers, etc., all applicable items in Appendix G for Confined Spaces shall be accomplished before the hot work permit is issued.

B. After "A" above has been performed, and before any hot work is started, the contractor shall inform the HSM Representative that a hot work permit review is appropriate. The initial issuance of a hot work permit requires that the HSM Representative and the contractor inspect the area together. The employees may participate in the inspection. The area shall be checked for at least the following:

1. A check of items listed under item 1 in the above

2. A check for proper blanking (LO/TO) of equipment.

3. The HSM Representative shall perform any necessary gas tests for explosivity, oxygen deficiency and toxic materials.

4. The HSM Representative and the contractor are to review and determine if a "fire watch" or other special precautions are necessary.

5. The HSM Representative and the contractor shall check to determine that there are no conflicting activities in the area of hot work.

5.0 SPECIAL PROCEDURES

A. Overhead Hot Work

1. When hot work is to be performed in overhead locations, a suitable method for catching resulting scrap, hot metal and/or electrodes, must be proved where these materials would create a safety hazard.

B. Hot Work Inside a Unit that is in Operation

1. At times it is necessary to perform work in an operation unit, i.e. welding. This can be done safely only with the use of equipment deemed appropriate. A pressurized box must be used when these occasions arise. The contractor and the HSM Representative will determine the necessity of a pressurized box. Specifications for the pressurized box are as follows:

a. Must be of sufficient size to allow a workman to perform his/her task.

b. Walls, roof, and floor must be made of plywood and tightly constructed blanket or other fire retardant material must cover the

floor and as far up the walls as deemed necessary. All cracks must be sealed with insulating mud.

c. The door must be hinged and constructed to swing outward only. No other method will be acceptable. The door must have a peephole “covered with Plexiglas” of sufficient size that the standby can observe the workmen inside.

d. Ground cable must be installed inside the pressurized box.

e. Fresh air blowers must be placed in a gas free area and the blower duct installed near the bottom of one of the sides excluding the door. There must also be a hole for exhaust air, but small enough to maintain pressure inside the box to prevent the gases and/of toxic fumes from entering. The exhaust must be in the upper section of the box, such as the roof or top section of the wall.

f. A Standby must be present to warn the workman inside in case of an emergency and to assist the workman in performing his/her task.

C. Hot Taps

1. For hot taps or other jobs requiring hot work on equipment to be serviced, must follow the procedures (listed below) before a “Hot Work Permit” can be issued:

a. Tank Description

b. Necessary permits and approvals

c. A description of t welding procedures and any unusual technical considerations

d. A summary of the procedures for installing and testing and “taps”

e. Any special considerations and a check list for them.

6.0 Duration

A. The HSM’s Representative and contractor shall determine the duration of the permit.

1. Eight (8)-hour Permit

a. A permit for up to eight hours shall be issued when the job involves work adjacent to or on equipment handling flammable or toxic materials. Eight-hour permits are void at the end of the shift for which they are issued.

b. If a permit is issued for a shift that is longer then eight hours, the arriving contractor and the arriving Owner’s Representative must

approve and acknowledge the extended shift by signing the extension section of the permit.

2. Twenty-Four (24)-Hour Permits

   a. A 24-hour permit may be issued where the job involves work in an area where there is no nearby equipment in flammable or toxic service. A 24-hour permit may be continued beyond the end of the mechanical shift in which it was issued. However, each shift shall make a personal inspection of the jobsite to determine that conditions have not changed and that it is safe to continue work. If conditions have not changed, the new shift Owner's Representative and contractor's representative shall sign the jobsite permit and retain a copy.

3. Job Completion Permits

   a. Under certain conditions, a "Hot Work Permit" may be issued for job duration. In general, this is allowed where the job conditions at, and surrounding, the work area are not anticipating any change that would create an unusual flammable or toxic material hazard.

   b. The next level of supervision above the first-line supervisors shall give approval for a job completion permit. This permit requires an inspection at the beginning of each shift to ensure that conditions remain safe. The permit shall then be signed and any other file copy to signify completion of this inspection.

7.0 Disposition of Permits

A. Initial Issuance

1. After a hot work permit has been authorized, the following steps shall be taken:

   a. A designated representative shall assure that the signed permit has been located in a conspicuous place at the jobsite.

   b. The HSM Representative shall retain the first copy of the permit after being completed.

2. Job Completion, Expiration, or Termination

   a. At the job completion, or upon expiration of the "Hot Work Permit" the accountable person for the work must return the jobsite section of the permit to the Owner's representative, the contractor or the HSM Representative.

8.0 Special Requirements

A. Standby requirements

1. A standby person shall be available when the situation is such that the additional warning notification may be necessary (i.e. confined spaces).
2. This person shall be equipped with an appropriate alarming device for warning purposes.

B. Ventilation

1. Adequate ventilation must be provided while working in any OSHA regulated confined space. If adequate ventilation is not possible, suitable air supplied respiratory protection must be used.

C. Venting Hollow Equipment

1. Before burning into, or heating, any hollow vessel, or equipment, such as ball floats, pistons, impellers, pipes, valves, fittings, or similar equipment which has been in service of any kind, the vessel or equipment must be properly vented (unless the operation is performed under controlled conditions so that any over pressuring will be avoided, as in the case of heating barrels of oil or opening plugged lines or similar operations.)

D. Portable Fire Extinguishers

1. Fully charged portable fire extinguisher of a type and size designated as suitable by the HSM Representative shall be provided.

E. Welding and Burning in Confined Spaces

1. To prevent welding gases from escaping through leaking or improperly closed, torch valves, the gas supply to the torch, as an alternate shall be positively shut off external to the confined break space. The hoses can be disconnected at the regulatory whenever gas welding or burning is suspended for a substantial amount of time, or when the torch is left unattended such as during a lunch period.

2. The torch and hose shall be removed from the confined space, or if this is impractical, the hoses shall be properly disconnected at the regulator (1) at the end of the shift when work is not to be continued on the next shift, (2) at any time when positive ventilation of the confined space is discontinued.

3. The action eliminates the continual need to remove the torch or other gas-consuming device from the hose inside the confined space until the task is completed.

F. Gas Cylinders in Closed Containers

1. Cylinders containing any flammable materials shall never be placed in a confined space where hot work is to be performed.

G. Work on Tank Cars

1. Hot work shall not be done on any tank car while it is at a loading rack

H. Establishment of Routine Hot Work

1. When authorization for a routine permit for hot work is desired, the requestor, HSM Representative, and the contractor representative shall review the request at the proposed location. Based upon the investigation, the requestor shall make a recommendation in writing. A copy shall be sent to the HSM, plant maintenance and the requestor. The HSM Representative shall either approve or disapprove the request and inform the Owner of the decision.

I. Hot Work on Disconnected and Unused Equipment Outside a Unit

1. When hot work is to be performed on a disconnected and/or unused piece of equipment outside a unit limit, this work shall be considered as a normal “Hot Work Permit.”

J. Hot Work on Equipment in Service

1. Each job shall be considered on an individual basis and shall be justified before authorization is given.

K. Protective Equipment Required

1. Any protective devices and personal protective equipment required will depend upon the conditions of the specific tasks. Contractors are required to supply their own necessary equipment.

South Island Apartments Site

Hot Work Permit

Valid for 1 Work Day

Project Name: _____ Job # _____

Hot Work Description: _____

Workers/Welders Conducting Hot Work: _____

PERMIT MUST BE COMPLETED IN ITS ENTIRETY BEFORE HOT WORK BEGINS

		YES	NO
1.	Has Project Supervisor been notified of intended Hot Work?		
2.	Does a Customer Representative need to be notified of the intended Hot Work?		
3.	Will the Hot Work impact the General Public, Customers, or operations of Employees?		
4.	Will the intended Hot Work need to be coordinated with other Contractors who may be working on the Site to make them aware of any hazards and the scope of work to be performed?		
5.	Have hazardous energy sources been identified, isolated, and locked out – tagged out before the start of the Project?		
6.	Will Hot Work be conducted within a confined space?		
7.	All testing equipment (i.e. CGI, oxygen meter, etc.) and fire fighting equipment (i.e. extinguishers, etc.) have been checked to ensure proper operation and calibration before the start of this project?		
8.	Has a fire watch been designated as on station?		
9.	Coatings on metal surfaces have been for ignitability and flame spread?		
10.	Area has been cleared of all flammable materials?		
11.	The area has been restricted with proper barriers and signs		
12.	All fuel sources have been identified and protected		
13.	The area has been tested to be certain that atmosphere is 0% LEL before starting Hot Work		
14.	Flame sensitive areas and equipment (including cylinders and gas delivery lines) exposed to slag and sparks protected by flame resistant blankets or removed from the area?		
15.	All equipment and hoses protected from falling metal structures and debris?		
16.	Escape routes have been identified before starting work?		
17.	Is ventilation equipment needed? Type:		

South Island Apartments Site Hot Work Permit

Valid for 1 Work Day

THE FOLLOWING PROTECTIVE EQUIPMENT WILL BE REQUIRED:

	Yes	No		Yes	No
Welding Goggles/Shield _____ Tint			Supplied Air Respirator		
Safety Boots			Head Protection		
Leather Gloves			Safety Harness		
Hearing Protection			Welding Leathers (Top)		
APR _____ Cartridge			Welding Leathers (Bottom)		

HOT WORK PERMIT

Permit Valid
For 1 Work Day

Project Name_____ Job #_____
Hot Work Description:_____

WORKERS/WELDERS CONDUCTING HOT WORK_____

PERMIT MUST BE COMPLETED IN ITS ENTIRETY BEFORE HOT WORK BEGINS

	Yes	No
Has project supervisor been notified of intended hot work?		
Does customer representative need to be notified of the intended hot work?		
Will hot work impact the general public, customers or operations employees?		
Will the intended hot work need to be coordinated with other contractors who may be working on the site to make them aware of any hazards and the scope of work to be performed?		
Have hazardous energy sources been identified, isolated, and locked out - tagged out before the start of the project?		
Will hot work be conducted within a confined space?		
All testing equipment (i.e. CGI, oxygen meter, etc) and fire fighting equipment (i.e. extinguisher, etc) have been checked to ensure proper operation and calibration before the start of this project?		
Has a fire watch been designated an on station?		
Coatings on metal surfaces have been tested for ignitability and flame spread?		
Area has been cleared of all flammable materials.		
All fuel sources have been identified and protected.		
The area has been restricted with proper barriers and signs.		
The area has been tested to be certain that atmosphere is 0% LEL before starting hot work.		
Flame sensitive areas and equipment (including cylinders and gas delivery lines) exposed to slag and sparks protected by flame resistant blankets or removed from the area?		
All equipment and hoses protected from falling metal structures and debris?		
Escape routes have been identified before starting work?		
Is ventilation equipment needed? Type needed:_____		

THE FOLLOWING PROTECTIVE EQUIPMENT WILL BE REQUIRED:

	Yes	No		Yes	No
Welding Goggles/Shield_____ Tint	__	__	Supplied Air Respirator	__	__
Safety Boots	__	__	Head Protection	__	__
Leather Gloves	__	__	Safety Harness	__	__
Hearing Protection	__	__	Welding Leathers - Top	__	__
APR ____ Cartridge	__	__	Welding Leathers - Bottom	__	__

The following procedures will be applicable prior to hot work on tanks or other types of enclosed structures. (All that applies and fill in appropriate information)

_____Ventilate to 0% LEL Confined Space Entry Permit_____

_____Mechanical Ventilation Required: Cold Cut Only Method Required:_____

_____Inert<_____% Oxygen: Hot Cut Method Allowed:_____ (Fill In)

_____Inert<_____% Oxygen: Cold Cut Only Method Required:

APPROVALS: **DATE:**_____

_____
GTI Project Manager

_____
Project Fire Watch

_____
Employee Performing Hot Work

FILE PERMIT IN PROJECT WORK FILE

APPENDIX I

Heat / Cold Stress Procedures

HEAT/COLD STRESS PROCEDURE

1.0 HEAT STRESS

Heat stress is a significant potential hazard associated with the work task performed and the type and degree of protective equipment used in hot weather environments. Local weather conditions may produce conditions which will require restricted work schedules in order to protect employees. Monitoring for heat stress will follow one of two protocols depending on whether impermeable clothing (tyvek, saranex, rain gear, etc.) or permeable clothing (cotton coveralls) is worn. This section will apply to both hazardous and non-hazardous waste workers at the site. The SSHO with direction from HSR will determine the environmental Wet Bulb Globe Temperature (WBGT) and physiological (heart rate [HR] and oral temperature) monitoring to be conducted for both types of workers.

1.1 Workers Wearing Permeable Clothing

The American Conference of Governmental Industrial Hygienists (ACGIH) have set Threshold Limit Values (TLVs) for worker exposure to heat stress in which it is believed that nearly all workers may be repeatedly exposed without adverse health effects. The TLVs assume that workers are acclimatized, fully clothed in permeable clothing with adequate water and salt intake, and capable of functioning effectively under the given working conditions without exceeding a deep body temperature of 100.4°Fahrenheit (F). Measurement of the WBGT has been found to be the most adequately measurable environmental factor in which to correlate with the deep body temperature and other physiological responses to heat. The following table reviews the work/rest regimen to be followed by all permeably clothed workers based upon routinely measured WBGT.

Permissible Heat Exposure TLVs Applicable to Workers Wearing Permeable Clothing

Work/Rest Regimen	Workload		
	Light	Moderate	Heavy
Continuous work	86 (76)	80 (70)	77 (67)
75% work - 25% rest, each hour	87 (77)	82 (72)	78 (68)
50% work - 50% rest, each hour	89 (79)	85 (75)	82 (72)
25% work - 75% rest, each hour	90 (80)	88 (78)	86 (76)

Values are given in °F WBGT.

Rest means minimal physical activity. Rest should be accomplished in the shade. Any activity requiring only minimal activity can be performed during rest period.

() Parentheses indicate the 10 degree adjustment for working in impermeable protective clothing.

1.2 Workers Wearing Impermeable Clothing

Workers who must wear impermeable clothing are held at a higher risk of suffering heat stress. Impermeable clothing impedes sweat evaporation, one of the body's major cooling mechanisms. It is the duty of each employer to alert or notify the SSHO if symptoms of heat stress occur to their respective site personnel. Physiological and environmental monitoring of personnel wearing an impermeable protective equipment ensemble will commence when the ambient temperature rises above 70°F. Environmental monitoring will be conducted continuously for as long as the ambient temperature stays above 70°F and physiological monitoring will be conducted immediately before and after each work period. Frequency of physiological monitoring will increase as the ambient temperature increases or if slow recovery rates are indicated. The break time must be sufficient to allow workers to recover from the effects of heat stress. This will be accomplished by measuring the recovery heart rate and oral temperature (OT). The break time duration will be determined using the following methodology and criteria:

- Seat person being monitored
- Take oral temperature
- Measure pulse in the following sequence:
  - Pulse #1: 30 seconds to 1 minute after sitting
  - Pulse #2: 2½ to 3 minutes after sitting

An excessive heat stress condition exists when any of the following conditions exist:

1. Oral or ear temperature exceeds 99.5°F
2. If pulse #2 is greater than 90 beats/minute, and
3. Pulse #1 is greater than 100 beats/minute.

Worker cannot return to work until:

- Oral or ear temperature is below 99.5°F
- Pulse rate is below 90 beats/minute
- Recovery heart rate for workers with heart rates over 90 beats per minute is less than 100 beats per minute less than the original heart rate.

Adhering to the guidelines for heat stress prevention and monitoring will greatly minimize the possibility of the occurrence of heat stress. Site personnel must also be aware of the symptoms of heat-related disorders and be prepared to administer the appropriate treatments.

1.1.2 Prevention

A. Provide plenty of fluids. A 50 percent solution of fruit juice or similar solution in water, or plain water will be available. For workers performing work inside an exclusion zone, fluid intake may occur in the contaminated reduction zone (CRZ). Workers must first perform a partial decontamination process which will include removal of gloves and washing of hands and face prior to consumption of fluids. The SSHO will monitor the partial decontamination and fluid consumption process to ensure that ingestion of site contaminants does not occur.

B. Work in pairs. No activity where personnel are in Level C/B or confined space entry will be conducted alone.

C. Provide cooling devices. Ice vests or on-site showers can be provided to reduce body temperature and/or cool protective clothing.

The amount and type of undergarments worn will be left to the preference of each individual unless prone to heat stress, especially heat rash. In this case, the worker can wear "long john" cotton type underwear to keep skin off chemical resistant clothing.

D. Adjustment of the work schedule. When practicable, the most labor-intensive tasks should be carried out during the coolest part of the day.

E. Shaded or cooled rest areas. Shaded or cooled rest areas will be provided when site environmental and/or workers physiological responses warrant.

1.1.3 Heat Stress Monitoring

Physiological monitoring of personnel wearing an impermeable protective ensemble will be conducted at regular intervals at the beginning and conclusion of the work period. Heart rate must be periodically measured for all site personnel when heat stress conditions (climate or wearing impermeable clothing). Additional physiological monitoring such as body temperature (BT) and body water temperature (BWT) monitoring can be measured for extreme temperatures and when impermeable clothing is worn.

A. HR must be measured by the radial pulse for 30 seconds as early as possible in the resting period and repeated approximately 3 minutes into rest period.

The HR at the beginning of the rest period should not exceed 110 beats per minute. The HR also should not exceed 90 beats per minute after approximately 3 minutes of rest. If the HR does exceed the criteria, the next work period will be shortened by 33 percent, while the length of the rest period will remain the same. If the HR still exceeds the criteria at the beginning of the next rest period, the following work period will be shortened by 33 percent.

B. Body temperature can be measured orally with a clinical or disposable thermometer, in accordance with manufacturer's instructions, as early as possible in the rest period (before drinking liquid). Oral or ear temperature at the beginning of the rest period should not exceed 99.5°F. If it does, the next work period will be shortened by 33 percent while the length of the rest period will remain the same. However, if the OT exceeds 99.5°F at the beginning of the next rest period, the following work period will be shortened by another 33 percent. A worker will not be permitted to wear a semi-permeable or impermeable protective ensemble when his/her body temperature exceed 99.5°F.

C. Body water loss (BWL) due to perspiration can be measured by having the worker weigh him/her self at the beginning and end of each work day. Similar clothing should be worn at both weighing. BWL should not exceed 1.5 percent total body weight in a work day.

Suggested Frequency of Physiological Monitoring for Fit and Acclimated Workers[1]

Adjusted Temperature[2]	Normal Work Ensemble[3]	Impermeable Ensemble[4]
90°F (32.2°C) or above	After each 45 minutes of work	After each 15 minutes of work
87.5°-90°F (30.8°-32.2°C)	After each 60 minutes of work	After each 30 minutes of work
82.5°-87.5°F (28.1°-30.8°C)	After each 90 minutes of work	After each 60 minutes of work
77.5°-82.5°F (25.3°-28.1°C)	After each 120 minutes of work	After each 90 minutes of work
72.5°-77.5°F (22.5°-25.3°C)	After each 150 minutes of work	After each 120 minutes of work

1 For work levels of 250 kilocalories per hour.

2 Calculate the adjusted air temperature (T_{adj}) using the following equation:

T_{adj} (°F) = T_{adj} (°F) + (13 x percent sunshine)

Measure the air temperature (T_{adj}) using a standard mercury-in-glass thermometer with the bulb shielded from radiant heat.

3 A normal work ensemble consists of cotton overalls with long sleeves and pants.

4 An impermeable work ensemble consists of impermeable coveralls with long sleeves and pants.

1.1.4 Recognition and Treatment

Any personnel who observes any of the following forms of heat stress either in themselves or in another worker, will report this information to his or her immediate supervisor or the SSHO.

A. Heat rash (or prickly heat)

Cause: Continuous exposure to hot and humid air, aggravated by chafing clothing.

Symptoms: Eruption of red pimples around sweat ducts accompanied by intense itching and tingling.

Treatment: Remove sources of irritation and cool the skin with water or wet cloths.

B. Heat Cramps or Heat Prostration

Cause: Profuse perspiration accompanied by inadequate replenishment of body water and electrolytes.

Symptoms: Sudden development of pain and/or muscle spasms in the abdominal region.

Treatment: Remove the worker to the contamination reduction zone. Remove protective clothing. Decrease body temperature and allow a period of rest in a cool location.

C. Heat Exhaustion - **SERIOUS**

Cause: Overexertion in a hot environment and profuse perspiration accompanied by inadequate replenishment of body water and electrolytes.

Symptoms: Muscular weakness, staggering gait, nausea, dizziness, shallow breathing.

Treatment: Perform the following while simultaneously making arrangements for transport to a medical facility.

Remove the worker to the contamination reduction zone. Remove protective clothing. Lie the worker down on his or her back in a cool place, and raise the feet 6 to 12 inches. Keep warm, but loosen all clothing. If conscious, provide sips of a salt water solution consistency of one teaspoon salt in 12 ounces water. Transport the worker to a medical facility.

D. Heat Stroke - **EXTREMELY SERIOUS**

Cause: Same as heat exhaustion.

Symptoms: **No perspiration**, dry mouth, pain in the head, dizziness, nausea.

Treatment: Perform the following while making arrangements for transport to a medical facility.

Remove the worker to the contamination reduction zone. Remove protective clothing. Lie the worker down in a cool place and raise the head and shoulder slightly. **Cool without chilling**. Apply ice bags or cold wet cloth to the head. Sponge bare skin with cool water or rubbing alcohol. If possible, place the worker in a tub of cool water. Do not give stimulants. Transport to a medical facility.

2.0 COLD STRESS

If work on this project begins in the winter months, thermal injury due to cold exposure can become a problem for field personnel. Systemic cold exposure is referred to as hypothermia. Localized cold exposure is generally labeled frostbite.

A. Hypothermia: hypothermia is defined as a decrease in the patient core temperature below 96°F. The body temperature is normally maintained by a combination of central (brain and spinal cord) and peripheral (skin and muscle) activity. Interference's with any of these mechanisms can result in hypothermia, even in the absence of what normally is considered a "cold" ambient temperature. Symptoms of hypothermia include: shivering, apathy, listlessness, sleepiness, and unconsciousness.

B. Frostbite: frostbite is both a general and medical term given to areas of local cold injury. Unlike systemic hypothermia, frostbite rarely occurs unless the ambient temperatures are less than freezing and usually less than 2°F. Symptoms of frostbite are: a sudden blanching or whitening of the skin; the skin has a waxy or white appearance and is firm to the touch; tissues are cold, pale, and solid.

Prevention of cold related illness can be aided by educating workers on recognizing the symptoms of frostbite and hypothermia and by identifying and limiting known risk factors. The workers should be provided with enclosed, heated environments on or adjacent to the site, dry changes of clothing, and warm drinks.

To monitor the worker for cold related illnesses, start (oral) temperature recording at the job site:

- At the field team leader's discretion when suspicion is based on changes in a worker's performance or mental status.
- At a worker's request.
- As screening measure, two times per shift, under unusually hazardous conditions (e.g., wind-chill less than 20°F, or wind-chill less than 30°F with precipitation).
- As a screening measure whenever any one worker on the site develops hypothermia.

Workers developing moderate hypothermia (a core temperature of 92°F) should not return to work for at least 48 hours.

Progressive Clinical Symptoms of Hypothermia

Core Temperature (°F)	Symptoms
99.6	Normal rectal temperature
96.8	Metabolic rate increases
95.0	Maximum shivering
93.2	Victim conscious and responsive
91.4	Severe hypothermia
89.6 - 87.8	Consciousness clouded, blood pressure difficult to obtain, pupils dilated but react to light, shivering ceases
86.0 - 84.2	Progressive loss of consciousness, muscular rigidity increases, pulse and blood pressure difficult to get, respiratory rate decreases
78.8	Victim seldom conscious
64.4	Lowest accidental hypothermia victim to recover

In order to minimize the risk of the hazards of working in cold environments, workers will be trained and periodically reinforced in the recognition of the physiologic responses of the body to cold stress. In addition, the use of insulated work clothing, warm shelters and work/warming regimens may be used to minimize the potential hazards of cold stress. Also, special attention will be paid to equipment warm-up time and freeze protection for vessels, piping, equipment, tools, and walking/working surfaces. The current ACGIH TLVs for cold stress found in this appendix will be used as a guideline.

HEAT STRESS MONITORING FORM

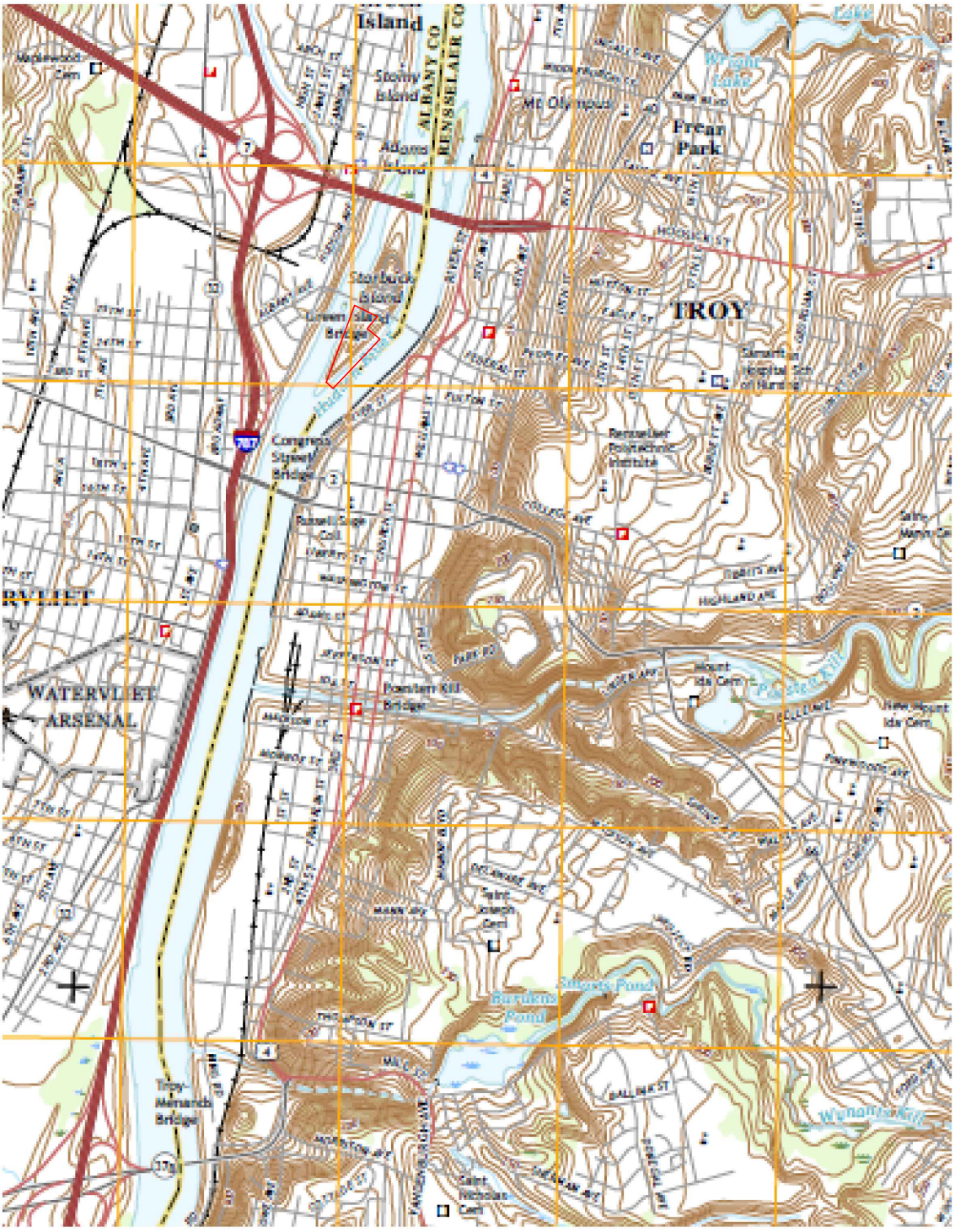
Project Name:_____

Project Number:_____

Site Safety and Health Officer:_____

Date	Title	Ambient Temp	WBGT	Work/ Rest Regimen	Employee/ Location	Pulse Rate	Body Temp	Body Water Loss	Comments

APPENDIX J
Site Maps



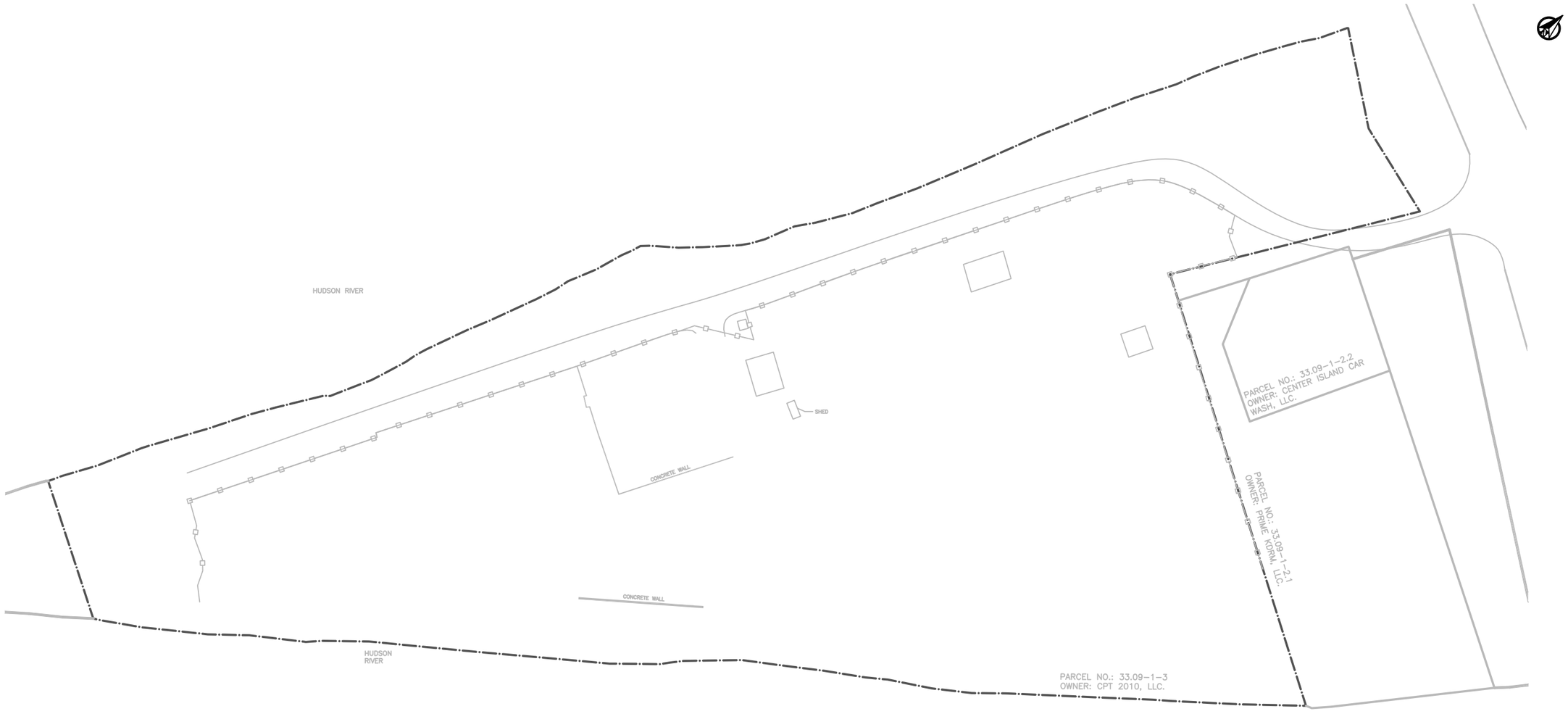
Scale: 1:3,000 ft

APPROXIMATE SITE BOUNDARY

TITLE: FIGURE 1 – SITE LOCATION MAP

LOCATION: 1 OSGOOD AVENUE/CENTER ISLAND
GREEN ISLAND, NEW YORK

envirospec ENGINEERING, PLLC
349 Northern Blvd., Suite 3
Albany, NY 12204
Phone: 518.453.2203
Fax: 518.453.2204
www.envirospeceng.com



LEGEND

SUBJECT PARCEL BOUNDARY

FENCE

ENVIROSPEC PROJECT #E17-1600

envirospec ENGINEERING, PLLC
349 NORTHERN BLVD. SUITE 3
ALBANY, NY 12204-1032
P:518.453.2203
F:518.453.2204

W.O.	No.	REVISION	DATE	APR.

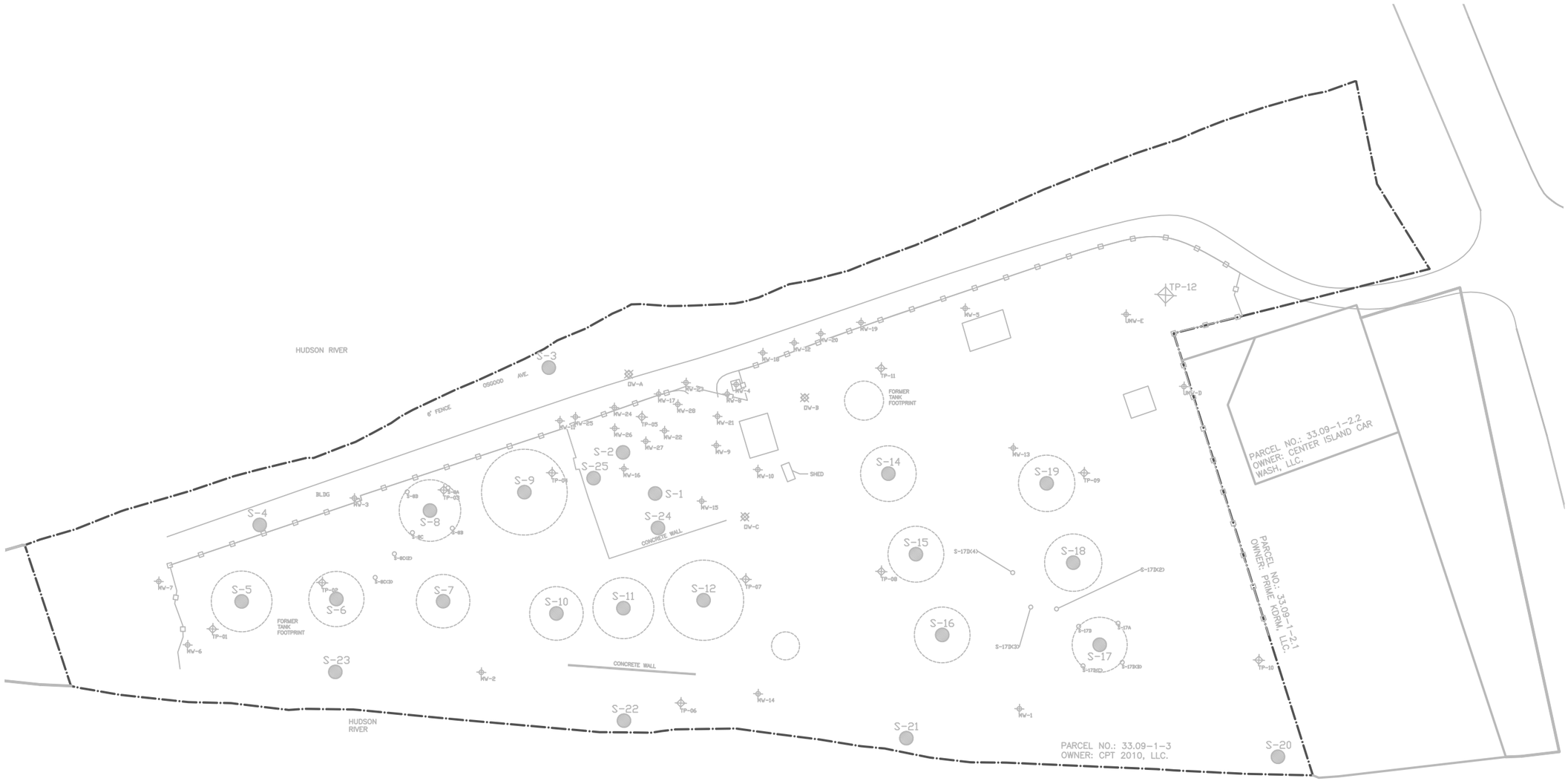
DRAWING STATUS: FOR REFERENCE ONLY

SOUTH ISLAND APARTMENTS SITE
1 OSGOOD AVENUE/CENTER ISLAND,
TOWN OF GREEN ISLAND, ALBANY COUNTY, NEW YORK

DESIGN
DRAWN
CHECKED

SOUTH ISLAND APARTMENTS, LLC
SOUTH ISLAND APARTMENTS SITE
SITE PLAN

SCALE: NTS | DRAWING No.: S1 | SHEET | REV. No.



LEGEND

- SUBJECT PARCEL BOUNDARY
- MONITORING WELL
- OBSERVATION WELL
- FENCE
- FORMER TANK FOOTPRINT
- 2010 SOIL BORING SAMPLES
- 2008 SOIL BORING SAMPLES
- 2016 TEST PIT

NOTE:
1. CONCENTRATIONS LISTED EXCEED THE NYCRR PART 375 RESTRICTED RESIDENTIAL SOIL CLEANUP OBJECTIVE STANDARDS (RRSCOS).
2. MONITORING WELLS MW-1, 2, 3, 5, 10 AND 23 TO BE RESAMPLED.

envirospec ENGINEERING, PLLC
349 NORTHERN BLVD. SUITE 3
ALBANY, NY 12204-1032
P:518.453.2203
F:518.453.2204

W.O.	No.	REVISION	DATE	BY	APR.

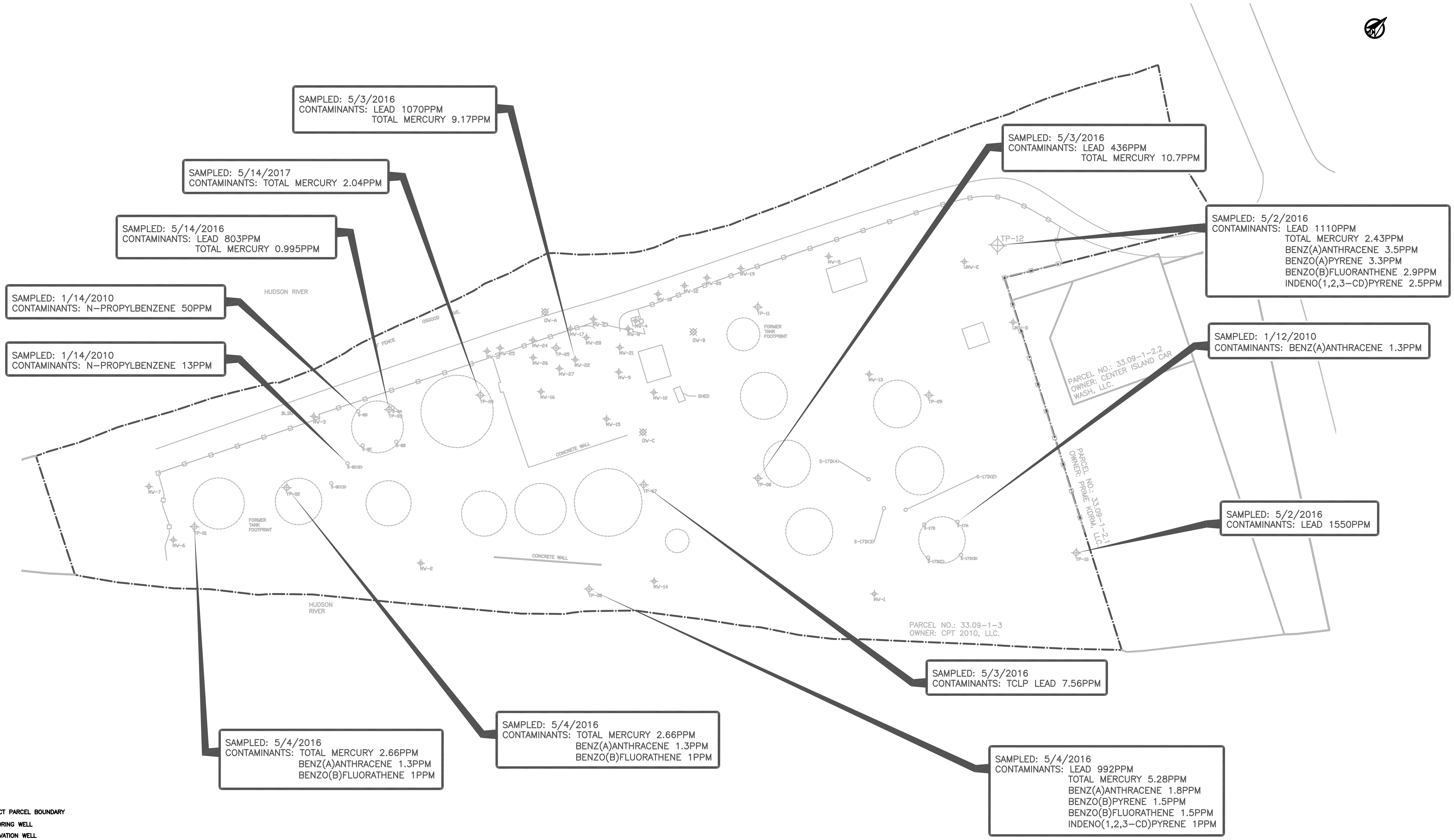
DRAWING STATUS: FOR REFERENCE ONLY

SOUTH ISLAND APARTMENTS SITE
1 OSGOOD AVENUE/CENTER ISLAND,
TOWN OF GREEN ISLAND, ALBANY COUNTY, NEW YORK

DRAWN: -
CHECKED: -
APPROVED: -

SOUTH ISLAND APARTMENTS, LLC
SOUTH ISLAND APARTMENTS SITE
HISTORICAL SOIL & GROUNDWATER SAMPLING LOCATIONS

SCALE	DRAWING NO.	SHEET	REV. NO.
NTS	S2		


SAMPLED: 5/3/2016
CONTAMINANTS: LEAD 1070PPM
TOTAL MERCURY 9.17PPM
SAMPLED: 5/14/2017
CONTAMINANTS: TOTAL MERCURY 2.04PPM
SAMPLED: 5/14/2016
CONTAMINANTS: LEAD 803PPM
TOTAL MERCURY 0.995PPM
SAMPLED: 1/14/2010
CONTAMINANTS: N-PROPYLBENZENE 50PPM
SAMPLED: 1/14/2010
CONTAMINANTS: N-PROPYLBENZENE 13PPM
SAMPLED: 5/3/2016
CONTAMINANTS: LEAD 436PPM
TOTAL MERCURY 10.7PPM
SAMPLED: 5/2/2016
CONTAMINANTS: LEAD 1110PPM
TOTAL MERCURY 2.43PPM
BENZ(A)ANTHRACENE 3.5PPM
BENZO(A)PYRENE 3.3PPM
BENZO(B)FLUORANTHENE 2.9PPM
INDENO(1,2,3–CD)PYRENE 2.5PPM
SAMPLED: 1/12/2010
CONTAMINANTS: BENZ(A)ANTHRACENE 1.3PPM
SAMPLED: 5/2/2016
CONTAMINANTS: LEAD 1550PPM
PARCEL NO.: 33.09-1-2.2
OWNER: CENTER ISLAND CAR WASH, LLC.
PARCEL NO.: 33.09-1-2.1
OWNER: PRIME KORM, LLC.
PARCEL NO.: 33.09-1-3
OWNER: CPT 2010, LLC.
TP-12
SAMPLED: 5/3/2016
CONTAMINANTS: TCLP LEAD 7.56PPM
SAMPLED: 5/4/2016
CONTAMINANTS: TOTAL MERCURY 2.66PPM
BENZ(A)ANTHRACENE 1.3PPM
BENZO(B)FLUORATHENE 1PPM
SAMPLED: 5/4/2016
CONTAMINANTS: TOTAL MERCURY 2.66PPM
BENZ(A)ANTHRACENE 1.3PPM
BENZO(B)FLUORATHENE 1PPM
SAMPLED: 5/4/2016
CONTAMINANTS: LEAD 992PPM
TOTAL MERCURY 5.28PPM
BENZ(A)ANTHRACENE 1.8PPM
BENZO(B)PYRENE 1.5PPM
BENZO(B)FLUORATHENE 1.5PPM
INDENO(1,2,3–CD)PYRENE 1PPM

LEGEND

- SUBJECT PARCEL BOUNDARY
- MONITORING WELL
- OBSERVATION WELL
- FENCE
- FORMER TANK FOOTPRINT
- 2010 SOIL BORING SAMPLES
- 2016 TEST PIT

NOTE:
1. CONCENTRATIONS LISTED EXCEED THE NYCRR PART 375 RESTRICTED RESIDENTIAL SOIL CLEANUP OBJECTIVE STANDARDS (RRSCOS).
2. MONITORING WELLS, OBSERVATION WELLS, AND FORMER TANK FOOTPRINTS AS OF JULY 2016.

envirospec ENGINEERING, PLLC
349 NORTHERN BLVD. SUITE 3
ALBANY, NY 12204-1032
P:518.453.2203
F:518.453.2204

W.O.	No.	REVISION	DATE	DRN.	APR.

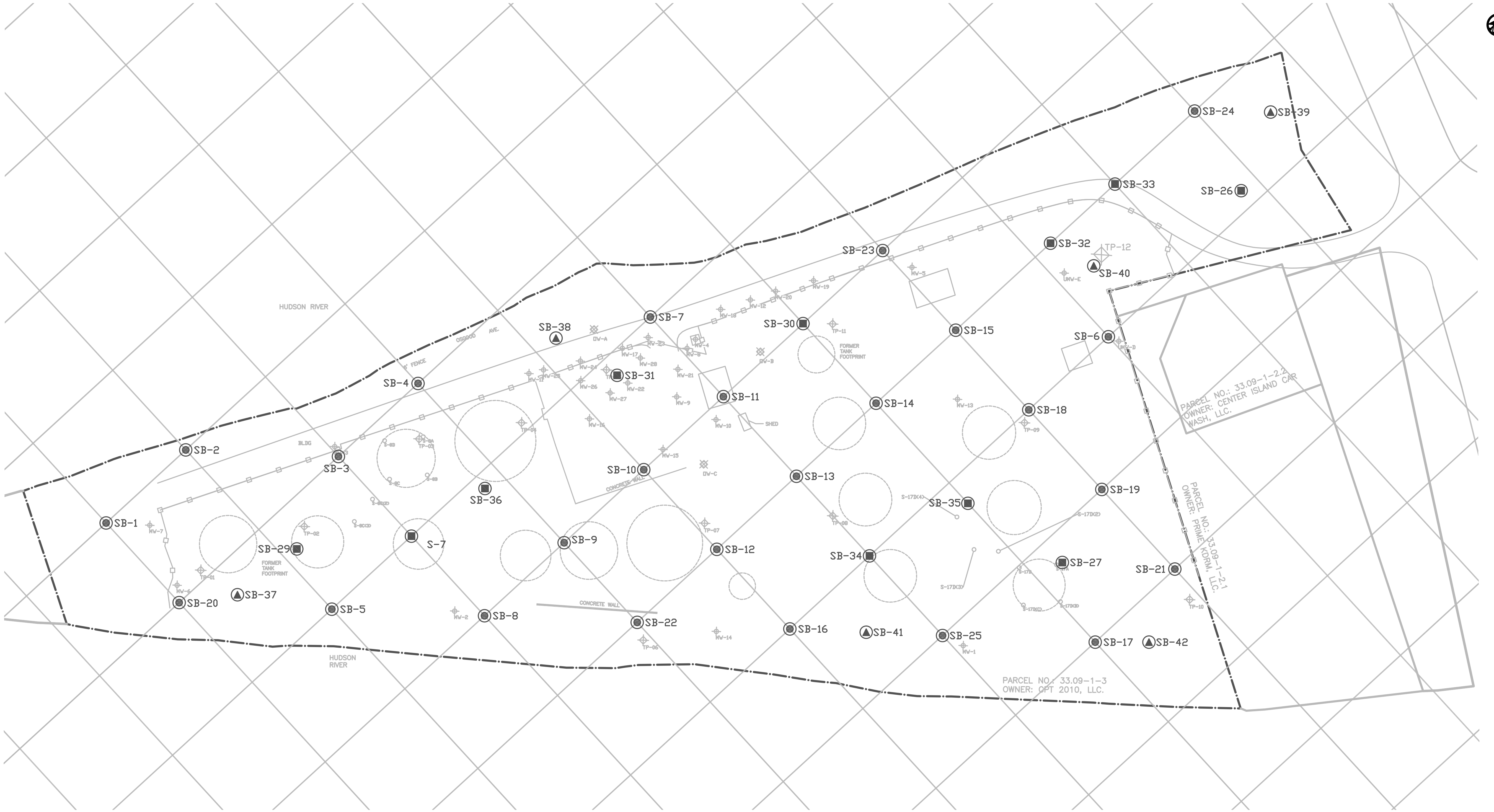
DRAWING STATUS: FOR REFERENCE ONLY

SOUTH ISLAND APARTMENTS SITE
1 OSGOOD AVENUE/CENTER ISLAND,
TOWN OF GREEN ISLAND, ALBANY COUNTY, NEW YORK

DRAWN BY: –
DRAWING MGR:

SOUTH ISLAND APARTMENTS, LLC
SOUTH ISLAND APARTMENTS SITE
HISTORICAL SOIL & GROUNDWATER SAMPLING RESULTS

SCALE	DRAWING No.	SHEET	REV. No.
NTS	S3		



LEGEND

- SUBJECT PARCEL BOUNDARY
- FENCE
- FORMER TANK FOOTPRINT
- MONITORING WELL
- 2010 SOIL BORING SAMPLES
- 2016 TEST PIT
- RI SOIL BORINGS (SB1 – SB25)
- IRM EXCAVATION SOIL BORINGS (SB26 – SB36)
- OPEN AREA SOIL BORINGS (SB37 – SB42)

NOTE:
1. MONITORING WELLS, OBSERVATION WELLS, AND FORMER TANK FOOTPRINTS AS OF JULY 2016.

ENVIROSPEC PROJECT #E17-1600

envirospec ENGINEERING, PLLC
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W.O.	No.	REVISION	DATE	DRN.	APR.

DRAWING STATUS: FOR REFERENCE ONLY

SOUTH ISLAND APARTMENTS SITE
1 OSGOOD AVENUE/CENTER ISLAND,
TOWN OF GREEN ISLAND, ALBANY COUNTY, NEW YORK

DRAWN BY: –
DRAWING: MGR

SOUTH ISLAND APARTMENTS, LLC
SOUTH ISLAND APARTMENTS SITE
PROPOSED REMEDIAL INVESTIGATION/PRELIMINARY IRM EXCAVATION SAMPLING PLAN

SCALE	DRAWING No.	SHEET	REV. No.
NTS	PR-1		

APPENDIX K
Site Observation Report

Envirospec Engineering, PLLC

Report No. _____

Page No. _____ of _____

Date _____

Weather	Temperature
	High _____
	Low _____

SITE OBSERVATION REPORT

Project _____ Project No. _____

Location

The above comment were made by: _____

Photographs _____ Time charged to project _____ (Hrs)

Site Investigation Report Protocol

Almost all investigations conducted by Envirospec Engineering, PLLC (Envirospec) result in the issuance of a Site Investigation Report (SIR). The project manager is responsible for the preparation of the report as detailed in Section 1.2. A specific format is necessary for the preparation of such technical reports. The following report outline shall be used and modified only when absolutely necessary;

1.0 Executive Summary:	should include an overview of what was performed and the results and conclusions developed.
2.0 Introduction:	should include a statement of the problem, who requested the study, where the study was conducted and the objectives of the study.
3.0 Background/Site Description	a description of the area studied and any pertinent operational history. This section should also include subsections describing the general physiographic conditions of the site including reference literature concerning geology, groundwater and topography.
4.0 Investigation Activities:	field and analytical methods employed during the study.
4.0 Investigation Results	a brief summary of study findings, results and any relevant conclusions
5.0 Conclusions/Recommendations	a bullet-oriented summary of all major findings and recommendations for additional work of future course of action.

Figures:	A topographic map locating the project
Figures:	A facility map location of all samples collected or relevant structural or physical features
Figures:	Other figures as necessary
Appendices:	A listing of all relevant data collected during the study.

As a general rule, reports should contain only factual information. These reports shall not contain recommendations or personal opinions. Recommendations and personal opinions for these investigations may be included in a separate letter.

The draft SIR for all non-routine projects shall be reviewed in accordance with the following peer review policy:

1) Project Manager
2) Quality Assurance Manager
3) Operations Manager

Routine project peer review will be identified to the non-routine project except the QAM review is not necessary but may be substituted for the Operations Manager's review.

APPENDIX L

Daily Safety Meeting
And
Safety Observer Form

ENVIROSPEC ENGINEERING, PLLC
DAILY SAFETY MEETING

Project/Site:_____ Date:_____

Presented by:_____ Title:_____

Topic(s)/Information Reviewed:_____

_____

_____

_____

Comments/Follow-up Actions:_____

_____

_____

_____

Sign in:

NAME	SIGNATURE	COMPANY

Instructions:

- Conduct a daily safety meeting prior to beginning each day's site activities.
- Complete form and file with Site Safety Plan.
- Follow-up on any noted items and document resolution of any action items.

Observation Checklist
What To Look For

Position of People

Striking Against (Struck By)
Caught Between
Falling
Climbing
Off Balance
Temperature Extremes
Electrical Current
Inhaling, Absorbing, or Swallowing
Overexertion
Walking in Designated Aisles or Walkways
Riding on Portable Equipment

Actions of People

Changing Position
Rearranging Job
Stopping Job
Hurrying
Running
Exposure to Moving Equipment
Wearing Proper Equipment and Tools
Following Rules, Procedures
Using Good Judgment
Trained on Job being Performed

Personal Protective Equipment

Protection for:
Eyes
Face
Hands
Head
Arms
Legs and Feet
Respiratory System
Trunk

Tools and Equipment

Right for the Job
Used Correctly
In Safe Condition
Carried and Stored Properly
Inspected and Coded Properly

Work Area Equipment

Housekeeping and Appearance
Cramped Quarters
Blind Corners
Exposure to Moving Equipment and Traffic
Aisles
Exits
Lighting
Unsecured Items Overhead
Stairs
Fumes, Dust, Smoke
Restricted or Prohibited Areas
Hazards from Nearby Operations
Material Handling
Ladders Properly Tied Off
Exposed Hot Surfaces
Sharp Edges or Burrs
Barricades
Chemicals (Identified and Labeled)
Guards in Place (Adequate)
Pinch Points
Painting, Insulation, General Repair
Noisy Equipment

Rules and Procedures

Established? (Understood?)
Adequate? (Reviewed and Upgraded?)
Maintained?

Fire and Safety Equipment

Available?
Adequate?
Operable?
Blocked?
Inspected?

Envirospec Engineering
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Albany, NY 12204
Phone: (518) 453-2203
Fax: (518)453-2204

SAFETY OBSERVER REPORT

Observation Type:
☐ *General*
☐ *Focused*

1. Observer Name	*2. Job Title*	*3. Project Name*	*4. Project Number*	*5. Date / Time*

6. Task / Area Observed (check one)

☐ *Excavation* ☐ *Clearing / Grubbing*
☐ *Tank Removal / Cleaning* ☐ *Rigging / Lifting* ☐ *Decontamination*
☐ *Confined Space Entry* ☐ *Water Treatment* ☐ *Facility Construction*
☐ *Filter Press Operations* ☐ *Demolition* ☐ *Drum Handling*
☐ *Thermal Treatment* ☐ *Other* _____

7. Name/ Job Position of Worker Observed
(Focused Observation Only)

8a. Background Information / Comments:

8b. Job Safety Analysis (JSA)
☐ *Yes*
☐ *No*

9. Positive Observations:
a.
b.
c.
d.

10. Unsafe Practices / Conditions
a.
b.
c.
d.

11. Safety Observer's Recommended Action(s)
a.
b.
c.

12. Supervisor's Corrective Action Taken
a.
b.
c.

13a. Supervisor Review

13b. Site Safety Officer Review (if applicable)

Instructions

***Completed by Safety Observer at Time of Observation*

Observation Type: Check the box, which indicates the type of observation performed: "General" or "Focused"

5. Record the "Observer's Name," "Job Title," of Observer, "Project Name," "Project Number," "Date/Time" of observation.
6. Check the task observed or specify the task observed if not listed.
7. If this is a Focused Observation, list the name and job position of the employee observed.
8. Provide any information/comments regarding the observation (focused or general), which may add value to the report, i.e. weather conditions.
9. List all "Positive Observations", e.g. wore proper PPE.
10. List all "Unsafe Practices/Conditions" observed which could affect safety, e.g. not wearing hearing protection. **(See Observation Check List)**
11. **Safety Observer's Recommended Action(s):** List the recommended actions that can be taken to correct any observed unsafe practices and/or conditions which could affect safety. Submit the completed form to the Site Supervisor by the end of the work shift. For General Observations Only, give a brief review at the next daily safety meeting.

***Completed by Site Supervisor Immediately Following the Receipt of Safety Observer's Report.*

12. **Supervisor's Follow –up Actions Taken**: List the actual actions taken to correct the observed unsafe practices and/or conditions.
13. **(a) Supervisor's Review**: Sign the report and enter the date after reviewing the Safety Observer's Report and listing the follow up actions taken to correct any observations.

***Completed by the Site Safety Officer Immediately After Review by the Site Supervisor*

13. **(b) Site Safety Officer's Review**: Review of the report for accuracy and completeness. Return to the Site Supervisor if deficiencies are noted. If accurate and complete, sign and date the form. Retain all forms in the project safety files.

APPENDIX M

Respiratory Protection Program

RESPIRATORY PROTECTION PROGRAM

5.1 Purpose

The purpose of Envirospec Engineering, PLLC (Envirospec) Respiratory Protection Program is to coordinate the use and maintenance of respiratory protection equipment as determined is necessary to reduce employee exposure to environmental contaminants in the workplace and to allow employees to work safely in work environments with contaminants. In so far as possible, atmospheric contamination shall be controlled by engineering control measures such as local exhaust ventilation or by administrative controls such as product substitution. When effective engineering or administrative controls are not feasible, or while they are being instituted or evaluated, respiratory protection shall be utilized. This program is designed to comply with the OSHA Respiratory Protection Standard, 29 Code of Federal Regulations (CFR)1910.134.

5.2 Scope and Applicability

5.2.1 Scope

The Respiratory Protection Program applies to all Envirospec employees whose assigned duties with Envirospec may involve the use of respiratory protection.

5.2.2 Responsibilities of Envirospec Employees

5.2.2.1 Program Administrator

The Health and Safety Program Administrator is the Program Administrator for the Respiratory Protection Program. The following dirties are assigned to the Program Administrator:

- 5.2.2.1.1 Coordinate the implementation of the RPP with Health and Safety Officers and Envirospec employees.
- 5.2.2.1.2 Coordinate respirator fit testing.
- 5.2.2.1.3 Coordinate the purchase of respirators, component parts and cartridges.
- 5.2.2.1.4 Maintain exposure records.
- 5.2.2.1.5 Perform an annual audit of the program to ensure its continued effectiveness.
- 5.2.2.1.6 Review and update the RPP as necessary.
- 5.2.2.1.7 Develop and conduct employee training programs on respiratory protection.

5.2.2.2 Health and Safety Officer

The Health and Safety Officer has the primary responsibility for implementing the Respiratory Protection Program for their company. The Health and Safety Officer shall:

- 5.2.2.2.1 Advise the Program Administrator on the appropriate respiratory protection as requested.
- 5.2.2.2.2 Distribute copies of Respiratory Protection Program (RPP) to employees participating in the RPP.
- 5.2.2.2.3 Advise employees on the respiratory protection required for their hazardous operations.
- 5.2.2.2.4 Ensure the appropriate respirators and cartridges are available.
- 5.2.2.2.5 Monitor the use of respirators to ensure they are worn properly.
- 5.2.2.2.6 Monitor workplace environments to determine worker exposure potential.
- 5.2.2.2.7 Implement employee training programs on respiratory protection.
- 5.2.2.2.8 Supervise respirator selection procedure.
- 5.2.2.2.9 Implement record keeping procedures for respiratory protective equipment.
- 5.2.2.2.10 Maintain medical surveillance program for employees assigned to wear respiratory protective equipment.
- 5.2.2.2.11 Conduct periodic inspections of workplace/conditions requiring respiratory equipment to determine the use and effectiveness of the equipment.

5.2.2.3 Employee

Each Envirospec employee has the following responsibilities in the Respiratory Protection Program:

- 5.2.2.3.1 Comply with all safety procedures and regulations governing the use of respiratory protection.

5.2.2.3.2 Maintain, inspect, clean and store respiratory protective equipment according to the directions provided by the manufacturer and the procedures outlined in this program.

5.2.2.3.3 Inform the Program Administrator of any hazardous materials or conditions present in an area when they become known to the employee.

5.2.2.3.4 Report any malfunction of the respirator to the Program Administrator or Health and Safety Officer.

5.3 Requirements for Use of Respirators

5.3.1 Prior to Use

Prior to any work assignment requiring the use of a respirator, each Envirospec employee must be qualified to wear respiratory protection. Each of the following elements must be satisfied to be a qualified candidate for use of any respirator:

5.3.1.1 Medical Surveillance

Each Envirospec employee requiring the use of respiratory protection must receive a medical evaluation prior to issuance of the respirator and at least annually thereafter by a qualified physician. The physician shall determine the pertinent health and physical conditions to be evaluated. The physician shall determine whether or not a person may be assigned to a task requiring the use of a respirator and shall provide Envirospec with a written statement on the fitness of the employee for respirator use.

5.3.1.2 Training

Prior to the use of any respiratory protection device, each employee will receive instruction as to the proper use, care and limitations of the respiratory equipment. This training will allow the employee to wear a respirator for a familiarity period. The employee will be issued a copy of Envirospec's Respiratory Protection Program for personal use.

5.3.1.3 Fit Testing

Each employee must complete a qualitative or quantitative fit test on the respirator to be used prior to issuance of the respirator.

5.3.2 Use of Respirators

The following general requirements shall apply to the use of any respiratory protection device.

5.3.2.1 Negative pressure respirators will be assigned to each individual for their use. Powered air purifying respirators (PARR), airline respirators and self-contained breathing apparatus (SC8A) shall be assigned to an individual for the duration of a project assignment but may then be reassigned to another individual.

5.3.2.2 Respirators provided by Envirospec are for use in assigned tasks and are not to be taken home for personal use.

5.3.2.3 Facial hair such as beards, sideburns, mustaches or stubble which interferes with the seal between the facepiece and the face will not be permitted when respirators are required.

5.3.2.4 Gum or tobacco chewing is prohibited while wearing a respirator.

5.3.2.5 Contact lenses shall not be worn while wearing any form of respiratory protection. When corrective lenses interfere with the proper sealing of a respirator, corrective lens inserts will be provided by Envirospec.

5.3.2.6 Use of Envirospec respiratory protection shall be for their employees only. Envirospec shall not provide or lend respirators to persons other than their employees who are participants in the Respiratory Protection Program.

5.3.2.7 Visitors and other non-employees are prohibited from entering areas where respirators are required unless they can provide their own respirator and documentation of medical evaluation, training and fit testing.

5.3.2.8 A respirator wearer shall leave a hazardous area if any of the following circumstances occur:

5.3.2.8.1 Failure of the respirator to provide protection or malfunction of

5.3.2.8.2 Detection of leakage of an air contaminant into the respirator.

5.3.2.8.3 Increase in resistance to breathing.

5.3.2.8.4 Any sensation of dizziness, nausea, weakness, breathing difficulty, coughing, sneezing, vomiting, fever and chills.

5.4 Selection of Respiratory Protection

5.4.1 Approved Respirators

5.4.1.1 Only NIOSH/MSHA approved respirators will be selected for use by Envirospec.

5.4.1.2 Disposable (single-use) respirators are not to be used by Envirospec personnel unless approved by the Program Administrator.

5.4.2 Nature of the Hazard

The selection of respirators shall be made by the Program Administrator based on the nature of the hazard. The following factors shall be considered:

5.4.2.1 The characteristics of the hazardous operation.

5.4.2.2 The type of hazard; whether oxygen deficiency or airborne contaminant.

5.4.2.3 The physical and chemical characteristics of the hazard.

5.4.2.4 The concentration of the contaminant.

5.4.2.5 The physiological effects of the contaminant on the body.

5.4.2.6 The warning properties of the contaminant.

5.4.2.7 The Respirator Decision Logic found in Appendix 5-1 will serve as the basic guide when selecting respiratory protection.

5.4.3 General Considerations

The following general considerations shall also be taken into account in the selection of respiratory protection:

5.4.3.1 The location of the hazardous area.

5.4.3.2 The period of time for which respiratory protection will be required.

5.4.3.3 The activities and physical demands of workers in the hazardous area.

5.4.3.4 The physical characteristics, functional capabilities and limitations of the available respirators.

5.4.3.5 The respirator protection factors and respirator fit.

5.4.4 Employee Considerations

5.4.4.1 The employee will have the opportunity to select from several equivalent respirators. The initial employee selection shall be made on the basis of comfort.

5.4.4.2 A variety of respirators, to include three sizes from at least two manufacturers, will be made available to employees for their selection.

5.4.4.3 An employee may request a powered respirator in lieu of a negative pressure respirator. Envirospec shall provide a powered respirator if requested by an employee, provided there is a powered respirator capable of supplying the required protection.

5.5 Fitting of Respiratory Protection

5.5.1 Responsibility and Qualifications

5.5. 1.1 Respirator fit testing shall be performed by Workplace Health and Safety or other qualified designee.

5.5. 1.2 The Program Administrator or designee shall receive specialized training in the use and fitting of respiratory protection. This training may be achieved through a formal respiratory protection training class or by instruction from a qualified individual.

5.5.2 Frequency

5.5.2.1 Qualitative fit testing shall be conducted every twelve months for all users of half facepiece negative pressure respirators.

5.5.2.2 Quantitative fit testing shall be conducted every twelve months for all users of full facepiece negative pressure respirators.

5.5.2.3 Quantitative fit testing may be conducted for all users of negative pressure respirators in lieu of qualitative fit tests.

5.5.3 Fit Checks

5.5.3.1 A negative pressure fit check shall be performed each time the respirator is put on. The negative pressure fit check consists of the following steps:

5.5.3.1.1 Don the respirator.

5.5.3.1.2 Close the inlet opening of the respirator cartridges by covering each inlet with the palms of the hands or by squeezing the breathing tube so that it will not allow passage of air.

5.5.3.1.3 Inhale and hold your breath for at least 10 seconds.

5.5.3.1.4 If a facepiece collapses slightly and there is no inward leakage of air into the facepiece, it can be reasonably assured that the fit of the respirator wearer is satisfactory.

5.5.3.2 A positive pressure fit check shall be performed each time the respirator is pert on. The positive pressure fit check consists of the following steps:

5.5.3.2.1 Don the respiration

5.5.3.2.2 Close the exhalation valve or breathing tube by covering the opening with the palm of the hand.

5.5.3.2.3 Exhale gently.

5.5.3.2.4 If a slight positive pressure can be built up inside the facepiece without the detection of any outward leakage of air between the sealing surface of the facepiece and the respirator wearer's face, the fit is considered to be satisfactory.

5.5.4 Qualitative Fit Testing

5.5.4.1 Qualitative fit testing shall be performed according to the procedures described in 29 CFR 1926.58.

5.5.4.2 All personnel assigned to use a half facepiece negative pressure air purifying respirator shall be qualitatively fit tested every twelve months.

5.5.4.3 Workplace Health and Safety or other qualified designee shall conduct the fit testing.

5.5.5 Quantitative Fit Testing

5.5.5.1 Quantitative fit testing shall be performed by Workplace Health and Safety or other occupational health professional.

5.5.5.2 All personnel assigned to use a full facepiece negative pressure air purifying respirator shall be quantitatively fit tested annually.

5.5.5.3 Personnel assigned to use a half facepiece negative pressure air purifying respirator may be quantitatively fit tested in lieu of the annual qualitative fit tests.

5.6 Issuance of Respiratory Protection

5.6.1 Responsibility

Respirators for Envirospec personnel shall be issued by Program Administrator or Health and Safety Officer.

5.6.2 Requirements for Respirator Issue

5.6.2.1 Respirators shall only be issued to Envirospec personnel with the following documentation:

5.6.2.1.1 Written statement from a physician that the employee has been medically evaluated and is fit for respirator use.

5.6.2.1.2 Certificate of attendance from a respiratory protection training class.

5.6.2.1.3 Documentation of a successful qualitative or quantitative fit test on the respirator to be issued.

5.6.2.2 The respirator issue shall be recorded on the Personal Protective Equipment Issue Log.

5.7 Information and Training

5.7.1 Information

5.7.1.1 All Envirospec employees shall be informed of the requirements of the OSHA Respiratory Protection Standard.

5.7.1.2 Each employee required to use respiratory protection shall receive a copy of the Envirospec Respiratory Protection Program.

5.7.1.3 All Envirospec employees shall be informed of the work assignments where respiratory protection is required and the type of respiratory protection needed for the assignment.

5.7.1.4 Instruction manuals for the respiratory protective equipment used by Envirospec is found in Appendix 5-2.

5.7.2 Training

5.7.2.1 All Envirospec employees participating in the RPP shall be trained in the hazards to the respiratory system and in the use, care and maintenance of each respiratory protective device prior to any assignment requiring the use of a respirator.

5.7.2.2 The training program shall be developed and presented by the Program Administrator or other qualified designee. The training program shall include the following information:

5.7.2.2.1 The respiratory hazard, health effects of the hazard, and what happens ii the respirator is not used property.

5.7.2.2.2 The engineering and administrative controls being used and the need for the respirator to provide protection.

5.7.2.2.3 The reason for selecting a particular type of respirator.

5.7.2.2.4 The function, capabilities and limitations of the selected respirator.

5.7.2.2.5 The method of donning the respirator and testing its fit and operation.

5.7.2.2.6 The proper wearing of the respirator.

5.7.2.2.7 Respirator maintenance.

5.7.2.2.8 Recognizing and handling emergency situations.

5.7.2.3 The Program Administrator or designee shall receive specialized training in respiratory protection either through a formal training class or instruction from a qualified individual.

5.7.2.4 Respiratory protection training shall be given prior to the issuance of respiratory protection and repeated annually.

5.7.2.5 After attending the Respiratory Protection training class, each employee will sign the Training Attendance Record to verify attendance in the training session and an understanding of the information presented on respiratory protection.

5.8 Respirator Care and Maintenance

5.8.1 Responsibility

5.8.1.1 Care and maintenance of a respirator is the responsibility of the individual to whom the equipment was assigned.

5.8.1.2 The Program Administrator or Health and Safety Officer shall assist the employee with equipment maintenance/replacement as necessary.

5.8.1.3 The Health and Safety Officer shall ensure that all cartridges, cleaning supplies and replacement parts are available to maintain the equipment according to instructions provided by the manufacturer.

5.8.2 General Considerations

5.8.2.1 Respiratory protective equipment shall be maintained by Envirospec personnel according to manufacturer recommendations.

5.8.2.2 Only recommended replacement parts for each respirator type will be used to maintain Envirospec respirators. Parts from different respirator types or manufacturers shall never be interchanged.

5.8.3 Cleaning and Sanitizing

5.8.3.1 Field cleaning shall be performed by the wearer after each use. Field cleaning shall consist of surface decontamination prior to storage but shall not include any disassembly of the respirator. Field cleaning shall consist of wiping the outside of the respirator facepiece with a damp towel or pre-moistened towelette such as North Respirator Refresher wipes. A clean towelette shall then be used to clean the inside of the respirator facepiece.

5.8.3.2 Complete or laboratory cleaning shall be performed at the end of each task assignment and prior to issuance of the respirator to another individual. Complete cleaning shall consist of a complete disassembly of the respirator into its component parts followed by immersion in a disinfectant solution such as MSA Cleaner-Sanitizer or equivalent.

5.8.3.3 Cartridges should be changed after every eight hours of use or if any of the following occur:

5.8.3.3.1 An increase in resistance when inhaling through the cartridge.

5.8.3.3.2 The wearer detects any odor while wearing a respirator designed to remove chemical contaminants.

5.8.3.3.3 The cartridges become dirty, dented, wet or otherwise damaged.

5.8.4 Inspection

5.8.4.1 Each respirator shall be inspected by the wearer before and after each use to ensure it is in proper working condition (ENT-288A)

5.8.4.2 Each respirator used for emergency or rescue shall be inspected monthly by the Program Administrator or Health and Safety Officer to ensure it remains in proper working order. A record of the inspection dates, findings and remedial actions shall be kept for all emergency/rescue equipment.

5.8.4.3 Inspection for defects shall include the following items:

RESPIRATOR PART/SYSTEM	CHECK FOR POTENTIAL PROBLEMS
Facepiece	Dirt Cracks Tears Holes General Distortion
Straps	Tears Loss of Elasticity Broken Snaps or Clips
Valves	Dirt Cracks Holes Warpage (be sure valve seals properly)
Filters	Dents, Cracks Corrosion Proper Approval

Additional inspection items for Powered Air Purifying Respirators (PAPR):

RESPIRATOR PART/SYSTEM	CHECK FOR POTENTIAL PROBLEMS
Hose	Tears Punctures Loose Clamp
Battery	Fuses Cracks Loose Connections Switch Defects Moisture
Motor Blower Unit	Noise Faulty Motor Dirt Cracks Holes

5.8.4.4 After examining the respirator, any defects discovered must be corrected prior to use. If the defects cannot be repaired at the project location, the respirator must be removed from service and returned to the Program Administrator for repair or replacement parts. Under no circumstances shall a defective respirator be worn.

5.8.5 Storage

5.8.5.1 Respirators shall be stored away from dust, direct sunlight, heat, extreme cold, excessive moisture and damaging chemicals.

5.8.5.2 Respirators shall be stored to prevent distortion of rubber or other elastomeric parts.

5.8.5.3 Respirators shall be stored in a clean, zip-lock bag whenever they are not in use.

5.9 Record keeping

5.9.1 Responsibility

5.9.1.1 The Program Administrator shall be responsible for reviewing the training documentation, fit test records and exposure monitoring for all Envirospec employees.

5.9.1.2 The Program Administrator shall be responsible for the record keeping requirements of this program and the Health and Safety Officer shall maintain a file copy of the training documentation, fit test records and medical surveillance for each employee in their company.

5.9.2 Duration

5.9.2.1 Exposure data and medical records for Envirospec employees must be maintained for 40 years.

5.9.2.2 Fit test records for each employee must be maintained for at least three years or the duration of employment.

5.9.2.3 Records of attendance at respiratory protection training classes must be maintained for one year.

5.10 Program Compliance

5.10.1 General

Compliance with the written procedures of this program and with the OSHA Respiratory Protection Standard (29 CFR 1910.134) is required by all Envirospec employees in the Respiratory Protection Program.

5.10.2 Workplace Monitoring

The Program Administrator or designee shall periodically conduct air sampling during respirator use to evaluate employee exposure potential to airborne contaminants. This exposure monitoring shall be breathing zone air samples that are representative of the time weighted average exposure of each employee (See Section 8.0, Exposure Monitoring).

5.10.2.1 Initial monitoring shall be conducted at the initiation of project involving exposure to airborne contaminants. At least one sample shall be collected which is representative of each job category performing the work. This data should be compared to the action level and the permissible exposure limit for the contaminant being sampled to ensure these limits are not exceeded and that the appropriate respiratory protection is being utilized.

5.10.2.2 Periodic monitoring must be conducted that is representative of the exposure of each employee assigned to work within a regulated area. Approximately 25 percent of those workers in a job category should be sampled to obtain representative samples. This monitoring shall be continued until periodic sampling is consistently below the action level.

5.10.3 Program Audits

5.10.3.1 The Program Administrator shall periodically check program compliance by inspecting project sites and observing respirator use, maintenance and storage. The following items shall be evaluated as part of the program audit.

5.10.3.1.1 Wearer acceptance of the respirator, including comfort, fatigue, interference with vision and communication, restriction of movement and confidence in the respirator.

5.10.3.1.2 Proper selection of respirators.

5.10.3.1.3 Respirators are in good operating condition.

5.10.3.1.4 Respirator wearers are properly trained.

5.10.3.1.5 Respirator hazards are being monitored.

5.10.3.2 Annually, the Program Administrator and the Health and Safety Officer shall review the overall effectiveness of the Respiratory Protection Program and implement any required changes in the RPP for their company.

5.10.4 Disciplinary Action

Any employee who fails to comply with the requirements of the Respiratory Protection Program is subject to disciplinary action.

5.10.4.1 A verbal and written reprimand will be issued by the Program Administrator. This reprimand will become part of the employee record and a copy will be maintained in their employee file.

5.10.4.2 The employee may receive further disciplinary action unless extenuating or mitigating circumstances

APPENDIX N

Dust Control Plan

DUST CONTROL PROGRAM
(DCP)

South Island Apartments Site

1 Osgood Avenue/Center Island,

Town of Green Island, Albany County, New York

Prepared for:

South Island Aparments, LLC

c/o Couch White, LLC
540 Broadway, 7th Floor
Albany, New York 12201-2222

Prepared by:

349 Northern Blvd, STE 3
Albany, New York 12204

APRIL 2017

1.0 INTRODUCTION

The Dust Control Program (DCP) has been developed to outline Envirospec Engineering, PLLC's (Envirospec's) approach to controlling dust emissions during construction activities at the South Island Apartments Site. Dust Monitoring will be conducted within the work areas and at various perimeter locations throughout the site.

2.0 ON SITE ACTIVITIES

Remedial and construction tasks at the South Island Apartments Site that are likely to create air borne contaminants are described below:

- Excavation and transportation of impacted materials
- Construction of on-site haul roads
- Building Demolition

The health and safety officer or designated air monitor will monitor total aerosol concentrations at a minimum of once daily if any of the above activities involve the handling of waste or contaminated soil. Monitoring will also be conducted when possible fugitive aerosols may be produced from exposed waste or contaminated soil.

3.0 WORK PERIMETER MONITORING

During monitoring activities total aerosol concentrations will be measured with a real-time aerosol monitor using a scattered light photometric sensing cell. Results of aerosol monitoring will be documented on the Air Monitoring Form located in **Appendix E** of this HASP.

To ensure the accuracy and validity of collected data each monitor will be factory calibrated prior to arrival on-site and zeroed on a daily basis. Qualified personnel who have undergone training on the monitors will conduct the setup, operation, and downloading of the monitors. All training, calibration, and air monitoring forms will be kept on site in a dedicated file for referencing.

Plan guidelines and action levels are consistent with and mirror those established in the NYSDEC TAGM 4031. Action levels are based on Data-Ram readings conducted in the field. Action levels are illustrated below.

Monitoring Device	Monitoring Location/ Personnel	Monitoring Frequency	Action Level	Action
MIE Data Ram	1 Upwind; 2 Downwind of EZ Perimeter	Continuous during excavation	<0.100 mg/m^3 (15 min TWA) downwind EZ perimeter	Continue normal operations
			≥ 0.100 mg/m^3 (15 min TWA) downwind EZ perimeter	Implement dust control measures; Monitor upwind background level
			≥ 0.150 mg/m^3 (15 min TWA) difference between upwind and downwind background level at the Site perimeter	Halt all excavation work until EZ perimeter reading is <0.100 mg/m^3 (15 minute TWA)

Monitoring along the EZ perimeter will be done at two locations: one downwind and one upwind of the exclusion zone perimeter. The upwind station will serve as the daily background sample. Monitoring will be continuous while samples are collected at fifteen-minute intervals during intrusive activities and any other activities that may produce aerosols. At the completion of each workday monitoring stations will be downloaded to a computer spreadsheet and stored for historical records.

4.0 DUST CONTROL METHODS

Dust control will be performed as needed during construction activities. Methods of dust control to be utilized include, but are not limited to the following:

- Wetting unpaved roads and exposed soils that are being used for site activities to maintain the moisture content of the top 6 inches at a level, which will minimize dust emissions, but will not create runoff or ponding. Water trucks and fixed stations will be used to control dusting in each area.

- Non-contaminated water will be used for dust control and will be clean, free from oil or other deleterious materials. Chemical based adhesives or salts will not be used.

- Minimize the movement of vehicles and equipment during site activities and minimize the traffic in and out of the area by establishing dedicated access lanes.

- Reduce speed of traffic as required to prevent dusting. Site speed limit will be posted at 10 miles per hour.

- Perform manual cleaning, mechanical sweeping, flushing and general housekeeping on paved road surfaces on-site.

- Minimizing the limits of excavation keeping exposed soils to a minimum.

In the event that dust emissions exceed acceptable limits, the above steps (individually or combined) will be taken, as appropriate to reduce dust levels. In the event that dust is observed leaving the site, suppression methods will be re-evaluated and modified accordingly with the approval of the NYSDEC and the NYSDOH.

Engineering controls such as foam suppressants, surfactants, temporary covers (i.e., tarps), or other appropriate engineering controls and reducing the limits of excavation will be implemented to reduce and control the air born contaminants during excavation activities.

5.0 CONCLUSION

In the event of aerosol emissions exceeding action levels along the property perimeter, notification of the NYSDEC and the NYSDOH consistent with the HASP and TAGM #4031 will be made. Additional procedures and action levels for aerosol monitoring within the work areas are discussed in the HASP.

APPENDIX O

Community Air Monitoring Plan

COMMUNITY AIR MONITORING PLAN

South Island Apartments Site

1 Osgood Avenue/Center Island,

Town of Green Island, Albany County, New York

Prepared for:
South Island Apartments, LLC
c/o Couch White, LPP
540 Broadway, 7th Floor
Albany, New York 12201-2222

Prepared by:

349 Northern Blvd, STE 3
Albany, New York 12204

APRIL 2017

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FIGURE

APPENDIX

1.0 INTRODUCTION

This Community Air Monitoring Plan (CAMP) has been prepared by Envirospec Engineering, PLLC (Envirospec) on behalf of South Island Apartments, LLC (SIA) for the South Island Apartments Site (Site) located at 1 Osgood Avenue/Center Island, Green Island, New York (See Drawing 1-Site Plan).

The property is bounded by Troy/Green Island Bridge and a commercial property to the north and south and by the Hudson River to the east and west of the Site (see Figure 1). The Site is identified on the Albany 2016 Final Tax Map as 33.09 Block 1 Lot 3. According to the tax map, the property comprises approximately 8.9 acres. Land uses in the surrounding area include various commercial and residential uses as shown on Figure 2.

The Site is former petroleum terminal located on the southern portion of Starbuck Island in the Town of Green Island, New York. According to a 2016 Supplemental Site Investigation conducted by Spec Engineering (SPEC), the terminal was demolished between 2008 and 2010. According to the Albany County Assessor, the Site is zoned as vacant - industrial.

This CAMP will be implemented continuously during the excavation of Site soils (or other activities that involve moving existing Site soils around or off the Site) in connection with the investigation, excavation or remediation. Specifically, this CAMP outlines the air quality monitoring procedures to be followed to protect the downwind community (i.e., offsite receptors, including residents and workers) from potential airborne contaminant releases that may be as a direct result of the project excavation activities. This CAMP is consistent with the New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan (included as Appendix A).

Test results of previous sampling activities at the Site indicate that some areas of the Site contain varying levels of metals which exceed the New York State Department of Environmental Conservation (NYSDEC) regulatory guidance levels.

2.0 SOIL INVESTIGATION AND EXCAVATION SCOPE OF WORK

The Project includes a soil boring investigation, excavation of Site soils, construction of a soil cap, underground oil/water separator removal, and the construction of apartment buildings.

When post excavation soil sampling is completed, excavated material will be placed onto a soil staging pad and then loaded into trucks for appropriate offsite disposal.

3.0 AIR MONITORING PROCEDURES FOR INTRUSIVE ACTIVITIES

The following sections describe the specific CAMP monitoring procedures for both particulates and volatile organic compounds. Although VOCs have not been established as a site contaminant of concern, investigation has not been completed and there is the potential for VOCs at the site.

3.1 Particulate Monitoring

Air will be monitored in real-time during the excavation of Site soils (or other activities that involve moving existing Site soils/fill around or off the Site) in connection with the construction of the project or any related excavation or remediation. Air monitoring for particulates (i.e., dust) will be performed continuously during project excavation activities using both air monitoring equipment and visual observations. Monitoring equipment capable of measuring particulate matter smaller than 10 microns (PM-10) and capable of integrating (averaging) over periods of 15 minutes or less, at a minimum, will be set up at one upwind (background) and one downwind location, at heights approximately 4 feet to 5 feet above land surface (i.e., the breathing zone). This equipment will log the 15-minute average concentrations for subsequent downloading and reporting. An audible alarm on the downwind particulate monitoring device will be set at 90 micrograms per cubic meter ($\mu g/m^3$) above the background level (i.e., the upwind location). Upwind concentrations will be measured at the start of each workday and periodically throughout the day thereafter to establish background conditions.

The CAMP coordinator will record the wind direction and speed as described below. These readings will allow the CAMP coordinator to ensure that CAMP equipment is located appropriately based upon the wind direction. The particulate monitoring equipment will be calibrated at the start of each day and as necessary throughout the day.

The monitoring results will be compared to the following:

- If the downwind PM-10 particulate level is 100 $\mu g/m^3$ greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area and/or site perimeter, then dust suppression techniques shall be employed. Work may continue with dust suppression techniques, provided that downwind PM-10 particulate levels do not exceed 150 $\mu g/m^3$ above the upwind level and provided that no visible dust is migrating from the work area and/or site perimeter. (Dust suppression techniques will

also be applied in other circumstances as described in the Health and Safety Plan (HASP) and in Appendix N of the HASP.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 µg/m^3 above the upwind level, work shall be reevaluated and changes initiated to reduce particulate levels to less than 150 µg/m3 above background conditions and to prevent visible dust migration, including work stoppage if necessary.

Meteorological Data - Meteorological data consisting of wind speed, wind direction, temperature, and barometric pressure will be recorded at a minimum of three times each day. These results will be utilized to position the particulate monitoring equipment in appropriate upwind and downwind locations.

Potential Suppression Techniques - If the integrated particulate level at the downwind location exceeds the upwind level by more than 100 µg/m^3 at any time during intrusive activities, then dust suppression techniques will be employed as outlined in Appendix N of the HASP.

Work may continue with dust suppression techniques, provided that downwind PM-10 levels are not more than 150 µg/m^3 greater than the upwind levels; all measures necessary to ensure PM-10 levels of less than 150 µg/m^3 above background will be utilized. Dust suppression measures to be employed have been detailed in the HASP.

There may also be situations where visible dust is generated by excavation activities and migrates to downwind locations but is not detected by the monitoring equipment at or above the action levels. Therefore, if visible dust is observed leaving the working area and/or site perimeter, dust suppression techniques such as water trucks and stockpile covering will be implemented.

If dust suppression techniques do not lower particulates to below 150 µg/m^3 or visible dust persists, additional measures, including work suspension if necessary, will be implemented to remedy the situation.

All air monitoring data, meteorological data, and the locations of monitoring equipment will be recorded in the onsite files and will be available for NYSDEC and NYSDOH review.

3.2 Volatile Organic Compound Monitoring

Volatile organic compounds (VOCs) will be monitored at the downwind perimeter of the immediate work area and/or Site perimeter on a continuous basis. The VOC monitoring component of the CAMP will only be implemented at work areas that are known or suspected to contain VOCs. Upwind concentrations will be measured at the start of each workday and periodically thereafter (not less than three times per day) to establish background conditions. The monitoring will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present (Minirae 2000 Photoionization detector or equivalent). The equipment will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

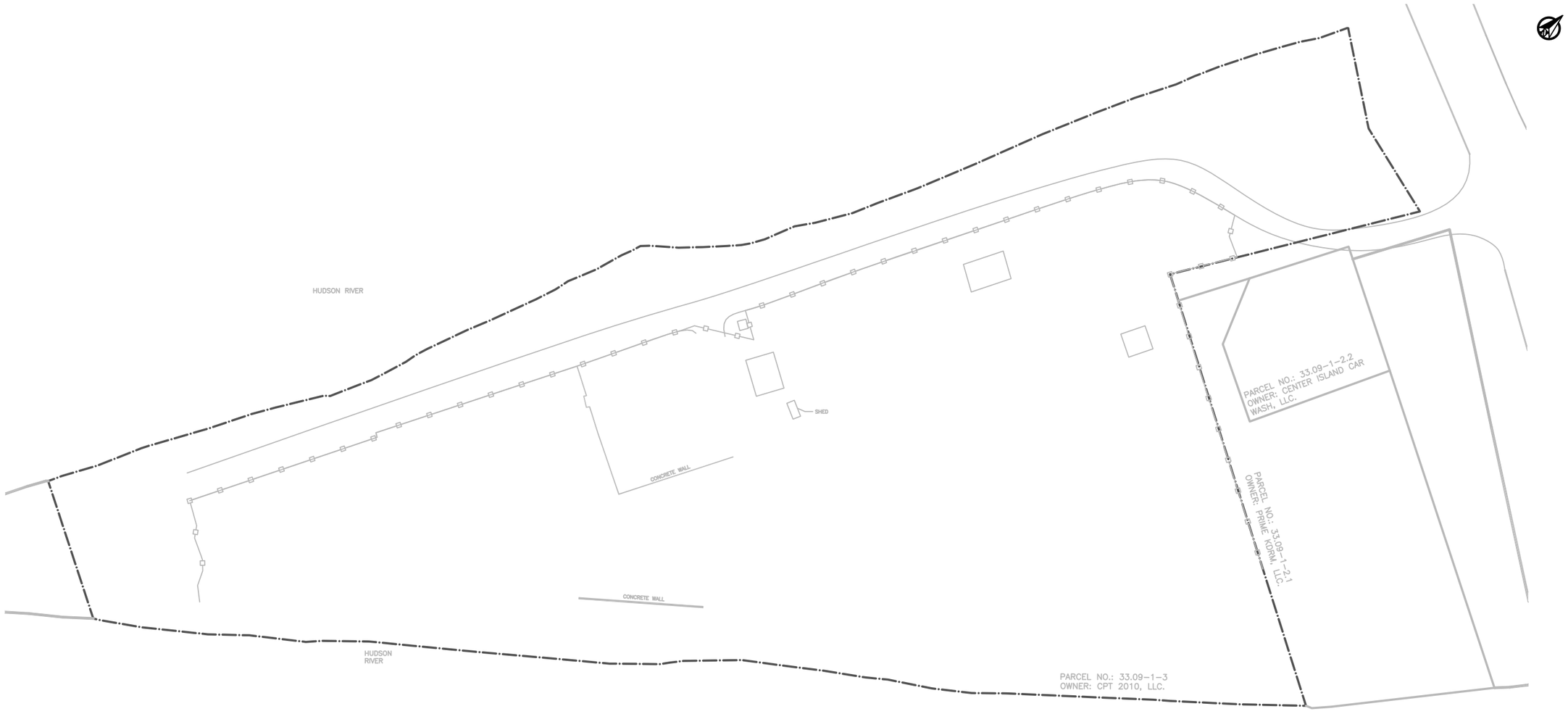
- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or Site perimeter exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted in the area of concern and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or Site perimeter persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities in the area of concern must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level at the downwind perimeter of the work area or Site perimeter is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is more than 25 ppm above background at the downwind perimeter of the work area or Site perimeter, activities must be halted in the area of concern until corrective measures are identified and implemented to reduce emissions as described above.

All air monitoring data and the locations of monitoring equipment will be recorded in the onsite files and will be available for NYSDEC and NYSDOH review.

Site Plans



LEGEND

SUBJECT PARCEL BOUNDARY

FENCE

ENVIROSPEC PROJECT #E17-1600

envirospec ENGINEERING, PLLC
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ALBANY, NY 12204-1032
P:518.453.2203
F:518.453.2204

W.O.	No.	REVISION	DATE	APR.

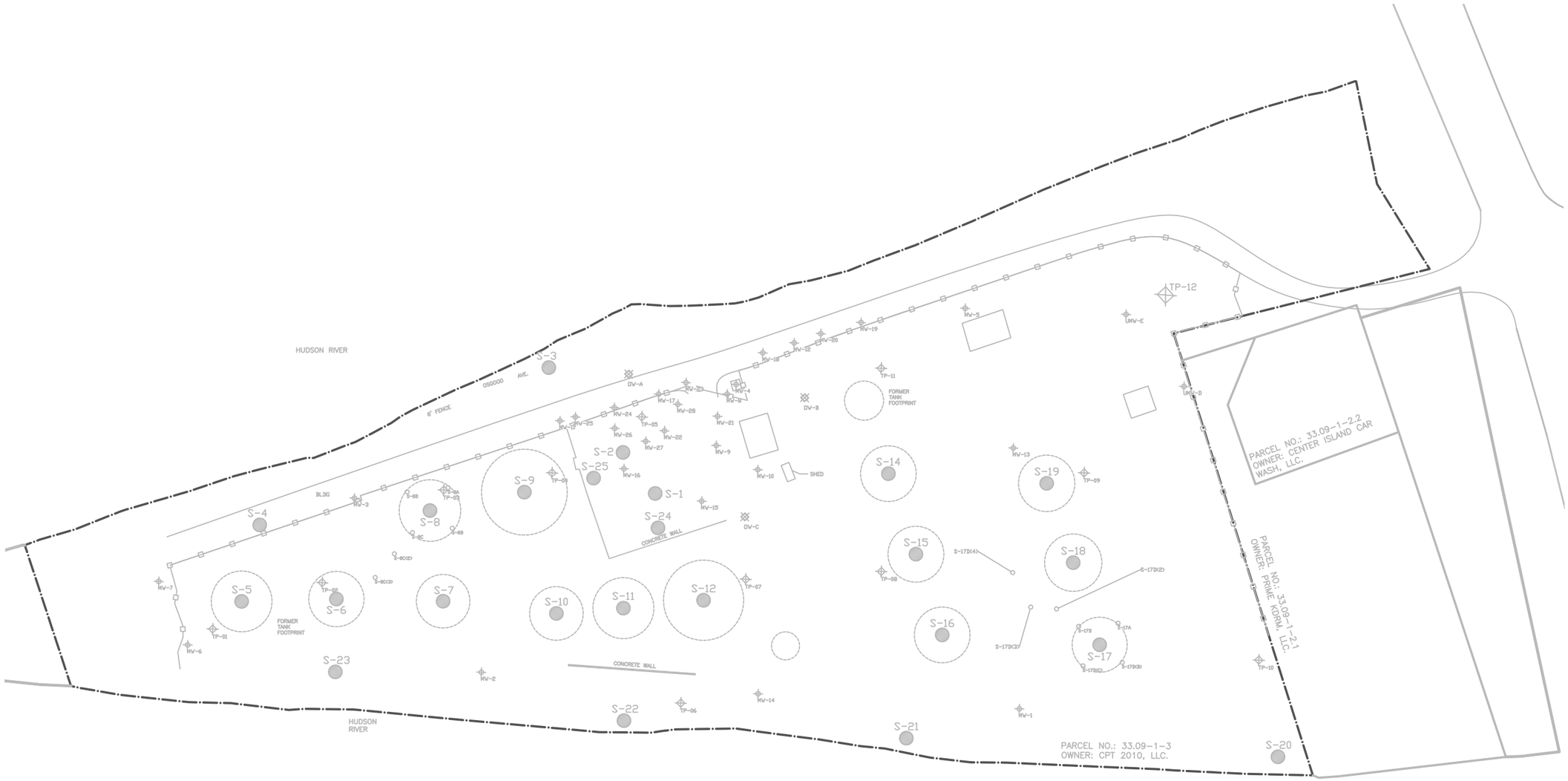
DRAWING STATUS: FOR REFERENCE ONLY

SOUTH ISLAND APARTMENTS SITE
1 OSGOOD AVENUE/CENTER ISLAND,
TOWN OF GREEN ISLAND, ALBANY COUNTY, NEW YORK

DESIGN
DRAWN
CHECKED

SOUTH ISLAND APARTMENTS, LLC
SOUTH ISLAND APARTMENTS SITE
SITE PLAN

SCALE: NTS | DRAWING No.: S1 | SHEET | REV. No.



LEGEND

- SUBJECT PARCEL BOUNDARY
- MONITORING WELL
- OBSERVATION WELL
- FENCE
- FORMER TANK FOOTPRINT
- 2010 SOIL BORING SAMPLES
- 2008 SOIL BORING SAMPLES
- 2016 TEST PIT

NOTE:
1. CONCENTRATIONS LISTED EXCEED THE NYCRR PART 375 RESTRICTED RESIDENTIAL SOIL CLEANUP OBJECTIVE STANDARDS (RRSCOS).
2. MONITORING WELLS MW-1, 2, 3, 5, 10 AND 23 TO BE RESAMPLED.

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W.O.	No.	REVISION	DATE	BY	APR.

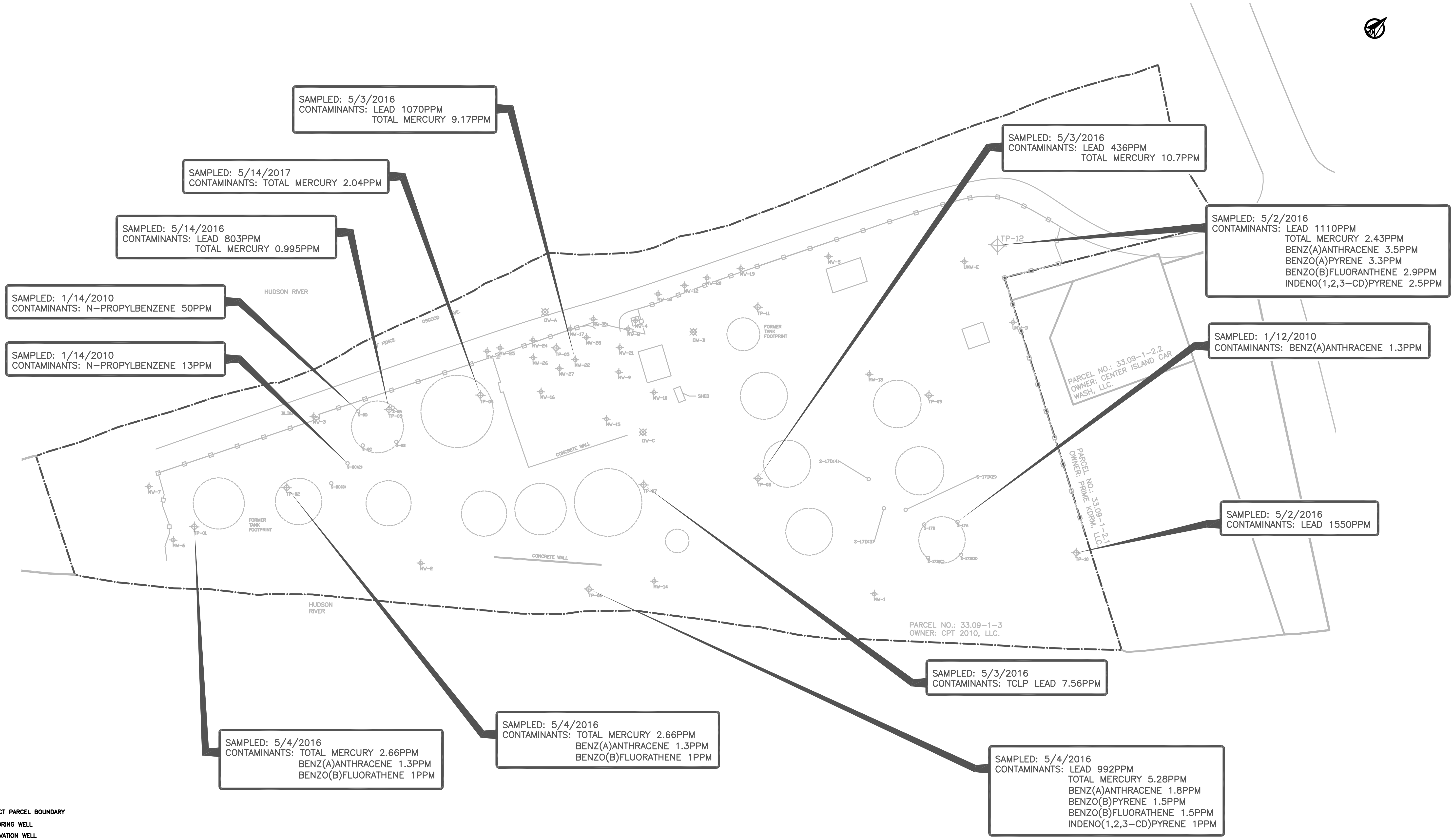
DRAWING STATUS: FOR REFERENCE ONLY

SOUTH ISLAND APARTMENTS SITE
1 OSGOOD AVENUE/CENTER ISLAND,
TOWN OF GREEN ISLAND, ALBANY COUNTY, NEW YORK

DRAWN: -
CHECKED: -
APPROVED: -

SOUTH ISLAND APARTMENTS, LLC
SOUTH ISLAND APARTMENTS SITE
HISTORICAL SOIL & GROUNDWATER SAMPLING LOCATIONS

SCALE	DRAWING NO.	SHEET	REV. NO.
NTS	S2		


SAMPLED: 5/3/2016
CONTAMINANTS: LEAD 1070PPM
TOTAL MERCURY 9.17PPM
SAMPLED: 5/14/2017
CONTAMINANTS: TOTAL MERCURY 2.04PPM
SAMPLED: 5/14/2016
CONTAMINANTS: LEAD 803PPM
TOTAL MERCURY 0.995PPM
SAMPLED: 1/14/2010
CONTAMINANTS: N-PROPYLBENZENE 50PPM
SAMPLED: 1/14/2010
CONTAMINANTS: N-PROPYLBENZENE 13PPM
SAMPLED: 5/3/2016
CONTAMINANTS: LEAD 436PPM
TOTAL MERCURY 10.7PPM
SAMPLED: 5/2/2016
CONTAMINANTS: LEAD 1110PPM
TOTAL MERCURY 2.43PPM
BENZ(A)ANTHRACENE 3.5PPM
BENZO(A)PYRENE 3.3PPM
BENZO(B)FLUORANTHENE 2.9PPM
INDENO(1,2,3-CD)PYRENE 2.5PPM
SAMPLED: 1/12/2010
CONTAMINANTS: BENZ(A)ANTHRACENE 1.3PPM
SAMPLED: 5/2/2016
CONTAMINANTS: LEAD 1550PPM
SAMPLED: 5/3/2016
CONTAMINANTS: TCLP LEAD 7.56PPM
SAMPLED: 5/4/2016
CONTAMINANTS: TOTAL MERCURY 2.66PPM
BENZ(A)ANTHRACENE 1.3PPM
BENZO(B)FLUORATHENE 1PPM
SAMPLED: 5/4/2016
CONTAMINANTS: TOTAL MERCURY 2.66PPM
BENZ(A)ANTHRACENE 1.3PPM
BENZO(B)FLUORATHENE 1PPM
SAMPLED: 5/4/2016
CONTAMINANTS: LEAD 992PPM
TOTAL MERCURY 5.28PPM
BENZ(A)ANTHRACENE 1.8PPM
BENZO(B)PYRENE 1.5PPM
BENZO(B)FLUORATHENE 1.5PPM
INDENO(1,2,3-CD)PYRENE 1PPM
HUDSON RIVER
HUDSON RIVER
PARCEL NO.: 33.09-1-2.2
OWNER: CENTER ISLAND CAR WASH, LLC.
PARCEL NO.: 33.09-1-2.1
OWNER: PRIME KORM, LLC
PARCEL NO.: 33.09-1-3
OWNER: CPT 2010, LLC.
CONCRETE WALL
CONCRETE WALL
FORMER TANK FOOTPRINT
SHED

LEGEND

- SUBJECT PARCEL BOUNDARY
- MONITORING WELL
- OBSERVATION WELL
- FENCE
- FORMER TANK FOOTPRINT
- 2010 SOIL BORING SAMPLES
- 2016 TEST PIT

NOTE:
1. CONCENTRATIONS LISTED EXCEED THE NYCRR PART 375 RESTRICTED RESIDENTIAL SOIL CLEANUP OBJECTIVE STANDARDS (RRSCOS).
2. MONITORING WELLS, OBSERVATION WELLS, AND FORMER TANK FOOTPRINTS AS OF JULY 2016.

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W.O.	No.	REVISION	DATE	DRN.	APR.

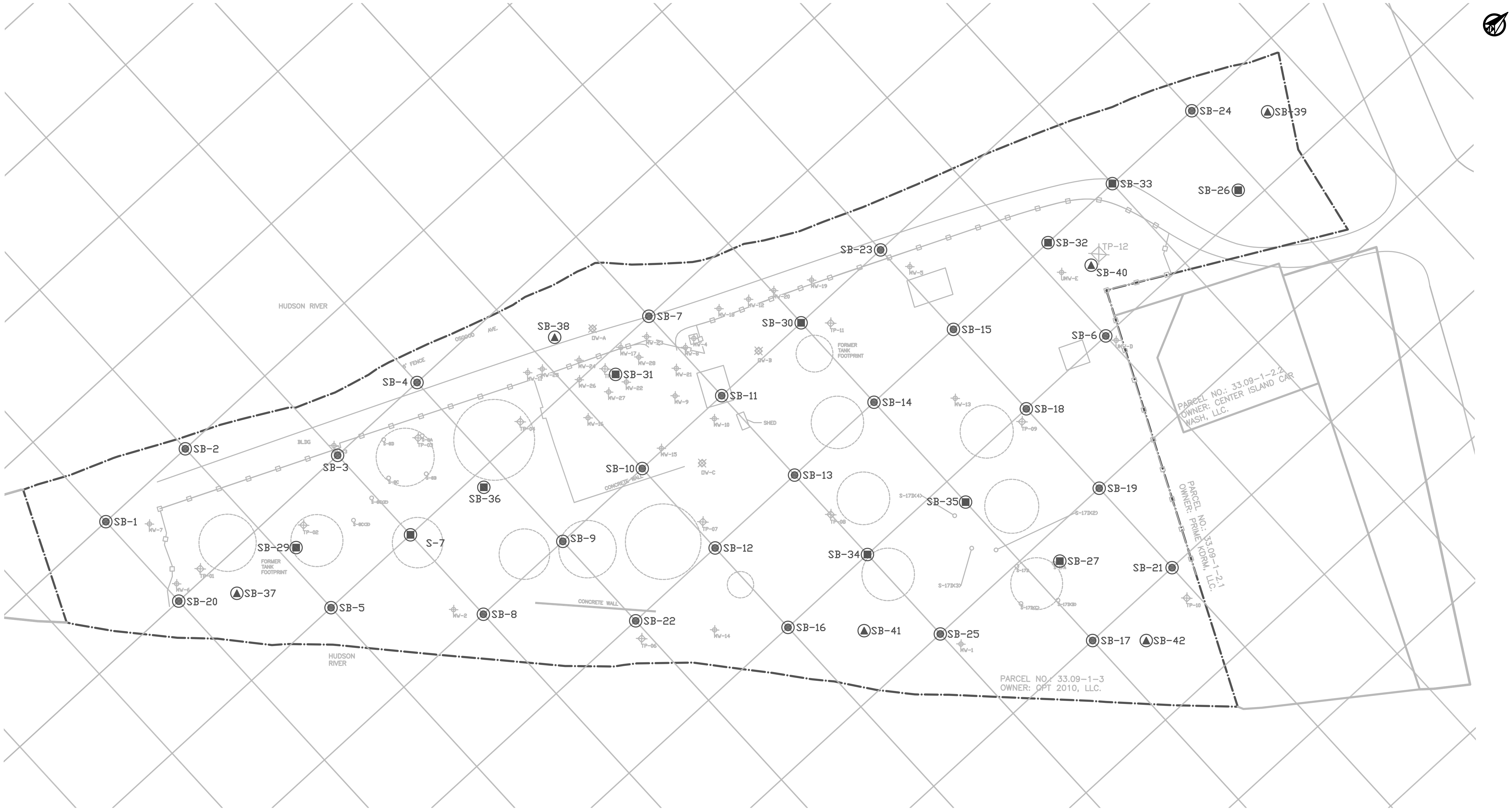
DRAWING STATUS: FOR REFERENCE ONLY

SOUTH ISLAND APARTMENTS SITE
1 OSGOOD AVENUE/CENTER ISLAND,
TOWN OF GREEN ISLAND, ALBANY COUNTY, NEW YORK

DRAWN BY: -

SOUTH ISLAND APARTMENTS, LLC
SOUTH ISLAND APARTMENTS SITE
HISTORICAL SOIL & GROUNDWATER SAMPLING RESULTS

SCALE: NTS | DRAWING No.: S3



LEGEND

- SUBJECT PARCEL BOUNDARY
- FENCE
- FORMER TANK FOOTPRINT
- MONITORING WELL
- 2010 SOIL BORING SAMPLES
- 2016 TEST PIT
- RI SOIL BORINGS (SB1 – SB25)
- IRM EXCAVATION SOIL BORINGS (SB26 – SB36)
- OPEN AREA SOIL BORINGS (SB37 – SB42)

NOTE:
1. MONITORING WELLS, OBSERVATION WELLS, AND FORMER TANK FOOTPRINTS AS OF JULY 2016.

ENVIROSPEC PROJECT #E17-1600

envirospec ENGINEERING, PLLC
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W.O.	No.	REVISION	DATE	DRN.	APR.

DRAWING STATUS
FOR REFERENCE ONLY

SOUTH ISLAND APARTMENTS SITE
1 OSGOOD AVENUE/CENTER ISLAND,
TOWN OF GREEN ISLAND, ALBANY COUNTY, NEW YORK

DRAWN BY: –
DRAWING MGR:

SOUTH ISLAND APARTMENTS, LLC
SOUTH ISLAND APARTMENTS SITE
PROPOSED REMEDIAL INVESTIGATION/PRELIMINARY IRM EXCAVATION SAMPLING PLAN

SCALE	DRAWING No.	SHEET	REV. No.
NTS	PR–1		

APPENDIX A
NYSDOH Generic Community Air Monitoring Plan

APPENDIX 1A

New York State Department of Health
Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

CommunityAir Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.